Condor Battery Energy Storage Facility

Initial Study and
Mitigated Negative Declaration

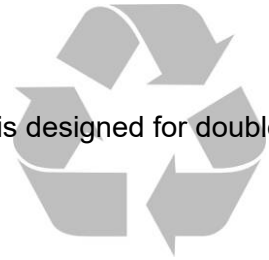
Lead Agency:

City of Grand Terrace
Planning and Development Services
22795 Barton Road
Grand Terrace, California 92313

Prepared by:

MIG, Inc.
1650 Spruce Street, Suite 106
Riverside, California 92507

October 13, 2021



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1 Introduction

The City of Grand Terrace (Lead Agency) received an application for a Conditional Use Permit (CUP 20-03), Variance (V 21-01), Environmental Review (E 20-09), and Site and Architectural Review (SA 20-09) from Condor Energy Storage, LLC (Project Applicant) for construction and operation of a 200-megawatt Battery Energy Storage System (BESS) facility on a 9.86-acre site (APN# 1167-151-77-0000) in the City of Grand Terrace, California. The approval of the application for the energy storage facility constitutes a project that is subject to review under the California Environmental Quality Act (CEQA) 1970 (Public Resources Code §§ 21000, *et seq.*), and the CEQA Guidelines (14 California Code of Regulations §§ 15000, *et. seq.*).

This Initial Study was prepared to assess the short-term, long-term, and cumulative environmental impacts that could result from the Project.

This report was prepared to comply with CEQA Guidelines § 15063, which sets forth the required contents of an Initial Study. These include:

- A description of the Project, including the location of the Project (See Section 2);
- Identification of the environmental setting (See Section 2.9;
- Identification of environmental effects by use of a checklist, matrix, or other methods, provided that entries on the checklist or other form are briefly explained to indicate that there is some evidence to support the entries (See Section 4);
- Discussion of ways to mitigate significant effects identified, if any (See Section 4);
- Examination of whether the Project is compatible with existing zoning, plans, and other applicable land use controls (See Section 4.11; and
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study (See Section 6.

1.1 – Purpose of CEQA

CEQA § 21000 of the California Public Resources Code provides as follows:

The Legislature finds and declares as follows:

a) The maintenance of a quality environment for the people of this state now and in the future is a matter of statewide concern.
b) It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.
c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.
d) The capacity of the environment is limited, and it is the intent of the Legislature that the government of the state take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.
e) Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.
f) The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.

g) It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.

The Legislature further finds and declares that it is the policy of the state to:

h) Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.
i) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.
j) Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.
k) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.
l) Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.
m) Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.
n) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

A concise statement of legislative policy, with respect to public agency consideration of Projects for some form of approval, is found in CEQA § 21002, quoted below:

> The Legislature finds and declares that it is the policy of the state that public agencies should not approve Projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such Projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of Projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such Project alternatives or such mitigation measures, individual Projects may be approved in spite of one or more significant effects thereof.

1.2 – Public Comments

Comments from all agencies and individuals are invited regarding the information contained in this Initial Study. Such comments should explain any perceived deficiencies in the assessment of impacts, identify the information that is purportedly lacking in the Initial Study or indicate where the information may be found. All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact:

Steven Weiss, AICP, Planning and Development Services Director
Planning and Development Services
22795 Barton Road
Grand Terrace, California 92313
909-824-6621 Ext. 225

Following a 30-day period of circulation and review of the Initial Study, all comments will be considered by the City of Grand Terrace prior to adoption. All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact the Planning and Development Services Department.

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2 Project Description

2.1 – Project Title

Condor Battery Energy Storage System (BESS) Facility ("Project")

2.2 – Lead Agency Name and Address

City of Grand Terrace
Planning and Development Services Department
22795 Barton Road
Grand Terrace, California 92313
909-824-6621

2.3 – Contact Person and Phone Number

Steven A. Weiss, AICP, Planning and Development Services Director
909-824-6621 Ext. 225

2.4 – Project Location

The Project site is located at Assessor's Parcel Number: 1167-151-77-0000, in the City of Grand Terrace, San Bernardino County, California (See Exhibit 1, Regional Context Map). The Project site is comprised of a single undeveloped parcel totaling approximately 9.86 acres generally located at the northwest corner of Main Street and Taylor Street (See Exhibit 2, Project Vicinity Map).

- Latitude 34° 01' 13.35" North, Longitude 117° 19' 56.26" West
- APN 1167-151-77-0000

2.5 – Project Sponsor's Name and Address

Condor Energy Storage, LLC
452 Fifth Avenue, 29th Floor
New York, New York 10018

2.6 – General Plan Land Use Designation

Industrial

2.7 – Zoning District

M2 - Industrial

2.8 – Surrounding Land Uses

The Project site is bound by Main Street to the south, Taylor Street to the east, the BNSF/Metrolink Inland Empire railroad line to the west, and Southern California Edison's (SCE) Highgrove Substation to the north. To the south of the Project site, on the opposite side of Main Street, are light industrial uses in the unincorporated neighborhood of Highgrove. To the east of the Project site, on the opposite

side of Taylor Street, is Grand Terrace High School, Colton Joint Unified School District. To the west of the Project site, on the opposite side of the railroad tracks, is a recycling center. Surrounding uses and land use designations are summarized in Table 1 (Surrounding Land Uses).

Table 1
Surrounding Land Uses

Direction	General Plan Designation	Zoning District	Existing Land Use
Project Site	Industrial	M2-Industrial	Vacant
North	Industrial	M2-Industrial	Highgrove Substation SCE/Riverside Canal Power Co.
South	Light Industrial (Highgrove)	Light Industrial (Highgrove)	Industrial/Truck Trailer Storage
East	Public; General Commercial	MR - Restricted Manufacturing	Grand Terrace High School
West	Industrial	M2-Industrial	Safe Way Recycling

2.9 – Environmental Setting

The Project site is currently mostly vacant and undeveloped with the exception of an approximately 4,000- square foot building at the southeast corner of the site that was formerly used as part of the Highgrove Substation to the north. However, this building is no longer in use. The northeastern corner of the Project site was previously developed with industrial uses. The remainder of the Project site historically functioned as Cage Park and contains ornamental tree species consistent with this use. A concrete drainage extends from the southeast to the central portion of the site. A mixed ornamental and riparian woodland patch lies in the northwestern corner. There is an ephemeral stream extending from the eastern boundary of the Project site to connect with an unnamed tributary of the Santa Ana River to the west. The Project site is relatively flat with an elevation ranging between approximately 940 to 951 feet above mean sea level (AMSL), and slopes from southeast to northwest.

2.10 – Project Description

The Project will consist of lithium-ion energy batteries installed on racks, inverters, switchgear, and other associated equipment to directly interconnect into the Southern California Edison (SCE) Highgrove Substation (point of interconnection) located immediately adjacent to the north of the Project site (See Exhibit 3, Site Plan). The site immediately adjacent to the north of the Project site is also the former location of the Highgrove Steam Plant, which was constructed in 1951 and mostly deconstructed by the year 2010 (See Exhibit 4 Project Renderings). Only a few structures remain from the original Highgrove Steam Plant and act to serve the existing Highgrove Substation. The proposed Project will interconnect with the Highgrove Substation via an enclosed transformer substation area located at the north-central portion of the Project site. The 0.42-acre enclosed transformer substation area includes a 34.5 kV/115kV main power transformer, a substation control enclosure, a switch and gear station, a 50-foot tall static mast for lightning, and a 40-foot tall overhead interconnection tower (See Exhibit 5, Project Elevations). Because the static mast and overhead interconnection tower will exceed the maximum allowable height of thirty-five (35) for the M-2 zone, the Project includes a Variance (V 21-01). The proposed lithium-ion batteries will be installed in purpose-built containers, which will be designed for aesthetic compatibility with the surrounding area (See Exhibit 6, Energy Storage Equipment). The structures will have battery storage racks separated

with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC will be located outside the purpose-built containers, along with transformers to step up the voltage. The proposed facility will provide a service by receiving energy (charging) from the transmission system via the Highgrove Substation, storing energy, and then later delivering energy (discharging) back to the point of interconnection. The facility is intended to operate year-round and will be available to receive or deliver energy 24 hours a day, 365 days a year.

There is an approximately 4,000-square foot corrugated metal building located in the southeastern portion of the Project site that would be demolished in order to develop the proposed Project. The proposed Project includes the following components:

Battery Energy Storage System Facility

The energy storage batteries will be housed in containers or purpose-built cabinets/cubes. The BESS facility will be designed and installed in conformance with the nationally recognized National Fire Protection Association (NFPA) 855 Standard for the Installation of Stationary Energy Storage Systems, along with all applicable state and County fire protection requirements. The facility will not be staffed, with remote operational control and periodic inspections and maintenance performed, as necessary.

Batteries and Racks

The lithium-ion batteries will be housed in racks similar to common computer server racks. The racks are typically made of aluminum, but sometimes may be composed of steel. The proposed facility will use a lithium-ion technology that has a long lifespan.

Fire Protection and Fire Suppression Features

The Applicant intends to use batteries that are UL certified and include built-in fail-safes and multi-layered fire protection features designed to prevent thermal runaway and the spread of fire. A Project fire protection plan and fire suppression plan will be established to ensure fire safety on the Project site.

Highgrove Substation Interconnection

The BESS facility will store energy and will be interconnected to the Highgrove Substation located immediately adjacent to the northwestern project limits. The interconnection will be an overhead connection to the Highgrove Substation. An additional bay and related interconnection facilities similar to what is currently constructed will likely be constructed within the Highgrove Substation. The Project will include the SCE Interconnection Facility improvements listed below at the Highgrove Substation.

- New facilities for a new 115 kV switchrack position to include the following: one (1) 115 kV dead-end structure; three (3) 115 kV voltage transformers with steel pedestal support structures; and, three (3) 115 kV line drops.
- Two (2) line current differential relays, to be specified during final engineering.
- Telecommunication infrastructure, including the following: lightwave, channel banks, and associated equipment; supporting line protection and the TRU requirements for interconnection; fiber optic cable, including conduit and vaults to extend telecommunications into the communication room.

- Metering facilities to meter the charging demand at the generating facility.

The Project will also include the following Distribution Upgrades:

a. Highgrove Substation
   i. Install one (1) 115 kV line position which includes the following equipment:
      1. Two (2) 115 kV circuit breakers
      2. One (1) 115 kV group operated disconnect switch with grounding attachment
      3. Three (3) 115 kV group operated disconnect switches
b. Distributed Energy Resource Management System (DERMS).
   i. Add Project to DERMS

Outdoor Electrical Equipment

Switchgear and additionally required electrical equipment would be installed. Depending on the battery manufacturer, inverters could be located either inside or outside the BESS structures. Underground wires and cabling would run from the battery cable collection box (inside the structure) to a concrete pad housing the electrical equipment. All outside electrical equipment would be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures. All outside electrical cabling would be run underground.

Inverters

Inverters will be unattended, stand-alone units that operate in all conditions. They operate in both a charge mode and a discharge mode. They are UL listed for bi-directional use and are monitored and controlled remotely. There would be on-site disconnects in the case of an emergency or unscheduled maintenance. In the case of any grid disturbance on the SCE side, the inverters would not operate until they are remotely turned back on or the grid instability is stabilized for a set length of time. In the discharge mode, they are turned on remotely and controlled by internal circuitry and power control software at the facility. They are designed to last more than 30 years.

Telecommunications Facilities

The proposed Project would also require telecommunication facilities to meet the communication requirements for interconnecting with the SCE facilities and to support remote Project operations monitoring. To provide for communication with SCE facilities, a fiber-optic cable would be placed along the line connecting the Project site generation step-up (GSU) transformer with the SCE point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the Project footprint.

The Project would use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project would connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers. The cabinet holding the connection equipment would have a base of approximately 4 feet by 2 feet and would be approximately 5 feet in height. From the point of demarcation, a fiber-optic cable would be installed within the Project footprint to connect the cabinet to the Supervisory Control and Data Acquisition (SCADA) equipment.

The SCADA system is critical to the California Independent System Operator (CAISO) and SCE utility interconnection, and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave

communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing the labor and site diagnostic information generated from the panels. The SCADA system would also control the substations, allowing for fully centralized operation of the project to meet all CAISO and utility interconnection requirements.

Site Access and Security

The Project would be accessed directly from Main Street or Taylor Road. No new roads would be required to provide access to the Project site. The Project will have its main entrance along Main Street. Decorative block walls would be installed along the southern and eastern site boundaries and wrought iron fencing would be installed along the western and northern site boundaries for safety and security purposes. All wall and fencing installation requirements would be evaluated, and the best-fit scenario would be incorporated on the Project site based on the City's final determination. The decorative block wall and fencing would be approximately 9 feet tall and would remain for the life of the Project. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation areas and points of ingress/egress. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties.

Construction Schedule and Workforce

The construction of the proposed Project will last between 8 to 10 months. Construction activities for the proposed Project generally fall into three main categories: (1) site preparation; (2) system installation; and (3) testing, commissioning, and cleanup. Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 6:00 p.m., as required to meet the construction schedule. Any construction work performed outside the normal work schedule would be coordinated with the appropriate agencies and would conform to City regulations.

The on-site construction workforce is expected to peak at up to 75 individuals; however, the average daily workforce is expected to be approximately 50 construction, supervisory, support, and construction management personnel on site during construction. It is anticipated that the construction workforce would commute to the site each day from local communities and report to the designated construction staging yards prior to the beginning of each workday. Construction staff not drawn from the local labor pool would stay in local hotels in Riverside, San Bernardino, or other local communities. Deliveries of equipment and materials would generate an estimated five round-trips per day during peak construction periods.

Site Grading and Earthwork

Construction activities are expected to include excavation and grading of the Project site. Site preparation and construction would occur in accordance with all federal, state, and City zoning codes and requirements. Noise-generating construction activities would be limited to Monday through Friday, between 7:00 a.m. and 6:00 p.m. The site is located in a primarily industrial area, with residential neighborhoods located across Main Street approximately 0.10 miles (260 feet) southeast and southwest of the Project site. The contractor would conduct construction activities in such a manner that the maximum noise levels at the affected buildings would not exceed established noise levels. It is estimated that site grading and preparation would require the equipment listed in Table 2 (Site Grading and Preparation Equipment).

Table 2
Site Grading and Preparation Equipment

Equipment Type	Quantity
Bulldozer (e.g., CAT D7)	1
Grader (e.g., CAT D7)	1
Scraper (15-30 cubic yard)	2
Water Truck (3,000-5,000 gallon)	1
Self-Propelled Compactor	1
Dump Truck	1
Tractor/Loader/Backhoe (e.g., Case 590)	1
Bobcat	1
Source: Dudek, October 2020.	

All applicable local, state, and federal requirements and best management practices (BMPs) would be incorporated into the construction activities for the Project site. Beginning work on the Project site would involve preparing the land for installation of the BESS-related infrastructure, access driveways, and temporary construction staging areas. The construction contractor would be required to incorporate BMPs consistent with the City zoning ordinance and with guidelines provided in the California Stormwater Quality Association's Construction Best Management Practice Handbook (CASQA 2019), as well as a soil erosion and sedimentation control plan to reduce potential impacts related to construction of the proposed Project. Prior to initial construction mobilization, pre-construction surveys would be performed, and sediment and erosion controls would be installed in accordance with City and state guidelines. Stabilized construction entrances and exits would be installed at driveways to reduce tracking of sediment onto adjacent public roadways.

Site preparation would be consistent with South Coast Air Quality Management District (SCAQMD) rules for dust control. Site preparation would involve the removal and proper disposal of existing vegetation and debris that would unduly interfere with Project construction or the health and safety of on-site personnel. Dust-minimizing techniques would be employed, such as maintaining natural vegetation where possible, using a mow-and-roll vegetation clearance strategy, placement of wind control fencing, application of water, and application of dust suppressants. Conventional grading would be performed throughout the Project site but minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Soil movement from grading would be balanced on the site, and no import or export of soils would occur.

Trenching would be required for placement of underground electrical and communication lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment, and water trucks. After preparation of the site, the pads for structures, equipment enclosures, and equipment vaults would be prepared per geotechnical engineer recommendations. The switchyard areas would have a grounding grid installed and would be covered with aggregate surfacing for safe operation. During this work, there would be multiple crews working on the site with various equipment and vehicles, including special vehicles for transporting the batteries and other equipment. As the BESS structures are constructed, the electrical collection and communication systems would be installed. The wiring would connect to the appropriate electrical and communication terminations and the circuits would be checked and commissioned prior to operation.

Stormwater Drainage

The Project will include two separate stormwater detention ponds, one in the north-central portion of the site to the east of the riparian wetland area, and the second in the west-central portion of the site to the south of the riparian wetland area. Together these two detention ponds will comprise approximately 0.17 acres of the site. Once the proposed Project is constructed approximately 48 percent of the site will be comprised of impervious surfaces. During operation stormwater will be collected on-site and diverted to one of the two proposed stormwater detention ponds where it will be treated before being discharged into the municipal storm drain system in Main Street.

Operations and Maintenance Activities

Typical operations and maintenance activities that would occur on the project site during operation include, but are not limited to, liaison and remote monitoring, administration and reporting, semi-annual and annual services, remote operations of inverters, site security and management, and additional communication protocols, as well as repair and maintenance of the BESS facility, electrical transmission lines, and other Project facilities. The Project is expected to charge and discharge daily, upon SCE grid demand and would be remotely operated in conjunction with SCE's sub-transmission system demands. It is anticipated that primary charging would take place during the peak of the day, when there is excess solar capacity, and would be discharged in the evening, when the sun is going down. The electrical equipment; heating, ventilation, and air conditioning; fire protection systems; and security would be automated and monitored remotely. The site would be unoccupied and remotely operated but visited periodically for equipment inspections, monitoring and testing, security, landscaping, and maintenance as needed. Periodically, batteries and various components would be replaced or renewed to ensure optimal operation. Stormwater would be treated in accordance with County requirements. Outdoor equipment would be sealed or enclosed and would not affect stormwater quality.

Solid and Nonhazardous Waste

The Project would produce a small amount of waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning modules, electrical materials, empty containers, and other miscellaneous solid waste, including the typical refuse generated by workers. Most of these materials would be collected and delivered back to the manufacturer or to recyclers. Non-recyclable waste would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

Hazardous Materials

Limited amounts of hazardous materials would be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based and/or lithium-ion batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the Project. A spill prevention control and countermeasures plan would be developed for site operations.

Hazardous Waste

Fuels and lubricants used in operations would be subject to the spill prevention control and countermeasures plan to be prepared for the proposed project. Solid waste, if generated during operations, would be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

Security and Lighting

The proposed Project would be fenced to help prevent access by the public. Gates would be installed at the road entrance(s). Limiting access to the Project site is necessary both to ensure the safety of the public and to protect the equipment from potential theft and vandalism. The Project's lighting system would provide operations and maintenance personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Additionally, lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass.

Decommissioning

At the end of the proposed Project's operational term, the Applicant may determine that the Project site should be decommissioned and deconstructed, or it may seek an extension of its conditional use permit. The proposed Project would include BMPs to ensure the collection and recycling of batteries and to avoid the potential for batteries to be disposed of as municipal waste. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and would be in accordance with all applicable federal, state, and City regulations. Following the expiration of a power purchase agreement for the proposed Project, the Applicant may, at its discretion, choose to enter into subsequent power purchase agreements or to decommission and remove the facility and its components. The Project site could then be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during Project decommissioning, Project structures would be removed from the ground on the Project site. Aboveground equipment that would be removed includes inverters, transformers, electrical wiring, and equipment on the inverter pads. Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off site to be recycled or disposed of at an appropriately licensed disposal facility. Site infrastructure would be removed, including the fences and the concrete pads that may support the inverters, transformers, and related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. The fencing and gates would be removed, and all materials would be recycled to the extent feasible. The area would be thoroughly cleaned, and all debris would be removed. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

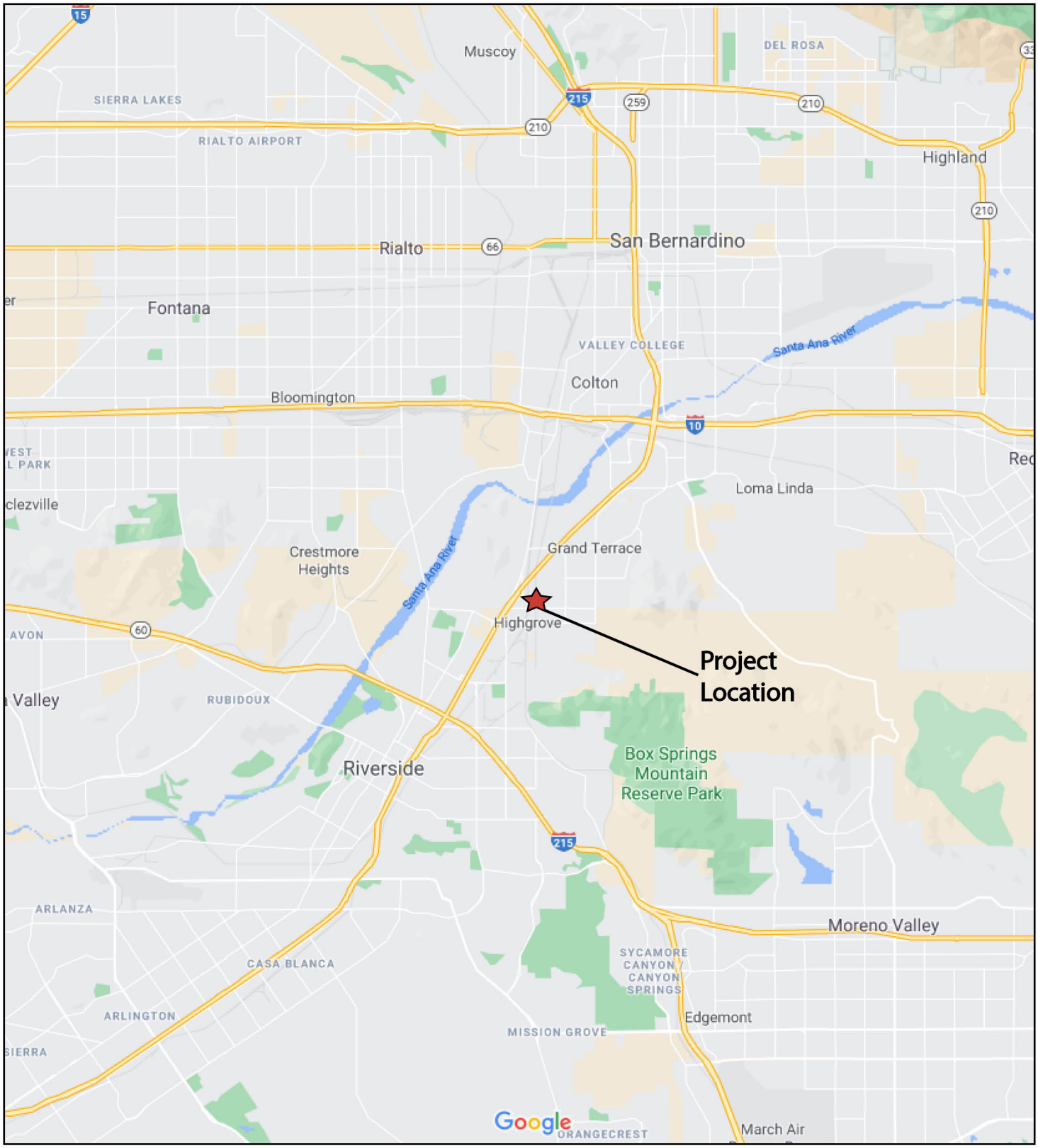
2.11 – Required Approvals

The Project will require the following approvals:

- Conditional Use Permit (CUP 20-03)
- Variance (V 21-01) for Height Exceedance
- Environmental Review (E 20-09)
- Site and Architectural Review (SA 20-09)

2.12 – Other Public Agency Whose Approval is Required

- None.



Source: Google Maps

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Exhibit 1 Regional Context Map

Condor Energy Storage Project
Grand Terrace, California

http://www.migcom.com • 951-787-9222

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Source: Google Earth

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Exhibit 2 Project Vicinity Map

Condor Energy Storage Project
Grand Terrace, California

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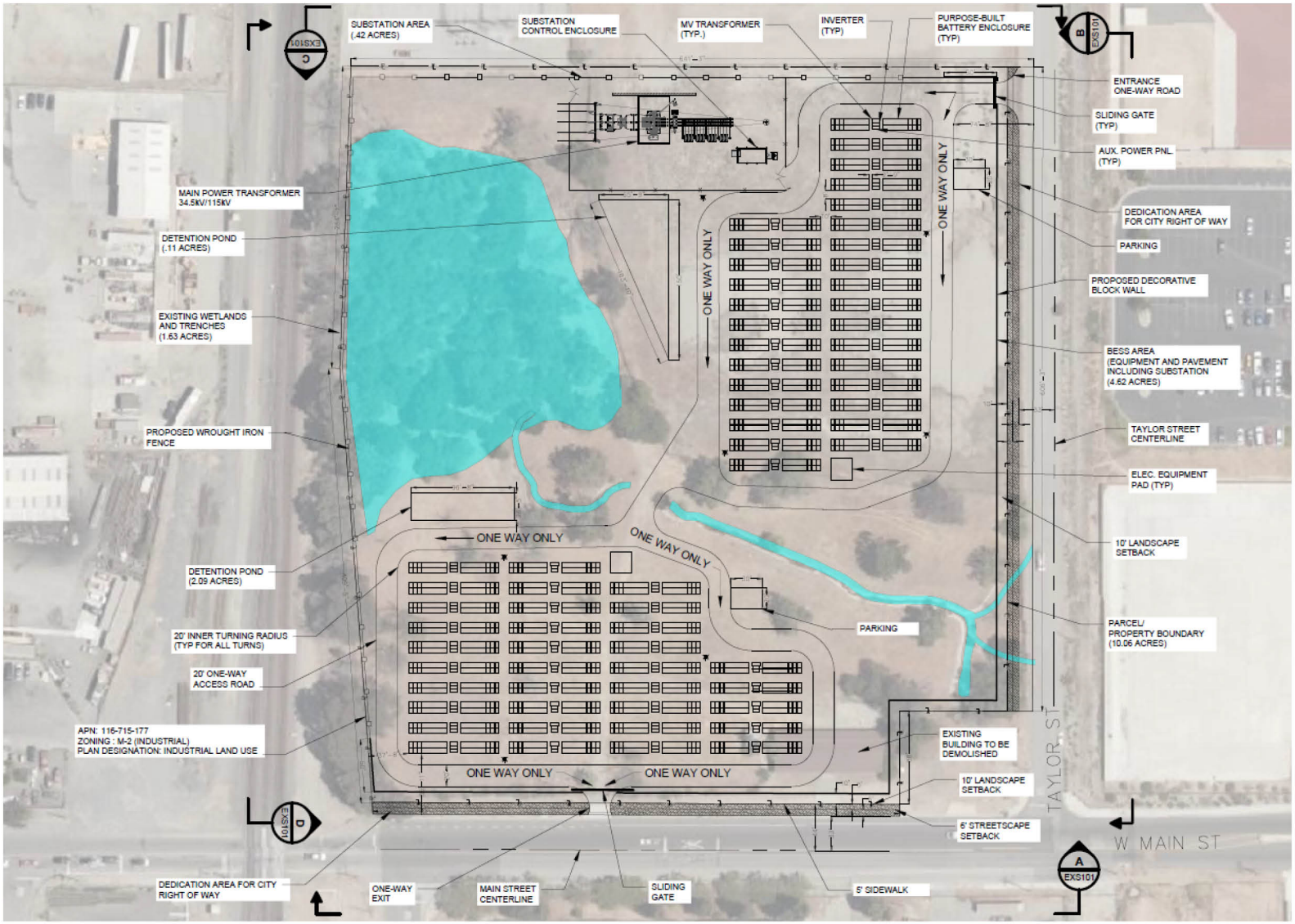

Source: Burns McDonnell

AREA	ACREAGE (SQ FT)
PARCEL	438,252
BESS (EQUIPMENT AND PAVEMENT INCLUDING SUBSTATION)	209,398
LOT COVERAGE (BESS/PARCEL)	48%

LEGEND:

- PROPERTY LINE
- PROPOSED CHAIN LINKED FENCE
- PROPOSED WROUGHT IRON FENCE
- GATE
- FIRE HYDRANT
- DEDICATION AREA FOR CITY RIGHT OF WAY

Exhibit 3 Site Plan

Condor Energy Storage Project

Grand Terrace, California

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Source: Burns McDonnell

Exhibit 4 Project Renderings (Looking Northwest)

Condor Energy Storage Project
Grand Terrace, California

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Source: Burns McDonnell

Exhibit 4 Project Renderings (Looking Northeast)

Condor Energy Storage Project
Grand Terrace, California

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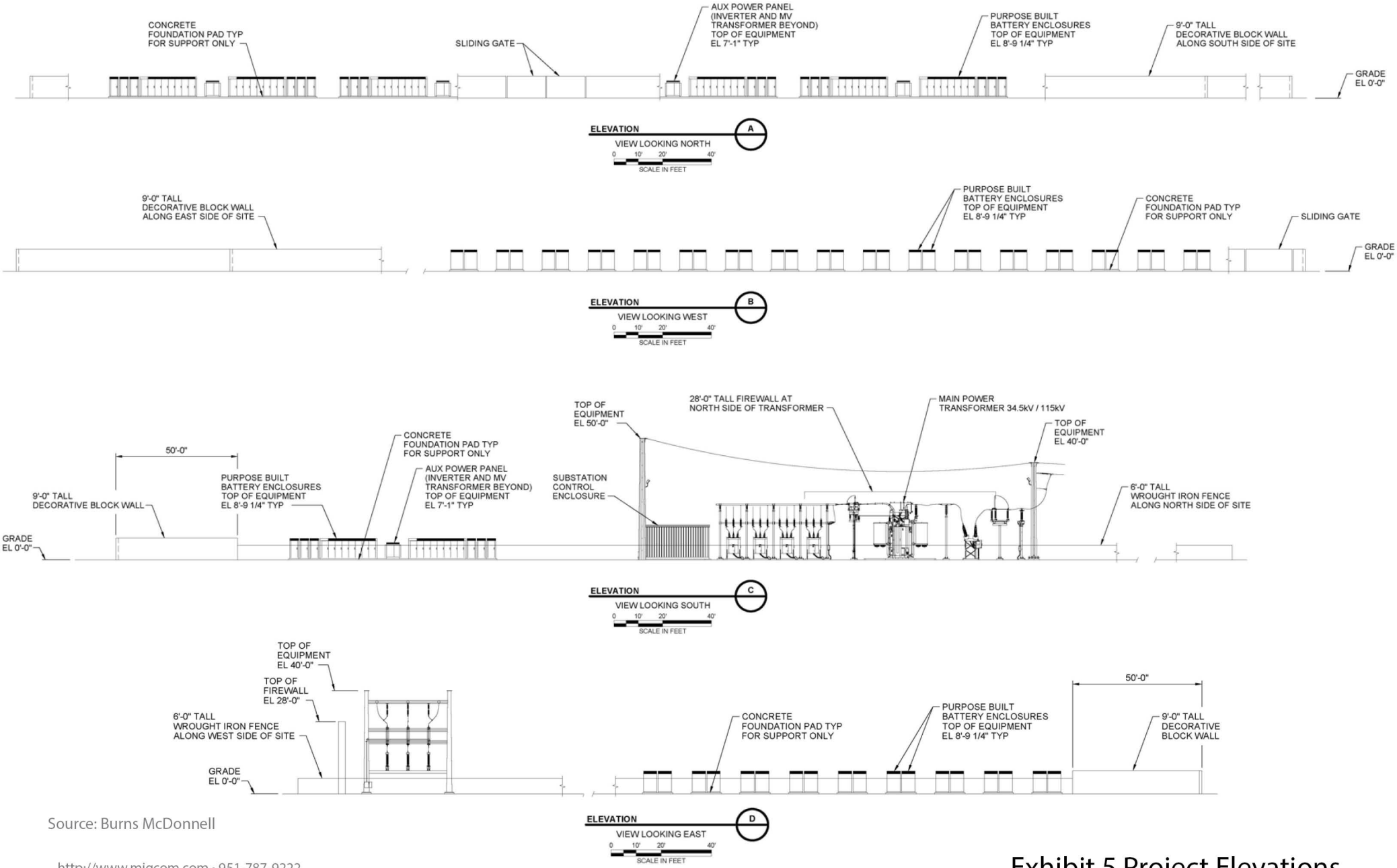

Source: Burns McDonnell

Exhibit 5 Project Elevations

Condor Energy Storage Project

Grand Terrace, California

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Image A: Typical modaular battery energy storage unit

Image B: Typical illustration of battery energy storage unit and balance of plant equipment

Source: Dudek

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3 Determination

3.1 – Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a 'Potentially Significant Impact' as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture Resources	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Energy
☐	Geology /Soils	☐	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials
☐	Hydrology / Water Quality	☐	Land Use / Planning	☐	Mineral Resources
☐	Noise	☐	Population / Housing	☐	Public Services
☐	Recreation	☐	Transportation/Traffic	☐	Tribal Cultural Resources
☐	Utilities / Service Systems	☐	Wildfire	☐	Mandatory Findings of Significance

3.2 – Determination

☐	I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☑	I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the Project MAY have a 'potentially significant impact' or 'potentially significant unless mitigated' impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required.

Name: Steven A. Weiss, AICP
Planning and Development Services Director

Date

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4.1 – Aesthetics

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within view from a state scenic highway?	☐	☐	☐	☑
c) In non-urbanized area, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☑	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

a) **No Impact.** Scenic vistas can be impacted by development in two ways. First, a structure may be constructed that blocks the view of a vista. Second, the vista itself may be altered (i.e., development on a scenic hillside). According to the General Plan Program EIR, The City is characterized by a mixture of natural and urban landforms. The natural environment is made up of diverse landforms, rock outcrops, plants and animal resources, natural colors and hues and panoramic public views of the horizon, and of the surrounding foothills and mountain ranges.[1] Scenic views of nearby hills and of the valley to the north of the City are prominent from a number of locations within the City. Several residential communities have been constructed and oriented to take advantage of the views provided by these natural landforms. The major scenic resource in the planning area is Blue Mountain on the eastern boundary of the City. Blue Mountain has become the symbol of the City providing a scenic backdrop for much of the City. Scenic views are offered to residences nestled on the side of Blue Mountain including views of the San Bernardino Mountains to the north. Grand Terrace Municipal

Code Chapter 18.40.050 (Site Development Standards for the M2 - Industrial District) restricts developments in the M2 Zone to a structure height limit of thirty-five (35) feet.

The Project site is relatively flat with an elevation ranging between approximately 942 to 952 feet above mean sea level (AMSL). The Project is located within an urbanized area, visually dominated by industrial uses, commercial uses, residential uses, institutional uses, and surface streets. The site is located in close proximity to Interstate 215 (I-215) and is approximately 1.5 miles west of the foothills of Blue Mountain. The site is not considered to be within or to comprise a portion of a scenic vista as shown in the California Scenic Highway Mapping System.[2] Views of Blue Mountain from the Project site are partially obstructed by existing development and landscaping. The site is zoned M2-Industrial and is designated as Industrial in the City's General Plan, meaning the site is not considered open space. In addition, the site is not located in an area designated as Hillside Residential. The Project would not block views of the Blue Mountains. Therefore, development of the proposed Project and accessory landscaping elements would have no effect on a scenic vista.

b) **No Impact.** As shown in response 4.1.a above, the Project is not adjacent to or near a designated state scenic highway or eligible state scenic highway as identified on the California Scenic Highway Mapping System. The Project is in an urbanized area characterized by industrial uses, commercial uses, residential uses, institutional uses, and surface street features. The site contains no rock outcroppings or historically significant buildings (see Section 4.5 Cultural Resources) that would constitute a scenic resource. The site contains several small ornamental trees that will be removed as part of Project development. However, the City's Tree Removal Ordinance (Municipal Code Section 12.28.100: Removal) only applies to the removal or injury of trees in city streets and parkways. Therefore, no impact to scenic resources visible from a state scenic highway or a local scenic road would occur.

c) **Less than Significant Impact.** Development of the Project could result in a significant impact if it resulted in substantial degradation of the existing visual character or quality of the site and its surroundings, or if it would conflict with applicable zoning or other regulations governing scenic quality. Degradation of visual character or quality is defined by substantial changes to the existing site appearance through construction of structures such that they are poorly designed or conflict with the site's existing surroundings. Public views are those that are experienced from publicly accessible vantage points. The Project is located in an urbanized area and is surrounded by industrial uses, commercial uses, residential uses, institutional uses, and surface street features. Construction of the BESS facility would result in short-term impacts to the existing visual character and quality of the site. Construction activities would require the use of equipment and storage of materials within the Project site. However, construction activities are temporary and would not result in any permanent visual impact to the site or surrounding area. There is an existing structure on the southeast corner of the site that is owned by SCE that will be demolished as part of Project development. However, demolition activities would be temporary and would not permanently degrade the visual character or quality of the site or its surroundings. Project development would involve demolition, site grading and excavation of the site, development of the energy storage facilities and associated infrastructure, and site access improvements.

As discussed in Sections 4.1.a and 4.1.b above, the Project would not have a substantial adverse effect on a scenic vista and is not located within a State scenic highway. The Project site is zoned M2-Industrial, which has an allowable maximum structure height of 35 feet. The site is ideally suited for an energy utility project that requires interconnection to the Highgrove Substation. However, interconnecting to the existing substation requires an overhead power line, and appurtenant structures to support these lines. Two support structures are proposed: one 50 feet in height, and one 40 feet in height. These heights are required to meet safety clearance requirements as detailed in the California

Public Utilities Commission (CPUC) General Order 95 (GO-95), Rule No. 37, Table 1, Case No. 3.[3] With the 30-foot minimum requirement of GO-95, wire sagging and clearances between energized conductors and static wires, having structures less than 35 feet is not feasible. The strict application of the zoning ordinance would limit the height of all structures to 35 feet. This would preclude the ability to provide overhead power lines and structures meeting GO-95 safety clearance requirements that would allow an interconnection to the adjacent Highgrove substation. In addition, such overhead power lines and support structures exceeding 35 feet in height currently exist on and around the Highgrove Substation for the purposes of interconnecting. Several overhead power lines and support structures exceeding 35 feet in height exist in the vicinity of, and interconnect to Highgrove Substation.

Because the proposed Project includes structures with heights that exceed the allowable height of 35 feet within the M-2 zone, the Project Applicant has submitted an application for a Variance for the height exceedance. Allowing the proposed interconnection structures would be consistent with the allowance of existing structures in the Project vicinity. The Project site is designated as M-2 (Industrial) per the City's zoning map. Per the City's General Plan Land Use Element (City of Grand Terrace 2010), the parcel is designated as Industrial Land Use. The Project would be considered: "Public Utilities and Facilities" which is allowed as a Conditionally Permitted Use per the City Zoning code (GTMC 18.40.030). The proposed energy facility is requesting the Variance for the height restrictions for several structures that would electrically connect the proposed facility to the adjacent Highgrove Substation. The height of these structures is necessary to provide necessary safety clearances as identified in GO-95.

Development of the Project would alter the existing visual character of the site; however, the proposed use would be comparable with industrial developments in the Project area. The inclusion of overhead power lines and support structures exceeding 35 feet in height would not substantially degrade the existing visual character of the site because other such structures already exist in the Project vicinity. The surrounding area is not visually distinct and does not portray a particular architectural theme or aesthetic. Additionally, the site is currently undeveloped and has fallen into disuse. Therefore, the Project would improve the visual character and quality of the site and reflect an improvement to its surroundings by representing an upgrade to an existing use. Finally, with issuance of the Variance, the Project would not conflict with applicable zoning or regulations governing scenic quality. For the reasons stated above, the Project would have less than significant impacts on the visual character of the site and the surroundings.

d) **Less than Significant Impact.** Excessive or inappropriately directed lighting can adversely impact night-time views by reducing the ability to see the night sky and stars. Glare can be caused from unshielded or misdirected lighting sources. Reflective surfaces (i.e., polished metal) can also cause glare. Impacts associated with glare range from simple nuisance to potentially dangerous situations (i.e., if glare is directed into the eyes of motorists). Sources of daytime glare are typically concentrated in commercial areas and are often associated with retail uses. Glare results from development and associated parking areas that contain reflective materials such as hi-efficiency window glass, highly polished surfaces, and expanses of pavement.

There are lighting sources adjacent to the site, including free-standing street lights, light fixtures on buildings, and pole-mounted lights. The proposed development includes exterior lighting for security, and would operate 24 hours a day, seven days a week. Light spillover would be avoided by requiring that lighting be designed to project downward and prohibiting illumination on adjacent property that exceeds three foot-candles, whether the illumination is direct or indirect light from the source, as measured from the property line, per the requirements of Municipal Code Section 18.74.080 (Illumination). Glare impacts will be reduced to less than significant through adherence to San

Bernardino County Development Code Chapter 83.07 (Glare and Outdoor Lighting). Compliance with the Municipal and County Code standards for lighting and glare during construction and operation of the proposed industrial development would ensure that lighting and glare impacts would be less than significant.

4.2 – Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?	☐	☐	☐	☑
d) Result in loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

a) **No Impact.** The Project would be located in a fully developed, urbanized area that does not contain agriculture or forest uses. The Map of Important Farmland in California (2016) prepared by the

Department of Conservation identifies the Project site as Urban and Built-Up Land and does not identify the Project site as being Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.[4] Therefore, there would be no conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to a non-agricultural use as a result of construction of the proposed convenience market and fueling station. No impact would occur.

b) **No Impact.** No Williamson Act contracts are active for the Project site.[5] Therefore, there would be no conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur.

c) **No Impact.** Public Resources Code § 12220(g) identifies forest land as *land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.* The Project site and surrounding properties are not currently being managed or used for forest land as identified in Public Resources Code § 12220(g). The Project site has already been disturbed by previous development and is surrounded by industrial, commercial, residential, and institutional uses as well as surface street features. Therefore, development of the Project would have no impact to any timberland zoning.

d) **No Impact.** The Project site is partially developed, disturbed land with limited non-native vegetation; thus, there would be no loss of forestland or conversion of forestland to non-forest use as a result of this Project. No impact would occur.

e) **No Impact.** The Project site is a partially developed site within an urban environment. The Project is surrounded by industrial uses, commercial uses, residential uses, institutional uses, and surface streets. None of the surrounding sites contains existing forest uses. Development of the energy storage facility would not change the existing environment in a manner that would result in the conversion of forestland to a non-forest use. No impact would occur.

4.3 – Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☑

a) **Less than Significant Impact.** A significant impact could occur if the proposed project conflicts with or obstructs implementation of the South Coast Air Basin 2016 Air Quality Management Plan (AQMP). Conflicts and obstructions that hinder implementation of the AQMP can delay efforts to meet attainment deadlines for criteria pollutants and maintaining existing compliance with applicable air quality standards. Pursuant to the methodology provided in Chapter 12 of the 1993 South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook, consistency with the South Coast Air Basin 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP.[1] A consistency review is presented below:

1) Is consistent with the growth assumptions in the AQMP; and
2) Does not increase the frequency or severity of an air quality standards violation or cause a new one.

Consistency Criterion 1 refers to the growth forecasts and associated assumptions included in the 2016 AQMP. The 2016 AQMP was designed to achieve attainment for all criteria air pollutants within the Basin while still accommodating growth in the region. Projects that are consistent with the AQMP

[1] South Coast Air Quality Management District. CEQA Air Quality Handbook. 1993.

growth assumptions would not interfere with attainment of air quality standards, because this growth is included in the projections used to formulate the AQMP. The proposed Project would not generate any long-term employment or support any new population. Once operational, the proposed energy storage facility will be operated remotely and will only require intermittent inspections and maintenance. In addition, the Project does not include any housing. Therefore, the proposed Project would not exceed the growth assumptions contained in the AQMP.

Consistency Criterion 2 refers to the CAAQS. In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable. As described below in under response 4.3.b), the proposed Project would not generate construction or operational emissions in excess of SCAQMD regional CEQA thresholds.

For the reasons described above, the proposed Project would not conflict with the SCAQMD 2016 AQMP. Impacts will be less than significant.

b) **Less than Significant Impact.** A project may have a significant impact if project-related emissions would exceed federal, state, or regional standards or thresholds, or if project-related emissions would substantially contribute to existing or project air quality violations. The Project is located within the South Coast Air Basin (Basin), where efforts to attain state and federal air quality standards are governed by the SCAQMD. Both the State of California and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants (known as *criteria pollutants*). These pollutants include ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), inhalable particulate matter with a diameter of 10 microns or less (PM_{10}), fine particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), and lead (Pb). The state has also established ambient air quality standards (AAQS) for additional pollutants. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. Where the state and federal standards differ, California AAQS (CAAQS) are more stringent than the national AAQS (NAAQS).

The U.S. Environmental Protection Agency (U.S. EPA), California Air Resources Board (CARB), and the SCAQMD assess the air quality of an area by measuring and monitoring the amount of pollutants in the ambient air and comparing pollutant levels against NAAQS and CAAQS. Based on these comparisons, regions are classified into one of the following categories:

Attainment. A region is "in attainment" if monitoring shows ambient concentrations of a specific pollutant are less than or equal to NAAQS or CAAQS. In addition, an area that has been re-designated from nonattainment to attainment is classified as a "maintenance area" for 10 years to ensure that the air quality improvements are sustained.

Nonattainment. If the NAAQS or CAAQS are exceeded for a pollutant, the region is designated as nonattainment for that pollutant. It is important to note that some NAAQS and CAAQS require multiple exceedances of the standard in order for a region to be classified as nonattainment. Federal and state laws require nonattainment areas to develop strategies, plans, and control measures to reduce pollutant concentrations to levels that meet, or attain, standards.

Unclassified. An area is unclassified if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment. Air pollution levels are measured at monitoring stations located throughout the air basin.

Table 3, *South Coast Air Quality Standards and Basin Attainment Status*, summarizes the attainment status in the Basin for the criteria pollutants.[6] [7]

Table 3
South Coast Air Quality Standards and Basin Attainment Status

Pollutant	Averaging Time[B]	California Standards[A]		National Standards[A]	
		Standard[C]	Attainment Status[D]	Standard[C]	Attainment Status[D]
Ozone	1-Hour (1979)	--	--	240 µg/m^3	Nonattainment
	1-Hour (Current)	180 µg/m^3	Nonattainment	--	--
	8-Hour (1997)	--	--	160 µg/m^3	Nonattainment
	8-Hour (2008)	--	--	147 µg/m^3	Nonattainment
	8-Hour (Current)	137 µg/m^3	Nonattainment	137 µg/m^3	Pending
PM_{10}	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Attainment
	Annual Average	20 µg/m^3	Nonattainment	--	--
$PM_{2.5}$	24-Hour	--	--	35 µg/m^3	Nonattainment
	Annual Average (1997)	--	--	15 µg/m^3	Nonattainment
	Annual Average (Current)	12 µg/m^3	Nonattainment	12 µg/m^3	Nonattainment
Carbon Monoxide	1-Hour	23,000 µg/m^3	Attainment	40,000 µg/m^3	Attainment
	8-Hour	10,000 µg/m^3	Attainment	10,000 µg/m^3	Attainment
Nitrogen Dioxide	1-Hour	339 µg/m^3	Attainment	188 µg/m^3	Unclassifiable/ Attainment
	Annual Average	57 µg/m^3	Attainment	100 µg/m^3	Attainment
Sulfur Dioxide	1-Hour	655 µg/m^3	Attainment	196 µg/m^3	Attainment
	24-Hour	105 µg/m^3	Attainment	367 µg/m^3	Unclassifiable/ Attainment
	Annual Average	--	--	79 µg/m^3	Unclassifiable/ Attainment
Lead	3-Months Rolling	--	--	0.15 µg/m^3	Nonattainment (Partial)
Hydrogen Sulfide	1-Hour	42 µg/m^3	Attainment	--	
Sulfates	24-Hour	25 µg/m^3	Attainment	--	
Vinyl Chloride	24-Hour	26 µg/m^3	Attainment	--	

Source: CARB 2016, SCAQMD 2016, modified by MIG.

(A) This table summarizes the CAAQS and NAAQS and the Basin's attainments status. This table does not prevent comprehensive information regarding the CAAQS and NAAQS. Each CAAQS and NAAQS has its own averaging time, standard unit of measurement, measurement method, and statistical test for determining if a specific standard has been exceeded. Standards are not presented for visibility reducing particles, which are not concentration-based. The Basin is unclassified for visibility reducing particles.

(B) Ambient air standards have changed over time. This table presents information on the standards previously used by the U.S. EPA for which the Basin does not meet attainment.

(C) All standards are shown in terms of micrograms per cubic meter (µg/m^3) rounded to the nearest whole number for comparison purposes (with the exception of lead, which has a standard less than 1 µg/m^3). The actual CAAQS and NAAQS standards specify units for each pollutant measurement.

A= Attainment, N= Nonattainment, U=Unclassifiable.

The Project would generate both short-term construction emissions and long-term operational emissions. Project emissions were estimated using the California Emissions Estimator Model (CalEEMod) (see Appendix A). CalEEMod defaults have generally been used as construction inputs into the model. CalEEMod default settings for Project trip generation were also utilized. The methodology for calculating emissions is included in the CalEEMod *User Guide,* freely available at http://www.caleemod.com. As described in more detail below, the Project would not generate short-term or long-term emissions that exceed SCAQMD-recommended pollutant thresholds.

Construction Emissions

Short-term criteria pollutant emissions will occur during demolition, construction, and architectural coating activities. Emissions will occur from use of equipment, worker, vendor, and hauling trips, and disturbance of onsite soils (fugitive dust). The Project's maximum daily unmitigated construction emissions are shown in Table 4, *Maximum Daily Criteria Pollutant Construction Emissions (lbs/day)*. The construction emission estimates incorporate measures to control and reduce fugitive dust as required by SCAQMD Rule 403.

Table 4
Maximum Daily Criteria Air Pollutant Construction Emissions (lbs/day)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer						
2021	4.21	44.16	27.49	0.06	4.99	3.14
Winter						
2021	4.21	44.17	27.12	0.06	4.99	3.14
Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Potentially Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: MIG, 2021 (See Appendix A).

As shown in Table 4, the Project's maximum daily criteria air pollutant emissions during construction would be below the SCAQMD's regional pollutant thresholds for all pollutants. Therefore, construction of the Project would not generate construction-related criteria air pollutant emissions that exceed SCAQMD regional CEQA thresholds. Impacts will be less than significant.

Operational Emissions

Long-term criteria air pollutant emissions will result from operation of the proposed Project; however, these emissions will be negligible. Long-term emissions are categorized as area source emissions, energy demand emissions, and operational emissions. Operational emissions will result from use of a diesel generator and periodic maintenance vehicle trips. Operational emissions will not result from automobile, truck, or other vehicle sources associated with daily trips to and from the Project, as the proposed Project does not constitute such a use and will not include such vehicle trips. Area source emissions are the combination of many small emission sources that include use of outdoor landscape maintenance equipment, use of consumer products such as cleaning products, and periodic repainting of the proposed project. Area source emissions from landscape equipment and consumer cleaning products will not occur as a result of the proposed Project; however, periodic cleaning and repainting is anticipated. Energy demand emissions result from use of electricity and natural gas; however, the proposed project will not utilize natural gas and energy demand is anticipated to be negligible. Emissions from area sources were estimated using CalEEMod defaults. Daily vehicle trips are not associated with the proposed project. The Project's maximum daily unmitigated operational emissions are shown in Table 5, *Maximum Daily Criteria Air Pollutant Operational Emissions (lbs/day)*.

Table 5
Maximum Daily Criteria Air Pollutant Operational Emissions (lbs/day)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.16	1.07	2.18	0.00	0.66	0.18
Total Project Emissions	*0.16*	*1.07*	*2.18*	*0.01*	*0.66*	*0.18*
SCAQMD Daily Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Potentially Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Source: MIG, 2021 (See Appendix A).						

As shown in Table 5, the proposed maximum daily operational emission would be below the SCAQMD's regional pollutant threshold for all criteria air pollutants. Therefore, operation of the Project would not generate operational-related emission that exceed SCAQMD CEQA thresholds. This impact would be less than significant.

Cumulative Emissions

Cumulative short-term, construction-related emissions from the Project will not contribute considerably to any potential cumulative air quality impact because short-term Project emissions will be less than significant and other concurrent construction projects in the region will be required to implement standard air quality regulations and mitigation pursuant to State CEQA requirements, just as this Project has. The SCAQMD CEQA Air Quality Handbook identifies methodologies for analyzing long-term cumulative air quality impacts for criteria pollutants for which the Basin is nonattainment. These methodologies identify three performance standards that can be used to determine if long-term emissions will result in cumulative impacts. Essentially, these methodologies assess growth associated with a land use project and are evaluated for consistency with regional projections. These methodologies are outdated, and are no longer recommended by SCAQMD. SCAQMD allows a project to be analyzed using the projection method such that consistency with the AQMP will indicate that a project will not contribute considerably to cumulative air quality impacts. As discussed in response 4.3.a) above, the proposed Project is consistent with growth assumptions in the AQMP, and would not exceed any applicable SCAQMD thresholds for short- and long-term emissions. Therefore, the proposed Project will not contribute to any potential cumulative air quality impacts. Impacts will be less than significant.

c) **Less than Significant with Mitigation Incorporated.** Some populations are more susceptible to the effects of air pollution than the population at large; these populations are defined as sensitive air quality receptors. Sensitive receptors include children, the elderly, the sick, and the athletic. Land uses associated with sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The sensitive air quality receptors adjacent or in close proximity to the perimeter of the project include:

- Single family residences on West Main Street and California Avenue, approximately 715 feet from the center of the Project site and approximately 290 feet from the southeast corner of the Project site; and
- School receptors at the Grand Terrace High School, which is located immediately east of the Project site on the opposite side of Tyler Street. The nearest point where children will be located during operation of the school is the parking lot located approximately 440 feet from the center of the Project site and approximately 85 feet from the eastern Project boundary.

Project Impacts

In addition to criteria air pollutants such as NOx (an ozone precursor), CO, PM_{10}, and $PM_{2.5}$, the U.S. EPA and CARB have classified certain pollutants as hazardous air pollutants (HAPs) or toxic air contaminants (TACs), respectively. These pollutants can cause severe health effects at very low concentrations, and many are suspected or confirmed carcinogens. The U.S. EPA has identified 187 HAPs, including such substances as arsenic and chlorine; CARB considers all U.S. EPA designated HAPs, as well as diesel particulate matter (DPM) emissions from diesel-fueled engines and other substances, to be a TAC.

Construction Health Risks

Project construction activities would result in demolition, site preparation, grading, and other activities that would generate fugitive dust. A portion of the PM_{10} and $PM_{2.5}$ emissions generated during construction of the proposed Project would be DPM. Potential health risks from receptor exposure to DPM concentrations during construction would not be significant, because 1) DPM emissions generated by construction equipment would generally be pushed by winds to the east/northeast, away from the closest sensitive residential receptors, 2) emissions would be generated throughout the site would disperse quickly over time and not remain stagnant in one place due to the presence of active air movement through the Project area, and 3) emissions would be generated on an interim, short-term basis. In addition, the proposed Project would be subject SCAQMD Rule 403 requirements for the control of fugitive dust, including site watering. Therefore, the proposed Project would not expose sensitive receptors to substantial fugitive dust levels. Impacts will be less than significant.

Operational Health Risks

As discussed in response 4.3.b) above, operational emissions will not result from automobile, truck, or other vehicle sources associated with daily trips to and from the Project, as the proposed Project does not constitute such a use and will not include such vehicle trips. In addition, area source emissions from landscape equipment and consumer cleaning products will not occur as a result of the proposed Project; however, periodic cleaning and repainting is anticipated. Finally, the proposed Project will not utilize natural gas and energy demand is anticipated to be negligible. Because of this, operational health risks from the proposed Project are not anticipated and impacts will be less than significant.

Localized Significance Thresholds

As part of SCAQMD's environmental justice program, attention has recently been focusing more on the localized effects of air quality. Although the region may be in attainment for a particular criteria pollutant, localized emissions from construction activities coupled with ambient pollutant levels can cause localized increases in criteria pollutant that exceed national and/or state air quality standards.

Construction-related criteria pollutant emissions and potentially significant localized impacts were evaluated pursuant to the SCAQMD Final Localized Significance Thresholds Methodology. This methodology provides screening tables for one through five-acre project scenarios, depending on the amount of site disturbance during a day using the Fact Sheet for equipment usage in CalEEMod.[2] Daily oxides of nitrogen (NO_X), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$)

[2] South Coast Air Quality Management District. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds.

emissions will occur during site preparation and construction activities. Table 6, *Localized Construction Significance Threshold Analysis*, summarizes on- and off-site emissions as compared to the local thresholds established for Source Receptor Area (SRA) 34 (Central San Bernardino Valley). The portion of the Project site that will be developed with the BESS equipment, concrete pads, an substation will be approximately 209,398 square feet or 4.8 acres. As such, the 5-acre threshold will be used. A 25-meter receptor distance was used to reflect the proximity of the school parking lot to the Project site. As shown in Table 6 (Localized Significance Threshold Analysis (lbs/day)), emissions from construction activities will not exceed any localized threshold and impacts will be less than significant.

Table 6
Localized Construction Significance Threshold Analysis (lbs/day)*

Phase	CO	NO_X	PM^{10}	$PM^{2.5}$
Demolition	10.0	15.9	1.0	0.8
Site Preparation/Grading	25.4	44.0	4.4	3.0
BESS Installation	3.2	0.7	0.9	0.2
Paving/Testing	7.3	6.5	0.3	0.3
Architectural Coating	0.00	0.00	0.00	0.00
Threshold	**1,746**	**270**	**14**	**8**
Potentially Substantial?	**No**	**No**	**No**	**No**
* Source Receptor Area 34 (Central San Bernardino Valley)				

Operation-related LSTs become of concern when there are substantial on-site stationary sources that could impact surrounding receptors. The proposed Project does not include such on-site operations; therefore, impacts related to operational LSTs will not occur.

Carbon Monoxide Hot Spots

A carbon monoxide (CO) hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hotspots have the potential to violate State and Federal CO standards at intersections, even if the broader Basin is in attainment for Federal and State levels. The California Department of Transportation Project-Level Carbon Monoxide Protocol (Protocol) screening procedures have been utilized to determine if the proposed project could potentially result in a CO hotspot. Based on the recommendations of the Protocol, a screening analysis should be performed for the proposed project to determine if a detailed analysis will be required. The California Department of Transportation notes that because of the age of the assumptions used in the screening procedures and the obsolete nature of the modeling tools utilized to develop the screening procedures in the Protocol, they are no longer accepted. More recent screening procedures based on more current methodologies have been developed. The Sacramento Metropolitan Air Quality Management District (SMAQMD) developed a screening threshold in 2011, which states that any project involving an intersection experiencing 31,600 vehicles per hour or more will require detailed analysis. In addition, the Bay Area Air Quality Management District developed a screening threshold in 2010, which states that any project involving an intersection experiencing 44,000 vehicles per hour would require detailed analysis. The proposed Project's operations would not involve an intersection experiencing this level of traffic; therefore, the proposed Project passes the screening analysis and impacts are deemed less than significant. Based on the local analysis procedures, the proposed Project would not result in a CO hotspot.

d) **Less than Significant Impact.** According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper,

etc.). The proposed Project would involve construction activities that could generate odors from the following sources and activities:

- Evaporation of gasoline, oil, and other equipment fluids that can escape from pumps, hoses, and tanks in construction equipment or at construction staging and work areas.
- Evaporation and off-gassing of volatile compounds from paints, coatings, and new concrete and asphalt surfaces.
- Exhaust emissions from on-site vehicle and truck maneuvering and idling.

The potential odors associated with construction of the proposed Project are common throughout the City and County and will be intermittent and temporary. The release of odorous compounds from vehicle fluids, paints and coatings, asphalt and concrete, and fuel storage and dispensing are associated with many industrial, commercial, and residential operations and applications. However, the proposed Project will not involve any odor generating sources and would not result in the release of atypical odors or odors associated with unique processes (e.g., laundromats, coffee roasting, landfills, etc.). As such, the proposed Project would not result in the creation of objectionable odors that would affect a substantial number of people. This impact would be less than significant.

4.4 – Biological Resources

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☑	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Environments and habitats associated with wetlands and other aquatic features are regulated under federal, state, and local laws. Each of the laws is administered independently and in coordination with the following agencies: United States Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), the US Environmental Protection Agency (EPA), California Department of Fish and Wildlife (CDFW), and the Santa Ana Regional Water Quality Control Board (RWQCB). A *Jurisdictional Waters Delineation ("JD") Delineation and Biological Resources Assessment* ("Biological Assessment") was conducted by Dudek (January 2021) in order to determine the location and extent of wetland and/or water features within the Project Site that are potentially regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) and to verify the type, location, and extent of potential sensitive biological resources within the site and vicinity (See Appendix B). The results presented below reflect the findings and conclusions found in the JD/Biological Assessment.

Site Description and Field Reconnaissance

Dudek biologist Anna Cassady conducted a jurisdictional waters and wetlands delineation and a general biological survey of the Project area on October 5, 2020, from 11:00 a.m. to 2:45 p.m. The survey was conducted when weather conditions were favorable, with no cloud cover, wind speeds of 1 to 3 miles per hour, and temperatures ranging from 88°F to 97°F. A follow-up site visit was conducted by Anna Cassady on October 17, 2020, to confirm the location of an outlet pipe indicated on NHD data. The surveys were conducted on foot and the undeveloped portions of the site were walked thoroughly to complete the resource inventory. Much of the woodland region in the northwestern corner was assessed on foot; however, some portions were avoided due to the presence of homeless encampments. The majority of the Project area is characterized as undeveloped land, but the northeastern corner of the site has previously been developed for industrial use. Vegetation on the Project area is dominated by non-native grasses and weedy forbs, and the observed surface soils show evidence of previous disturbance. A structure is located on the southeastern corner of the Project area. The Project area historically functioned as Cage Park and contains ornamental tree species consistent with this use. A concrete drainage extends from the southeast to the central portion of the site. A mixed ornamental and riparian woodland patch lies in the northwestern corner. The Project area is relatively flat with elevations ranging from approximately 939 feet above mean sea level in the west to approximately 960 feet above mean sea level in the east. Representative photographs of the Project area are included in Attachment B.

a) **Less than Significant with Mitigation Incorporated.**

Special-Status Plants

No federally or state-listed species have a potential to occur within the Project area. No other non-listed special-status species have a moderate or high potential to occur within the Project area. No focused special-status plant surveys were conducted, and no special-status plants species were

incidentally detected within the Project area during the 2020 biological survey. No impacts to special status plants species will occur as a result of the proposed Project.

Special-Status Wildlife

A total of nine bird species were detected within the Project area, including northern mockingbird (*Mimus polyglottos*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), and Cassin's kingbird (*Tyrannus vociferans*). No bird nests were observed during the survey. One reptile, western fence lizard (*Sceloporus occidentalis*), and one mammal, California ground squirrel (*Spermophilus [Otospermophilus] beecheyi*), were observed. No amphibians were observed. No federally or state-listed species have a potential to occur within the Project area. However, one California species of special concern, burrowing owl (*Athene cunicularia*), was determined to have a low potential to occur within the Project area. The remainder of the non-listed special-status species were determined to have low potential to occur or were not expected to occur within the Project area. No focused special-status wildlife surveys were conducted. No special-status wildlife species were incidentally detected within the Project area during the 2020 biological survey. Therefore, impacts to the remainder of the non-listed special-status species besides burrowing owl will be less than significant. Discussion of potential burrowing owl impacts and mitigation is discussed below.

Burrowing Owl

No burrowing owl burrows or individuals were observed during the course of the general field survey. The Project area contains non-native grasslands and disturbed habitat that could be suitable foraging habitat for burrowing owl; however, no suitable burrows or burrow surrogates (features with openings 4 inches or greater in diameter) were detected within the Project area during field reconnaissance. Further, the Project area is located within an industrial urbanized complex and is not contiguous with or near suitable nesting or foraging habitat for this species. Given the lack of suitable nesting habitat and the location of the Project area within fragmented habitat, potential for burrowing owl to occur on site is considered low. However, because there is suitable burrowing owl habitat on-site, and in order for the Project to comply with California Fish and Game Code, pre-construction burrowing owl surveys are required and avoidance measures must be implemented. Therefore, implementation of **Mitigation Measure BIO-1** is required to reduce potential impacts to burrowing owl to a less than significant level. Prior to initiation of construction activities, a burrowing owl pre-construction survey will be conducted in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). With implementation of Mitigation Measure BIO-1, impacts will be less than significant.

Mitigation Measure

BIO-1 Pre-Construction Burrowing Owl Survey. A burrowing owl pre-construction survey shall be conducted no less than 14 days prior to the initiation of ground disturbance activities, and a second survey shall be conducted within 24 hours prior to ground disturbance. Pre-construction surveys should be conducted by a qualified biologist. If surveys confirm occupied burrowing owl habitat is located within the impact footprint or within 500 feet of the impact footprint, avoidance measures shall be implemented consistent with the requirements of the Staff Report on Burrowing Owl Mitigation and in coordination with the City of Grand Terrace and CDFW.

Nesting Birds

No nests were observed within the Project site during the site reconnaissance. However, suitable habitat for raptors and ground nesting birds does occur within the Project area and vegetation communities on the Project Site have the potential to provide nesting habitat for bird species

protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC) Sections 3503 and 3513. Although no active nests were observed during the field reconnaissance, there is potential for ground- and tree-nesting birds to establish nests on the Project Site prior to project construction. Destruction of, or disturbance to, an active nest is prohibited. Construction activities including site mobilization, tree removal other vegetation clearing activities, grubbing, grading, and noise/vibration from the operation of heavy equipment also has the potential to result in significant direct (i.e., death or physical harm) and/or indirect (i.e., nest abandonment) impacts to nesting birds. Due to the potential for the Project area to contain suitable habitat for nesting bird species, and in order to maintain compliance with the California Fish and Game Code, Project construction activities should avoid the avian nesting season (January 1 through September 15) to reduce potential impacts to nesting birds. If ground disturbance and/or vegetation clearance activities are scheduled to occur during the avian nesting season, Mitigation Measure BIO-2 has been incorporated requiring a pre-construction nesting bird survey be conducted by a qualified biologist within the project footprint and a 300-foot buffer around the project footprint. Surveys are required to be conducted within 5 days prior to initiation of activity between dawn and noon. If an active nest is detected during the nesting bird survey, avoidance buffers should be implemented as determined by a qualified biologist. The buffer will be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests will be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned. With implementation of **Mitigation Measure BIO-2**, impacts to nesting birds will be less than significant.

Mitigation Measure

BIO-2: Pre-Construction Nesting Bird Survey. If vegetation removal is scheduled during the nesting season (typically January 1 to September 15), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus *Buteo*, the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g., young have fledged, predation, or other non-anthropogenic nest failure).

b) **Less than Significant Impact.** Three vegetation communities—disturbed Goodding's willow–red willow riparian woodland and forest, Eucalyptus groves, and non-native grassland—and three land cover types—unvegetated channel, disturbed habitat, and urban/developed land—were identified and mapped within the Project site based on general characteristics and/or species composition. Exhibit 6, Vegetation Communities, illustrates the distribution of vegetation communities and land covers on the site, and Table 6 (Vegetation Communities and Land Covers) provides a summary of each land cover's extent within the Project site.

Table 6
Vegetation Communities and Land Covers

Vegetation Community/Land Cover	Acreage
Vegetation Communities	
Disturbed Goodding's willow-red riparian woodland and forest	1.49
Eucalyptus groves	0.06
Non-native grassland	6.4
Non-Natural Land Covers	
Unvegetated channel	0.11
Disturbed habitat	1.26
Urban/developed	0.48
Total [a]	9.87
Sources: Dudek, 2021 (Appendix B); Sawyer et al. 2009; Oberbauer et al. 2008 [a] Totals may not sum precisely due to rounding.	

Disturbed Goodding's Willow-Red Willow Riparian Woodland

The Goodding's willow–red willow riparian woodland alliance features Goodding's willow (*Salix gooddingii*) and/or red willow (*Salix laevigata*) as the dominant or co-dominant species in the tree canopy with other characteristic species. Per alliance membership rules, Goodding's willow or red willow should generally make up more than 50% of relative cover in the tree canopy; if other willows are present, Goodding's willow or red willow can make up 30% or more of the relative cover. Communities within this alliance can have an open to continuous tree canopy under 30 meters (98 feet) in height with a sparse to continuous shrub layer and variable herbaceous layer. Goodding's willow–red willow riparian woodlands were mapped within the northwestern quadrant of the Project site. This community is dominated by black willow (*Salix nigra*); however, it also includes a "disturbed" designator due to the presence of non-native and ornamental woodland species such as Tasmanian bluegum (*Eucalyptus globulus*), Peruvian peppertree (*Schinus molle*), shamel ash (*Fraxinus uhdei*), Chinese elm (*Ulmus parvifolia*), and blue jacaranda (*Jacaranda mimosifolia*). Non-native species comprise approximately 45% of the tree canopy. Other native species associated with this community in the Project site include Fremont cottonwood and California sycamore. The understory is primarily comprised of leaf litter. The Goodding's willow–red willow riparian woodland alliance is ranked by CDFW as a G4S3 alliance. This ranking indicates that it is apparently secure globally but vulnerable and at moderate risk within California. Therefore, this community is considered a sensitive community. In order to avoid impacts to this riparian woodland area, the proposed Project will be constructed in the northeastern and southwestern corners of the site, and no physical changes to the northwestern area of the site will occur as a result of the proposed Project. Avoidance measures will be put in place during construction and operation to ensure that impacts to this riparian woodland are less than significant. During construction activities, construction vehicles, personnel, and equipment will be restricted from this area, as will maintenance vehicles and operations personnel during operation of the BESS facility. Therefore, with avoidance of this area during construction and operation, impacts will be less than significant.

Eucalyptus Groves

The eucalyptus–tree of heaven–black locust groves alliance features tree of heaven (*Ailanthus altissima*), eucalyptus trees (*Eucalyptus* spp.), or black locust (*Robinia pseudoacacia*) as the dominant or co-dominant species in the tree canopy. Per alliance membership rules, any of these species must make up more than 80% of the relative cover in the tree canopy. Eucalyptus–tree of heaven–black locust groves within the Project site were mapped as the *Eucalyptus globulus* provisional association. The *Eucalyptus globulus* provisional association is found on the southwestern edge of the Project site. Tasmanian bluegum was observed as the dominant species in this vegetation community with an understory of red brome (*Bromus madritensis* ssp. *rubens*). The eucalyptus–tree of heaven–black locust groves alliance is ranked by CDFW as a semi-natural alliance and does not have specific global or state rankings. Therefore, the *Eucalyptus globulus* provisional association is not considered a sensitive community. No impact will occur.

Non-Native Grassland

Non-native grassland includes areas that are dominated by non-native grasses with a sub-dominance of ruderal (weedy) forbs. This type of vegetative community does not readily support native plant or wildlife species. Non-native grassland is located within the majority the Project site. Sporadic ornamental trees associated with the woodland area extend into the non-native grassland area; however, these trees were not present at a high enough density to comprise their own vegetation community and appear to have been planted in order to support the site's previous function as a park. Commonly observed non-native species in this community include red brome, ripgut brome (*Bromus diandrus*), slender oat (*Avena barbata*), Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and stinknet (*Oncosiphon piluliferum*). Non-native grasslands would be listed by CDFW under red brome or Mediterranean grass grasslands. The red brome or Mediterranean grass grasslands alliance is ranked by CDFW as a semi-natural alliance and does not have specific global or state rankings; therefore, these alliances are not considered sensitive communities. No impact will occur.

Unvegetated Channel

Although not recognized by the Manual of California Vegetation, Online Edition (Sawyer et al. 2009), or the Natural Communities List, unvegetated channels (or non-vegetated floodplains) are described by Oberbauer et al. (2008) as sandy, gravelly, or rocky areas along waterways or flood channels that are unvegetated on a relatively permanent basis due to variable water levels. Vegetation, if present, comprises non-native grasses at the outer edges with usually less than 10% absolute cover. Within the Project site, unvegetated channels are mapped from the southeastern corner through the central portion of the Project site. Unvegetated channel is not a listed vegetation community under the California Natural Communities List; however, it best describes what was observed in the field. This vegetation community is not considered a sensitive community; however, its function as a waterway makes this community sensitive as a jurisdictional resource, more information for which is contained in response 4.4.c) below. In order to avoid impacts to the on-site non-vegetated flood plains, the proposed Project will be constructed in the northeastern and southwestern corners of the site, and no physical changes to the non-vegetated flood plains will occur as a result of the proposed Project. Avoidance measures will be put in place during construction and operation to ensure that impacts to these features are less than significant. During construction activities, construction vehicles, personnel, and equipment will be restricted from these areas, as will maintenance vehicles and operations personnel during operation of the BESS facility. Therefore, with avoidance of these areas during construction and operation, impacts will be less than significant.

Source: Dudek

Exhibit 7 Vegetation Communities

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c) **Less than Significant.** The USACE and EPA regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act. Section 404 of the CWA requires a permit before dredged or fill material may be discharged into waters of the United States. Section 401 of the CWA requires an applicant for a federal permit to obtain a certification from the RWQCB. Additionally, Section 1602 of the CFGC requires the issuance of a Lake and Streambed Alteration Agreement (LSAA) to authorize work in jurisdictional streambeds. According to the JD/Biological Assessment performed by Dudek, the Project area is located within the Middle Santa Ana River watershed in the Santa Ana Subbasin, within which the Santa Ana River is the major surface water body (Figure 4, Hydrologic Units of the JD/Biological Assessment). As shown in Exhibit 8 (Hydrology), there is one National Hydrography Dataset (NHD) ephemeral stream extending from the western boundary of the Project site, extending west to connect with an unnamed tributary to the Santa Ana River.

As further described below, the JD/Biological Assessment identified two water bodies, a concrete channel and a shallow basin, within the Project site as waters of the state under the jurisdiction of RWQCB and CDFW. The concrete channel is also a water of the United States. No other potentially jurisdictional waters were observed within the Project site. The limits of jurisdictional waters are provided in Exhibit 9 (Jurisdictional Delineation Results).

Concrete Channel

As shown in Exhibit 8, the trapezoidal concrete channel extends from three separate inlets, two from Taylor Street and one from Main Street. The northern inlet is characterized as a break in the curb where runoff from Taylor Street enters the channel. The southern inlet on Taylor Street is a pipe inlet that appears to convey flows from off site to the east, presumed to be stormwater runoff from the surrounding development. The inlet on Main Street is characterized as a pipe inlet that also appears to convey flows from off site to the south, presumed to be stormwater runoff from surrounding development. These inlets convey flows northwest through the concrete channel until its terminus in the shallow basin at the northwestern end of the Project site. Approximately 40 feet of the concrete channel is undergrounded through a pipe under an old roadway in the Project site. The channel continues for approximately 30 feet within the shallow basin as a natural, sandy bottomed channel before dissipating. The channel loses consistent hydrology indicators within the shallow basin, appearing to continue along periodic, low topographic areas until reaching a pipe at the western boundary where flow exits the Project site. NHD data suggest this pipe continues through a series of storm drain pipes beneath Interstate 215 to a natural drainage west of La Cadena Drive. The natural drainage, located approximately 0.3 miles from the Project site, continues southwest to the Santa Ana River.

The concrete channel is a remnant of a historical drainage that extended through the Project site and connected with a tributary to the Santa Ana River. This feature is observed as early as 1938 and appears to have been channelized on the Project site between 1948 and 1959. On both historic aerials and topographic maps, the drainage appears to originate on site in approximately the same location as present day. The concrete channel is approximately 8 feet in width and an average of 3 feet deep. Hydrology indicators included standing water, debris wracking, and sediment deposition. The feature also contained defined banks. The concrete channel was primarily unvegetated; however, a small (approximately 8-foot) segment had excess sediment buildup that supported obligate and facultative wetland species such as broadleaf cattail (*Typha latifolia*) and tall flatsedge (*Cyperus eragrostis*). The concrete channel was delineated at the boundary of the defined bank.

Due to the presence of obligate and facultative wetland species within the concrete channel, a wetland delineation was conducted within the vegetation. A data station (DS-1) taken in this location resulted in

a dominance of hydrophytic vegetation and evidence of wetland hydrology. Given that the vegetation was contained within excess (1–3 inches) of sedimentation on top of an impermeable concrete layer, hydric soils were considered absent. Additionally, given the small extent of the vegetation, this feature was considered a non-wetland water consistent with the remainder of the concrete channel.

Due to the presence of standing water and obligate and facultative wetland vegetation, the concrete channel is not an ephemeral feature; however, it is considered intermittent. The feature connects with a traditional navigable water through its connectivity to the Santa Ana River; therefore, the concrete channel is a water of the United States under USACE jurisdiction. Based on the presence of hydrology indicators and connection with the Santa Ana River, the concrete channel was delineated as a non-wetland water of the state under RWQCB jurisdiction of and a streambed under CDFW jurisdiction.

Shallow Basin

The Project site contains a shallow basin. The shallow basin is located at the terminus of the concrete channel in the northwestern end of the Project site. This feature is vegetated as disturbed Goodding's willow–red willow riparian woodland and comprises native species such as black willow and California sycamore, but also contains high cover of non-native and ornamental tree species such as Tasmanian bluegum, Peruvian peppertree, Chinese elm, and blue jacaranda. The high cover of ornamental tree species is likely a relic of the Project site's previous function as a park. The shallow basin did not contain hydrology indicators, with the exception of topographic relief on the west, north, and eastern sides, suggesting that flows, if present, would pool in the location. Additionally, topographic relief extending from the concrete channel continues on an intermittent basis northwest until reaching a pipe at the western boundary where flow exits the Project site. Additionally, an inlet pipe was observed at the southwestern edge of the shallow basin; however, no hydrology indicators were observed leading from it, indicating it may no longer be in use or flows infrequently. No other hydrology indicators were observed. The tree understory was comprised of a deep layer of leaf litter. A small patch of tall flatsedge was observed at the northern end of the shallow basin. The shallow basin was delineated at the dripline of riparian vegetation.

The shallow basin is remnant of a historical drainage that extended through the Project site and connected with a tributary to the Santa Ana River. This basin feature is mapped on historic topographic maps beginning in 1955. The area appears to have been converted into a park between 1948 and 1959. Due to the presence of facultative wetland species within the shallow basin, a wetland delineation was conducted within this vegetation community. A data station (DS-2) taken in this location resulted in a dominance of hydrophytic vegetation; however, no evidence of wetland hydrology or hydric soils were observed, as further described in Section 5.3. Given the lack of hydrology indicators and hydric soils, this feature was considered a non-wetland water consistent with the remainder of the shallow basin. Based on the presence of hydrology indicators and ephemeral connection with the Santa Ana River, the shallow basin was delineated to be a non-wetland water of the state under RWQCB jurisdiction and a riparian lakebed under CDFW jurisdiction. The shallow basin lacks ordinary high water mark (OHWM) indicators and therefore would not be considered a water of the United States.

Source: Dudek

Exhibit 8 Hydrology

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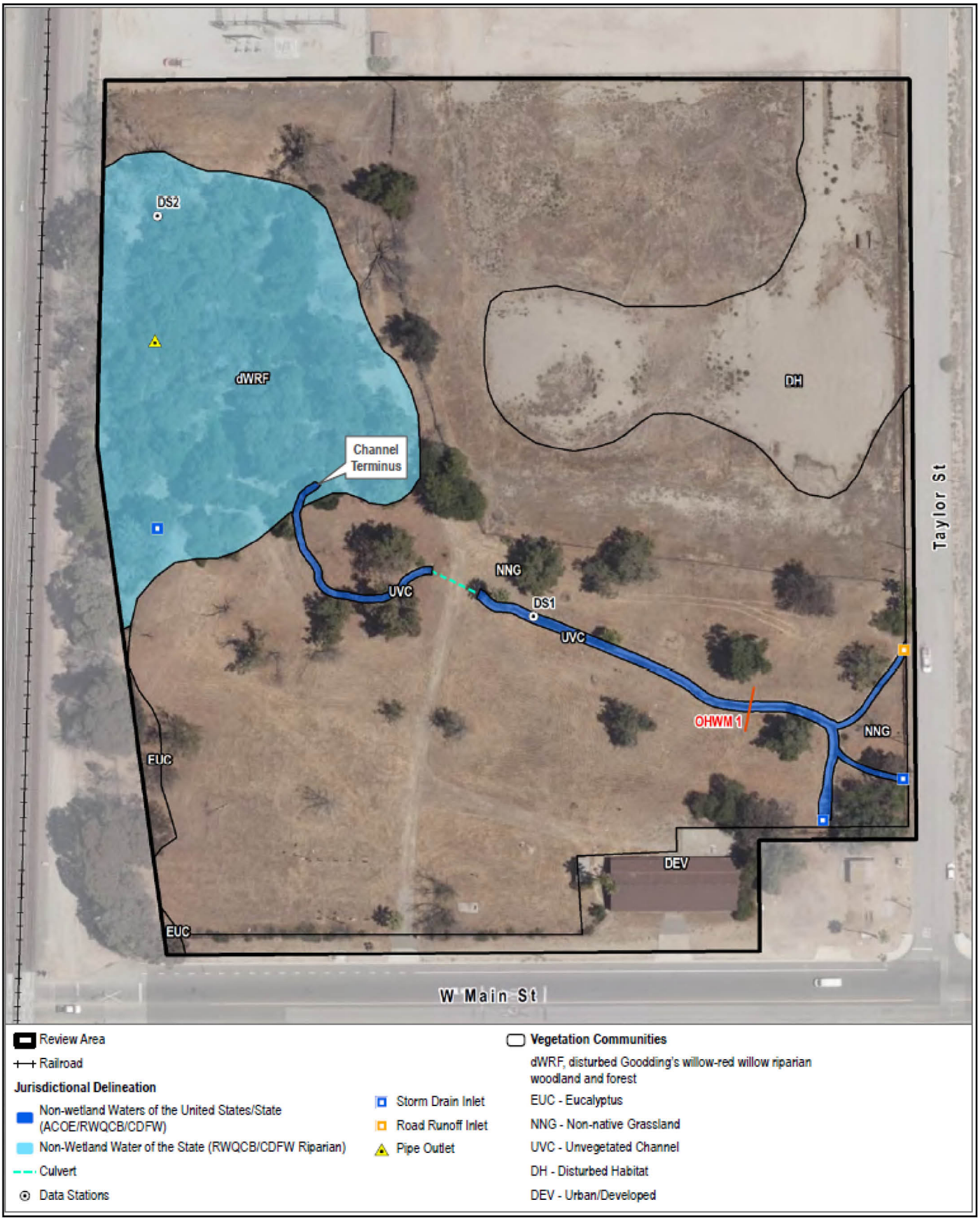

Source: Dudek

Exhibit 9 Jurisdictional Delineation Results

Condor Energy Storage Project
Grand Terrace, California

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Summary of Findings

As described above and shown in Exhibit 8, hydrology, vegetation, and soils were assessed at two data station locations to determine the presence or absence of wetlands field indicators. DS-1 is located within the concrete channel. This data station contained evidence of wetland vegetation with presence of broadleaf cattail (Obligate), tall flatsedge (Facultative Wetland [FACW]), and saltgrass (*Distichlis spicata*; Facultative). This data station contained evidence of hydrology, including surface water at a depth of 1 inch, sediment deposition, and drift deposits. However, the data station lacked viable hydric soil indicators given its presence within a concrete channel. Sediment deposition ranging from 1 to 3 inches supported the presence of herbaceous hydrophytic vegetation; however, this sediment was contained within a concrete channel that likely functioned as an artificial duripan that supported the vegetation growth. Due to the lack of hydric soils, this data point is not within a wetland. DS-2 is located within the shallow basin. This data station contained evidence of wetland vegetation with presence of black willow (FACW) and tall flatsedge (FACW); however, it lacked viable hydric soil indicators and hydrology indicators. Due to the lack of hydric soils and hydrology, this data point is not within a wetland.

Conclusion

The results of the jurisdictional delineation concluded there are approximately 0.11 acres (761 linear feet) of non-wetland waters of the state and waters of the United States under the jurisdiction of ACOE, the RWQCB, and CDFW. Additionally, there are 1.49 acres (328 linear feet) of riparian waters of the state under the jurisdiction of the RWQCB and CDFW. In order to avoid permanent loss of waters or functions and values of waters of the United States, the proposed Project will be constructed in the northeastern and southwestern corners of the site, and no physical changes to either the concrete channel or shallow basin will occur as a result of the proposed Project. Avoidance measures will be put in place during construction and operation to ensure that impacts to these waters do not occur. During construction activities, construction vehicles, personnel, and equipment will be restricted from accessing these areas, as will maintenance vehicles and operations personnel during operation of the BESS facility. Therefore, with avoidance of these features during construction and operation, impacts will be less than significant.

d) **No Impact.** The Project Site is surrounded on all sides by developed land and is not located within an established wildlife movement corridor. The Project Site is not a known wildlife nursery site. Thus, no impacts to wildlife species, migratory corridors, or native wildlife nursery sites are anticipated.

e) **No Impact.** The City of Grand Terrace does not have a tree preservation ordinance or other local policy or ordinance protecting biological resources. Therefore, development of the proposed Project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. No impact will occur.

f) **No Impact.** The Project site is not within any Habitat Conservation Plan area and no impacts would occur.[8]

4.5 – Cultural Resources

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☑	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☑	☐	☐

A *Historic Resource Evaluation Report*, dated February 2021, was prepared for the proposed Project by Dudek (See Appendix C) to evaluate the historical significance of the Highgrove Steam Plant in consideration of state designation criteria and integrity requirements. An Archaeological Resources Memorandum, date February 12, 2021, was also prepared for the proposed Project by Dudek (See Appendix D) to identify all archaeological resources within the Project's area of potential effect (APE) and to determine whether the Project would result in a significant impact relating to cultural resources. The results presented below reflect the findings and conclusions found in the Report and the Memorandum.

a) **Less than Significant Impact.** The Project site is the former site of the abandoned Cage Park, which was a landscaped feature of the Highgrove Steam Plant located immediately to the north of the site. The Highgrove Steam Plant was constructed between 1951 and 1955, making it more than 50 years old. In order to determine whether the proposed Project has the potential to impact historical resources under CEQA, the Highgrove Steam Plant was evaluated as a whole in consideration of California Register of Historic Resources (CRHR) designation criteria and integrity requirements. A detailed physical description of the Highgrove Steam Plant and a complete set of State of California Department of Parks and Recreation Series 523 forms (DPR forms) is provided in Appendix B of the Historic Resource Evaluation Report. The Highgrove Steam Plant property includes nine components, comprising six buildings, three structures, and three areas of foundations. Surrounding the property is a chain-link fence with an additional chain-link fence in the center dividing the property in two. Cage Park can be accessed from a gate along the southern boundary of the project site off West Main Street, and the Highgrove Steam Plant is accessed on the east from Taylor Street via a paved driveway. Open grass spaces are located to the south and north of the Highgrove Steam Plant. At the southern end of the property is a series of concrete-lined canals running northeast to southwest, terminating at the southeastern corner of the Project site. Multiple overgrown paths of circulation meander throughout the Project site, and a dried-up lake filled with overgrown trees is in the northwest portion of the site. Multiple metal light posts are located at the southern end of the Project site. According to the Historic Resource Evaluation Report, the Highgrove Steam Plant is not eligible under any CRHR designation criteria at the individual level due to a lack of the requisite integrity

necessary to convey significant historical associations and a lack of architectural merit. As a result of the evaluation, the Highgrove Steam Plant is recommended not eligible as a historical resource under CEQA. Therefore, no historical resources were identified within the Project Area and a less than significant impact to historical resources will occur as a result of the proposed Project.

b) **Less than Significant with Mitigation Incorporated.** The Project Site has been previously disturbed by modern human activities that would have displaced surface and subsurface archaeological resources. However, according to the Grand Terrace General Plan the City is located along the border of territories known to have been occupied by the Serrano, Gabrieleño (Tongva), and Cahuilla Indians, with the Serrano to the north, Gabrieleño to the west, and Cahuilla to the south and east. It is likely that all these groups passed through or exploited resources within the City limits at different times in prehistory (Open Space/Conservation Element, 4.2.3). Dudek conducted a pedestrian survey of the project APE on February 2, 2021, using standard archaeological procedures and techniques. No historical or prehistoric resources were observed during the course of this survey.

However, as recommended by Dudek, in the unlikely event that archeological materials are uncovered during ground-disturbing activities, Mitigation Measures CUL-1 through CUL-4 have been incorporated to reduce potentially significant impacts to a less than significant level. Mitigation Measure CUL-1 requires that a qualified archaeologist conduct an archaeological sensitivity training for construction personnel. Mitigation Measure CUL-2 requires that a qualified archaeological monitor be present during all construction excavations into non-fill sediments. If archaeological resources are encountered, Mitigation Measure CUL-3 requires that all ground-disturbing activities must be halted or diverted away from the find and that a buffer of at least 50 feet be established around the find until an appropriate treatment plan is coordinated. Mitigation Measure CUL-4 requires that the archaeological monitor prepare a final report at the conclusion of archaeological monitoring. With implementation of Mitigation Measures CUL-1 through CUL-4, impacts will be less than significant as a result of construction of the proposed Project.

Mitigation Measures

CUL-1: **Conduct Archaeological Sensitivity Training for Construction Personnel.** The Applicant shall retain a qualified professional archaeologist who meets U.S. Secretary of the Interior's Professional Qualifications and Standards, to conduct an Archaeological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training session shall be carried out by a cultural resource professional with expertise in archaeology, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. The training session will include a handout and will focus on how to identify archaeological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of archaeological monitors, and, the general steps a qualified professional archaeologist would follow in conducting a salvage investigation if one is necessary.

CUL-2: **Conduct Periodic Archeological Resources Spot Checks During Grading and Earth-Moving Activities.** The Applicant shall retain a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards to conduct periodic Archaeological Spot Checks beginning at depths below two (2) feet to determine if construction excavations have exposed or have a high probability of exposing archaeological resources. After the initial Archaeological Spot Check, further periodic checks will be conducted at the discretion of the qualified archaeologist. If the qualified archaeologist determines that construction excavations have exposed or have a high probability of exposing archaeological artifacts, construction monitoring for archaeological

resources will be required. The Applicant shall retain a qualified archaeological monitor, who will work under the guidance and direction of a professional archaeologist, who meets the qualifications set forth by the U.S. Secretary of the Interior's Professional Qualifications and Standards. The archaeological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into non-fill younger Pleistocene alluvial sediments. Multiple earth-moving construction activities may require multiple archaeological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known archaeological resources, the materials being excavated (native versus artificial fill soils), the depth of excavation, and if found, the abundance and type of archaeological resources encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the Project archaeologist.

CUL-3: **Cease Ground-Disturbing Activities and Implement Treatment Plan if Archaeological Resources Are Encountered.** In the event that archaeological resources are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 100 feet shall be established around the find where construction activities will not be allowed to continue until a qualified archaeologist has examined the newly discovered artifact(s) and has evaluated the area of the find. Work shall be allowed to continue outside of the buffer area. All archaeological resources unearthed by Project construction activities shall be evaluated by a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. Should the newly discovered artifacts be determined to be prehistoric, Native American Tribes/Individuals shall be contacted and consulted, and Native American construction monitoring shall be initiated. The Applicant and City shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. The plan may include implementation of archaeological data recovery excavations to address treatment of the resource along with subsequent laboratory processing and analysis.

CUL-4: **Prepare Report Upon Completion of Monitoring Services.** The archaeological monitor, under the direction of a qualified professional archaeologist who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards, shall prepare a final report at the conclusion of archaeological monitoring (if required). The report shall be submitted to the Applicant, the South Central Coastal Information Center, the City, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures. The report shall include a description of resources unearthed, if any, evaluation of the resources with respect to the California Register and CEQA, and treatment of the resources.

c) **Less than Significant Impact.** No known human remains are anticipated to be located on or beneath the Project site. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface, which may be encountered during construction excavations associated with the Project, and it is possible to encounter buried human remains during construction. As a result, mitigation measure CUL-5 is required to reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during Project implementation to a less than significant level. Mitigation Measure CUL-5 requires that in the unlikely event that human remains are uncovered the contractor is required to halt work in the immediate area of the find and to notify the County Coroner, in accordance with Health and Safety Code § 7050.5, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archaeologist, determines that the remains are or appear to be of a

Native American, he/she must contact the Native American Heritage Commission for further investigations and proper recovery of such remains, if necessary. With implementation of mitigation, impacts will be less than significant as a result of construction of the proposed Project.

Mitigation Measure

CUL-5: Cease Ground-Disturbing Activities and Notify County Coroner If Human Remains Are Encountered. If human remains are unearthed during implementation of the Project, the City of Grand Terrace and the Applicant shall comply with State Health and Safety Code Section 7050.5. The City of Grand Terrace and the Applicant shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). After the MLD has inspected the remains and the site, they have 48 hours to recommend to the landowner the treatment and/or disposal, with appropriate dignity, the human remains and any associated funerary objects. Upon the reburial of the human remains, the MLD shall file a record of the reburial with the NAHC and the Project archaeologist shall file a record of the reburial with the CHRIS-SCCIC. If the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

4.6 – Energy

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency??	☐	☐	☑	☐

a) **Less Than Significant Impact.** The proposed Project, an energy storage facility with associated appurtenances, would be subject to all applicable Federal, State, and local building regulations, including the California Building Code (CBC) as approved by the Grand Terrace Building & Safety Division. The proposed Project could potentially have a significant impact on the environment if it resulted in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation, or if it conflicts with or obstructs a state or local plan for renewable energy or energy efficiency. These potential impacts are discussed below.

Electricity

Construction of the Project would require the use of nonrenewable construction material, such as concrete, metals, and plastics. However, large amounts of energy would not be expended, and all construction vehicles would comply with federal and state standards for on- and off-road vehicles (e.g., emission standards set by the California Air Resources Board), meaning wasteful usage of energy would not occur. Construction-related impacts would therefore be less than significant.

The proposed solar energy storage Project, when complete, would operate to store electrical energy for a period of up to 30 years, which will include energy generated by renewable sources. Operation of the BESS facility would require minimal electricity. As such, operation of the Project would not lead to wasteful, inefficient, or unnecessary consumption of energy resources during operation. Impacts will be less than significant.

Fossil Fuels

During construction of the Project, energy in the form of gasoline and diesel petroleum (fossil fuels) will be used to fuel construction vehicles and construction-worker vehicles traveling to and from the site. However, construction vehicles are manufactured and maintained according to Federal and State regulations aimed at reducing fossil fuel consumption. In addition, construction activities are temporary and will cease upon completion of Project development. As such, development of the Project will not lead to wasteful, inefficient, or unnecessary consumption of fossil fuels during construction. Impacts will be less than significant.

Energy, in the form of fossil fuels, would also be used to fuel vehicles traveling to and from the site to inspect, repair or maintain the BESS facility over the course of the Project's operational lifetime. However, vehicle maintenance trips would be irregular (typically once or twice a year), and operation of the solar energy generation and storage facility would not generate daily trips. As such, operation of the Project will not lead to wasteful, inefficient, or unnecessary consumption of fossil fuels during operation and impacts will be less than significant.

b) **Less than Significant Impact.** As noted in the City's 2010 General Plan Open Space and Conservation Element, the City of Grand Terrace has adopted goals and policies to address conservation energy resources.[9] These goals and policies include:

Goal 4.6: The City shall support and promote the conservation of energy resources.
Policy 4.6.1: The City shall establish an energy conservation policy and implementation program for all City facilities.
Policy 4.6.2: The City shall implement a public outreach program to provide the public with information regarding energy conservation practices and programs.
Policy 4.6.3: The City shall encourage energy and environmentally sustainable design in new land development projects using the standards of Leadership in Energy and Environmental Design (LEED).
Policy 4.7.7: The City shall promote energy conservation efforts in new and existing residences and businesses.
Policy 8.4.5: Encourage the incorporation of energy conservation features in the design of all new housing developments and the addition of energy conservation devices/practices in existing residential developments
Goal 9.3: Reduce the City's per capita energy usage.
Policy 9.1.1: The City shall work with Southern California Edison to promote energy conservation at residences and businesses.
Policy 9.1.2: The City shall incorporate energy conservation measures into conditions of approval for new development projects.

The Climate Change Scoping Plan is the state's roadmap to reach the greenhouse gas reduction goals required in the Global Warming Solutions Act of 2006, or AB 32.[10] This plan calls for an ambitious but achievable reduction in California's carbon footprint – toward a clean energy future. Reducing greenhouse gas emissions to 1990 levels means cutting approximately 30% from business-as-usual emissions levels projected for 2020, or about 15% from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020. This challenge also represents an opportunity to transform California's economy into one that runs on clean and sustainable technologies, helping secure our energy independence and security, and ensure that all Californians are able to enjoy their rights to clean air, clean water, and a healthy and safe environment. The AB 32 Scoping Plan includes several key strategies aimed at achieving these goals. One of the key strategies of the AB 32 Scoping Plan involves Electricity and Energy, with the State having a goal of 33% renewables by 2020.

Instead of conflicting with these state and local renewable energy and energy efficiency plans, the proposed solar energy storage Project would have the effect of helping to achieve the stated goals of these plans. The Project would also help the City achieve its goals of supporting and promoting the conservation of energy resources by providing more storage for renewable energy sources. Additionally, the project will help the State of California achieve its AB 32 Scoping Plan targets of 33% renewable energy by 2020. As such, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.7 – Geology and Soils

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☑	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial direct or indirect risks to life or property?	☐	☐	☑	☐

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐

A *Geotechnical Investigation Report*, dated March 17, 2021, was prepared for the proposed Project by Dudek (See Appendix E) to identify geological conditions and hazards in the Project area and to determine whether the Project would result in a significant impact relating to geology and soils. The results presented below reflect the findings and conclusions found in the report.

a.i) **No Impact.** According to the Grand Terrace General Plan, there are no known faults within the Grand Terrace City limits.[11] The closest known active fault to the Project site is the San Bernardino Valley segment of the San Jacinto Fault, which is approximately 3.5 miles to the northeast at its nearest location. Although the Project site is located in seismically active Southern California, the site is not located within an Alquist-Priolo Earthquake Fault Zone.[12] No active faults have been identified at the ground surface on the Project site. The Project will not directly or indirectly rupture a known earthquake fault. No impact will occur.

a.ii) **Less than Significant Impact.** The Project site is located in an area of high regional seismicity. According to the General Plan, there are seven known fault zones located in the vicinity that could result in a seismic hazard. These include the Rialto-Colton Fault, the San Jacinto Fault, the Loma Linda Fault, the San Andreas Fault, the Cucamonga Fault, and the Chino-Elsinore Fault. However, there are no known faults within the Grand Terrace City Limits.[13] Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults. The Project is subject to the seismic design criteria of the California Building Code (CBC). The 2019 California Building Code (California Building Code, California Code of Regulations, Title 24, Volume 2) contains seismic safety provisions with the aim of preventing building collapse during a design earthquake, so that occupants would be able to evacuate after the earthquake. A design earthquake is one with a two percent chance of exceedance in 50 years, or an average return period of 2,475 years. Adherence to these requirements will reduce potential impacts from collapse during an earthquake, thereby minimizing injury and loss of life. Although Project features may be damaged during earthquakes, adherence to seismic design requirements will minimize damage to property within the Project features because the Project features are designed not to collapse. The CBC is intended to provide minimum requirements to prevent major structural failure and loss of life. Adherence to existing regulations will reduce the risk of loss, injury, and death; impacts due to strong ground shaking would be less than significant with construction of the proposed energy storage facility.

a.iii) **No Impact.** Liquefaction generally occurs as a “quicksand” type of ground failure caused by strong ground shaking. The primary factors influencing liquefaction potential include groundwater, soil type, relative density of the sandy soils, confining pressure, and the intensity and duration of ground shaking. The San Bernardino County Geologic Hazard Overlay Map does not include the Project site within a liquefaction susceptibility area.[14] Moreover, the General Plan Public Health and Safety

Element concludes that liquefaction is not considered a direct hazard to the City of Grand Terrace.[15] In addition, the subsurface conditions at the site are not considered to be conducive to liquefaction. Based on the mapping performed by San Bernardino County the City of Grand Terrace and the conditions encountered at the site, adverse impacts due to the risk of liquefaction are not anticipated. No impact will occur.

a.iv) **No Impact.** Landslides are mass movements of the ground that include rock falls, relatively shallow slumping and sliding of soil, and deeper rotational or transitional movement of soil or rock. The Project site is relatively flat and, according to the San Bernardino County Geologic Hazard Overlay Map, is not located within an area susceptible to landslides.[16] Therefore, there would be no impact from landslides on the Project and no mitigation is required.

b) **Less than Significant Impact.** Topsoil is used to cover surface areas for the establishment and maintenance of vegetation due to its high concentrations of organic matter and microorganisms. Little native topsoil is likely to occur on the site because it is partially developed and has been disturbed in the past. Construction of the proposed energy storage facility would have the potential to expose surficial soils to wind and water erosion during construction activities. However, wind erosion would be minimized through soil stabilization measures required by South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust), such as daily watering. Water erosion would also be prevented through the City's standard erosion control practices (Municipal Code Sections 13.20.220 and 13.20.230) required pursuant to the California Building Code and the National Pollution Discharge Elimination System (NPDES). Therefore, impacts related to soil erosion would be less than significant with implementation of existing regulations.

c) **Less than Significant Impact.** Impacts related to liquefaction and landslides are discussed above in Sections 4.7.a, above. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to gravity and earthquake shaking combined. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures. Lateral spreading of the ground surface during a seismic activity usually occurs along the weak shear zones within a liquefiable soil layer and has been observed to generally take place toward a free face (i.e., retaining wall, slope, or channel) and to lesser extent on ground surfaces with a very gentle slope. Due to the absence of any channel within the Project site, and the subsurface soil conditions that are not conducive to liquefaction, the potential for lateral spread occurring on the Project site is considered to be negligible. The Project site is not identified as being located on a geologic unit or soil that has been identified as being unstable or having the potential to result on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. The Project site is relatively flat and consists of native alluvial soils and non-native soils. The Project is required to be constructed in accordance with the 2019 CBC. Compliance with existing CBC regulations would limit hazard impacts arising from unstable soils to less than significant levels. Therefore, the Project would not likely result in landslides, lateral spreading, subsidence, liquefaction or collapse and no mitigation is required.

d) **Less than Significant Impact.** Expansive soils are classified as ranging from very low to very high according to expansion index criteria established by Table 18-1-B of the Uniform Building Code (ICBO, 1994). Based on a review of geologic maps and nearby boring data (County of Riverside, 1999 and Delta, 2010), it is anticipated that much of the site soils consist of sand, silt, and gravel. As such, site soils are anticipated to have a low potential for expansion. The Project would be required to be in conformance with the 2019 California Building Code, City regulations, and other applicable standards. It is the responsibility of the geotechnical engineer of record to evaluate the potential for expansive soils and to provide appropriate design recommendations to address the potential hazards.

Conformance with standard engineering practices and adherence to design criteria would reduce impacts related to expansive soil potential to a less than significant level.

e) **No Impact.** The Project proposes to connect to the existing municipal sewer system and would not require use of septic tanks. No impact would occur.

f) **Less than Significant with Mitigation Incorporated.** The Project site has been partially disturbed by previous development. Any buried paleontological resources would have already been uncovered or destroyed at the time of initial grading of the Project site. However, in the event that paleontological materials are uncovered, Mitigation Measures GEO-1 through GEO-4 are required to reduce potentially significant impacts to previously undiscovered paleontological resources and/or unique geological features that may be accidentally encountered during Project implementation to a less than significant level. Mitigation Measure GEO-1 requires that a paleontological sensitivity training for construction personnel be conducted before commencement of excavation activities. Mitigation Measure GEO-2 requires that a qualified paleontologist conduct periodic paleontological spot checks to determine if excavations have extended into older Pleistocene alluvial deposits as well as the presence of a paleontological monitor during all excavations into the local geologic formation or into older Pleistocene alluvial deposits. Mitigation Measure GEO-3 requires that ground-disturbing activities be halted or diverted away from the vicinity and that a buffer of at least 50 feet be established if paleontological materials are encountered until an appropriate treatment plan is coordinated. Mitigation Measure GEO-4 requires that a professional paleontologist prepare a report summarizing the results of the monitoring efforts, methodology used, and the description of fossils collected and their significance. With implementation of Mitigation Measures GEO-1 through GEO-4, impacts to paleontological resources will be less than significant as a result of construction of the proposed Project.

Mitigation Measures

GEO-1: **Conduct Paleontological Sensitivity Training for Construction Personnel.** The Applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, shall conduct a Paleontological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event; the duties of paleontological monitors; notification and other procedures to follow upon discovery of resources, the general steps a qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.

GEO-2: **Conduct Periodic Paleontological Spot Checks During Grading and Earth-Moving activities.** The Applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, shall conduct periodic Paleontological Spot Checks beginning at depths below six (6) feet to determine if construction excavations have extended into older Quaternary deposits. After the initial Paleontological Spot Check, further periodic checks will be conducted at the discretion of the qualified paleontologist. If the qualified paleontologist determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for Paleontological Resources will be required. The Applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene

alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

GEO-3: **Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered.** In the event that paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the Applicant and the City. Work shall be allowed to continue outside of the buffer area. The Applicant and City shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.

GEO-4: **Prepare Report Upon Completion of Monitoring Services.** Upon completion of the above activities, the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the Applicant, the City, the Natural History Museums of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures.

4.8 – Greenhouse Gas Emissions

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Greenhouse gas emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Project construction-generated greenhouse gas emissions were calculated using CalEEMod model defaults for San Bernardino County. Operational greenhouse gas emissions were based on the Project site plans.

a) **Less than Significant Impact.** Climate change is the distinct change in measures of climate for a long period of time. Climate change is the result of numerous, cumulative sources of greenhouse gas (GHG) emissions all over the world. Natural changes in climate can be caused by indirect processes such as changes in the Earth's orbit around the Sun or direct changes within the climate system itself (e.g., changes in ocean circulation). Human activities can affect the atmosphere through emissions of GHG and changes to the planet's surface. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock, deforestation activities; and some agricultural practices.

GHGs differ from other emissions in that they contribute to the "greenhouse effect." The greenhouse effect is a natural occurrence that helps regulate the temperature of the planet. The majority of radiation from the Sun hits the Earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping back into space and re-radiate it in all directions. This process is essential to supporting life on Earth, because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat, thereby contributing to an average increase in the Earth's temperature. GHGs occur naturally and from human activities. GHGs produced by human activities include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). Since 1750, it is estimated that the concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere have increased over 36 percent, 148 percent, and18 percent, respectively, primarily due to human activity. Emissions of GHGs affect the atmosphere directly by changing its chemical composition while changes to the land surface indirectly affect the atmosphere by changing the way the Earth absorbs gases from the atmosphere.

GHG emissions for the proposed Project were quantified utilizing the California Emissions Estimator Model (CalEEMod) version 2016.3.2 to determine if the Project could have a cumulatively considerable impact related to greenhouse gas emissions. The Project's total GHG emissions (i.e., operational emissions combined with the amortized construction emissions) are shown in Table 7, *Project Greenhouse Gas Emissions, and* compared against the SCAQMD's lowest recommended screening level of 1,400 $MTCO_2e$/yr. for commercial projects. As shown in Table 7, the total GHG emissions generated from the Project is approximately 130.9 MTCO2E per year which includes construction-related emissions amortized over a typical project life of 30 years. Therefore, the proposed Project will not exceed the applicable draft GHG screening thresholds and impacts would be less than significant.

Table 7
Project Greenhouse Gas Emissions

Source	GHG Emissions (MT/YR)			
	CO_2	CH_4	N_2O	CO_2e
Area	0.0	0.0	0.0	<0.0(A)
Energy	0.0	0.0	0.0	0.0
Mobile	103.9	<0.0(A)	0.0	104.1
Waste	2.5	0.1	0.0	6.2
Water	10.3	0.1	<0.0(A)	12.8
Amortized Construction	7.8	<0.0(A)	0.0	7.8
Total(B)	**124.6**	**0.3**	**<0.0(A)**	**130.9**
SCAQMD Commercial Land Use Threshold				***1,400***
SCAQMD Commercial Land Use Threshold Exceeded?				***No***

Source: MIG 2020 (See Appendix A)
Note:
(A) <0.0 does not mean emissions are zero; rather, it means emissions are less than 0.05, but greater than zero.
(B) Slight variations may occur due to rounding.

b) **No Impact.** As shown above, the Project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Additionally, the Project's consistency with AB 32 and Senate Bill (SB) 32 are discussed below.

AB 32 Consistency. AB 32 was adopted in 2006 and requires California to reduce its GHG emissions to 1990 levels by 2020. CARB identified reduction measures to achieve this goal as set forth in the CARB Scoping Plan. Thus, projects that are consistent with the CARB Scoping Plan are also consistent with AB 32 goal.

The Project would generate GHG emissions, directly and indirectly, from a variety of sources. The CARB Scoping Plan includes strategies for implementation at the statewide level to meet the goals of AB 32. These strategies serve as statewide measures to reduce GHG emissions levels. The Project would be subject to the applicable measures established in the Scoping Plan because these measures are implemented at the state level. Therefore, the Project would not conflict or otherwise interfere with implementation of AB 32.

SB 32 Consistency. SB 32 was adopted in 2016 and requires the state to reduce statewide GHG emissions 40% below 1990 levels by 2030. SB 32 codifies the reduction target issued in Executive Order B-30-15. SB 32 builds upon the AB 32 goal of 1990 levels by 2020 and provides an interim goal to achieving Executive Order S-3-05's 2050 reduction goal of 80% below 1990 levels.

The CARB 2017 Scoping Plan identified reduction measures to achieve the SB 32 GHG reduction goal. Like the previously adopted Scoping Plans, the 2017 Scoping Plan includes statewide reduction measures that are implemented at the state level. The Project would be subject to the applicable measures established in the 2017 Scoping Plan because these measures are implemented at the state level.

Additionally, the 2014 Scoping Plan Update indicates "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32"; and it recognizes the potential for California to "reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050."

Moreover, the Project does not propose facilities or operations that would substantively interfere with any future County-mandated, state-mandated, or federally-mandated regulations enacted or promulgated to legally require development to assist in meeting state-adopted GHG emissions reduction targets, including those established under Executive Order S-3-05, Executive Order B-30-15, SB 32, or the 2017 Scoping Plan.

Therefore, the Project would not conflict with implementation of SB 32 or otherwise interfere with implementation of this or future goals.

4.9 – Hazards and Hazardous Materials

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
h) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

A *Phase I Environmental Site Assessment (ESA)* was prepared for the proposed Project by Alta Environmental DBA NV5 (Alta Environmental), which is dated October 29, 2020, and is included as Appendix F. The information in this section of the Initial Study related to hazards and hazardous emissions is based on the analysis provided in the *Phase I ESA*.

a) **Less than Significant Impact.** Construction and operation of the proposed Project could create significant hazards as a result of the routine transport, use, or disposal of hazardous materials during either construction or operation. These potential impacts are discussed below.

Short-term (Construction Period) Activities. The results of the Project Phase I Environmental Site Assessment found that there is no evidence of a Controlled "recognized environmental condition" (REC), or historic REC, in connection with the site. Project construction activities would involve the temporary use and transport of fuels, lubricating fluids, solvents, and other hazardous materials. The contractor would be required to develop and adhere to a Health and Safety Plan, which pursuant to California state Health and Safety Code Chapter 6.95, Division 20 (§§ 25500-25532), would minimize potentially hazardous effects of handling potentially hazardous materials during construction. Project compliance with federal, state, and local regulations pertaining to safe transport, use, handling, and disposal of hazardous materials would reduce these effects, and this potential would be considered a less-than-significant impact.

Long-term (Operational) Activities. The proposed Project includes development and operation of an energy storage facility and related appurtenances. Routine transport, use, or disposal of hazardous waste or materials is not associated with this type of use and the Project will only generate a nominal amount of Household Hazardous Waste (HHW) because of routine maintenance and cleaning operations. Disposal of HHW will be required to comply with federal, State, and local regulations related to disposal of wastes. Compliance with these regulations would minimize potentially hazardous effects, and impacts would be less than significant.

b) **Less than Significant Impact.** According to the State Water Resources Control Board, there are no open cases of leaking underground storage tanks (LUST) within one-quarter mile of the Project site.[17] Therefore, there would be a less than significant impact related to the release of hazardous materials into the environment because of development of the proposed energy storage facility.

Construction of the Project would require the use and transport of hazardous materials such as asphalt, paints, and other solvents. Construction activities could also produce hazardous wastes associated with the use of such products. Construction of the proposed Project would require ordinary construction activities and would not require a substantial or uncommon number of hazardous materials to complete. All hazardous materials are required to be utilized and transported in accordance with their labeling pursuant to federal and state law. Routine construction practices include good housekeeping measures to prevent/contain/clean-up spills and contamination from fuels, solvents, concrete wastes and other waste materials. Construction-related impacts would be less than significant with adherence to existing regulations.

As discussed above, the *Phase I ESA* conducted for the proposed Project revealed no evidence of "recognized environmental conditions" (RECs) on the Project site. The Phase I ESA did not identify the presence of any other possible hazardous materials present in the soils on the site, including pesticides and herbicides from past agricultural use, potential lead-based paint, or asbestos-containing materials (ACMs) that could result in the release of hazardous materials into the environment. Therefore, impacts from the release of these materials into the environment, through reasonably foreseeable upset and accident conditions, would be less than significant.

Finally, a *Hazards Analysis Final Report*, dated June 1, 2021, was prepared for the proposed Project by MRS Environmental (See Appendix G). As stated in the Hazards Analysis Report, the Project is required to develop and Emergency Operations Plan in compliance with National Fire Protection Association (NFPA) Section 4.1.3.2.1. Fire prevention systems would include proposed cabinets designed to limit or eliminate the potential for fire to spread from one cabinet to another, infrared camera monitoring at the site for external fire detection and onsite fire hydrants. Additional items include video monitoring of the site, site lighting, site security, training, fire access planning and fire water flow design. Tesla provides an Emergency Response Guide for the Megapack detailing hazards, firefighting measures, shutting down and disposal of materials and also recommends a number of firefighting measures. Fire prevention systems would include proposed cabinets designed to limit or eliminate the potential for fire to spread from one cabinet to another, infrared camera monitoring at the site for external fire detection and onsite fire hydrants. Additional items include video monitoring of the site, site lighting, site security, training, fire access planning and fire water flow design. The Battery Management System (BMS) would monitor all cell voltages, currents and temperatures and shut down equipment if unsafe conditions are detected with monitoring and control by the Tesla Operations Center. As determined in the Hazards Analysis Report for the Project, the reasonable worst-case battery cell malfunction scenarios would result in manageable hazards, with ground-level toxic, thermal and deflagration hazards remaining onsite. Therefore, the maximum potential public health impacts for the battery facility are considered less than significant. Therefore, impacts related to reasonably foreseeable upset and accident conditions would be less than significant.

c) **Less than Significant Impact.** The nearest school to the Project site is Grand Terrace High School, located adjacent to the Project site to the east. However, as mentioned above, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Therefore, a less than significant impact would occur.

d) **No Impact.** The Project is not located on a site listed on the state *Cortese List*, a compilation of various sites throughout the state that have been compromised due to soil or groundwater contamination from past uses. [18]

Based upon review of the *Cortese List*, the Project site is not:

- listed as a hazardous waste and substance site by the Department of Toxic Substances Control (DTSC),[19]
- listed as a leaking underground storage tank (LUFT) site by the State Water Resources Control Board (SWRCB),[20]
- listed as a hazardous solid waste disposal site by the SWRCB,[21]
- currently subject to a Cease and Desist Order (CDO) or a Cleanup and Abatement Order (CAO) as issued by the SWRCB,[22] or
- developed with a hazardous waste facility subject to corrective action by the DTSC.[23]

e) **No Impact.** The nearest airport to the Project site is the Flabob Airport, located approximately 4.6 miles to the southwest.[24] The Project site is not located within an airport land use plan. Therefore, no impact related to airport operations would occur.

f) **Less than Significant Impact.** Per state Fire and Building Codes, sufficient space will have to be provided around the proposed energy storage containers for emergency personnel and equipment access and emergency evacuation. All Project elements, including landscaping, would be sited with sufficient clearance from existing and proposed structures so as not to interfere with emergency access to and evacuation from the facility. The development will be required to comply with the

California Fire Code as adopted by the Grand Terrace Municipal Code (Chapter 15.18.010: Adoption of the California Fire Code). Access to the site will be provided via a sliding gate and driveway on the southern side of the Project site and a sliding gate and driveway at the northeast corner of the site. The driveways have been constructed to California Fire Code specifications and would allow emergency access and evacuation from the site. Any driveway improvements that occur during Project development would also be constructed to California Fire Code specifications. The Project would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan because no permanent public street or lane closures are proposed. Construction work in the street associated with the development would be limited to lateral utility connections and nominal potential traffic diversion. Project impacts would be less than significant.

g) **No Impact.** According to the General Plan, the Project site is not located within a fire hazard zone, as identified in Exhibit 5-3 of the *Public Health and Safety Element*.[25] There are no wildland conditions in the urbanized area where the Project site is located. No impact would occur.

4.10 – Hydrology and Water Quality

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water supply?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☑	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☑	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☑	☐
iv) impede or redirect flood flows?	☐	☐	☐	☑
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☑

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☑	☐

a) **Less than Significant Impact.** A project normally would have an impact on surface water quality if discharges associated with the project would create pollution, contamination, or nuisance as defined in Water Code § 13050, or that cause regulatory standards to be violated as defined in the applicable National Pollutant Discharge Elimination System (NPDES) stormwater permit or Water Quality Control Plan for the receiving water body. For the purpose of this specific issue, a significant impact could occur if the proposed energy storage facility would discharge water that does not meet the quality standards of the agencies that regulate surface water quality and water discharge into stormwater drainage systems. Significant impacts could also occur if the Project does not comply with all applicable regulations with regard to surface water quality as governed by the State Water Resources Control Board (SWRCB). These regulations include preparation of a Stormwater Pollution Prevention Plan (SWPPP) to reduce potential water quality impacts during construction activity (Grand Terrace Municipal Code Section 13.20.230) and the implementation of post-construction best management practices (BMPs) (Grand Terrace Code Section 13.20.250).

Construction Impacts

Three general sources of potential short-term, construction-related stormwater pollution associated with the Project include: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth-moving activities which, when not controlled, may generate soil erosion via storm runoff or mechanical equipment. All new development projects equal to one acre or more are subject to San Bernardino County NPDES Permit No. CAS618036. The proposed BESS facility (including equipment, pavement, and substation) would disturb approximately 4.8 acres of land and therefore will be subject to NPDES permit requirements during construction activities. Moreover, pursuant to Municipal Code Section 13.20.230, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared and submitted for the proposed development. All construction projects must apply BMPs that include drainage controls such as detention ponds, dikes, filter berms, and downdrains to prevent runoff, and utilizing plastic covering to prevent erosion. Compliance with City discharge requirements would ensure that construction of the energy storage facility would not violate any water quality standards or discharge requirements, or otherwise substantially degrade water quality. Impacts would be less than significant with implementation of existing regulations.

Operational Impacts

Proposed construction will result in approximately 48 percent impervious surfaces on the Project site. The Project site will be developed only in those areas where the BESS equipment, pavement, and substation will be constructed. The remainder of the site will be kept in its current condition, especially the portions of the site that include the riparian habitat and channels. The Project will include two separate stormwater detention ponds, one in the north-central portion of the site to the east of the riparian wetland area, and the second in the west-central portion of the site to the south of the riparian wetland area. Together these two detention ponds will comprise approximately 0.17 acres of the site.

The Project would be subject to post-construction BMPs to address increases in impervious surfaces, methods to decrease incremental increases in off-site stormwater flows, and methods for decreasing pollutant loading in off-site discharges. A key design criterion is to treat the first ¾-inch rainstorm flows, since the first rains typically carry the most concentrated levels of pollution that have built up since the last storm. Common post-construction BMPs include retaining stormwater on-site to filter back into the groundwater. Once the proposed Project is constructed approximately 48 percent of the site will be comprised of impervious surfaces. During operation stormwater will be collected on-site and diverted to one of the two proposed stormwater detention ponds where it will be treated before being discharged into the municipal storm drain system in Main Street. In addition, the areas of the site that would not be converted to impervious surfaces would continue to serve as bio swales for runoff collection and treatment.

The proposed energy storage facility would not generate hazardous wastewater that would require any special waste discharge permits. All wastewater associated with the energy storage facility would be discharged into the local sewer system for treatment at the regional wastewater treatment plant. Although the amount of impervious surfaces would be greater than existing conditions, runoff would be captured on site and conveyed through a proposed on-site storm drainage system that includes water treatment at two detention ponds prior to being discharged into the municipal storm drain at Main Street. Impacts associated with operation of the proposed energy storage facility would therefore be less than significant with implementation of existing regulations.

b) **Less than Significant Impact.** If the Project removes an existing groundwater recharge area or substantially reduces runoff that results in groundwater recharge such that existing wells would no longer be able to operate, a potentially significant impact could occur. In general, groundwater does not occur in this area within 93 to 103 feet of the ground surface. Project-related grading and trenching would only go a few feet below the surface and would not reach the depth of the groundwater table. Therefore, no disturbance of groundwater is anticipated. The proposed Project would increase impervious surface coverage on the site to approximately 48 percent. However, infiltration of irrigation water through soil and water from runoff through the remainder of the site that will remain pervious would ensure continued groundwater recharge. The Project site is not utilized specifically for groundwater recharge but will continue to allow infiltration on over half the site. Because this site is not managed for groundwater supplies and would provide for continued infiltration, the addition of impervious surfaces on the site would not have a significant effect on the groundwater table level. Impacts related to development of the proposed energy storage facility would be less than significant.

c.i) **Less than Significant Impact.** Potentially significant impacts to the existing drainage pattern of the site or area could occur if development of the Project results in substantial on- or off-site erosion or siltation. Stormwater would be collected on site and conveyed to two detention ponds for treatment and then conveyed to the City's storm drainage system in Main Street. Therefore, the drainage pattern would not be substantially altered in a manner that could cause increases in erosion off-site. Erosion and siltation reduction measures would be implemented during construction. At the completion of construction, the site would consist of approximately 48 percent impervious surfaces while the majority of the site will remain in its natural existing condition or will be landscaped. Therefore, the site will not be prone to substantial erosion upon completion of construction. There are two channelized intermittent streams that cross the Project site and feed into the riparian wetland in the northwestern portion of the site. However, these features will be completely avoided during both construction and operation and will be left in their existing condition. Therefore, the Project would not alter any stream course and impacts would be less than significant.

c.ii-iii) **Less than Significant Impact.** As stated in response 4.10.c.i above, there are two channelized intermittent streams that cross the Project site and feed into the riparian wetland in the northwestern portion of the site. However, these features will be completely avoided during both construction and operation and will be left in their existing condition. Therefore, the Project would not result in the alteration of any stream course. Additionally, during construction, the Project applicant would be required to comply with drainage and runoff guidelines pursuant to Municipal Code Chapter 13.20.

With regard to Project operation, construction of the energy storage facility would increase the net area of impermeable surfaces on the site to approximately 48 percent; therefore, increased discharges to the City's existing storm drain system would likely occur. Stormwater associated with the proposed development would be collected on site and conveyed to two detention ponds for treatment and then conveyed to the City's storm drainage system at Main Street. Permits to connect to the existing storm drainage system would be obtained prior to construction. All drainage plans are subject to City review and approval. Therefore, the increase in discharges would not impact local storm drain capacity. The Project is an industrial use; however, it would not result in substantial pollutant loading such that treatment control BMPs would be required to protect downstream water quality. Impacts related to the proposed Project would be less than significant.

c.iv) **No Impact.** According to flood maps prepared by the Federal Emergency Management Agency, the Project site is not located within a 100-year flood floodplain.[26] The Project is located in Zone X, which is an area of minimal flood hazard. Additionally, the General Plan does not identify the Project site is being located in a flood hazard zone.[27] Therefore, the Project will not impede or redirect flood flows. No impacts will occur.

d) **No Impact.** The Project site is not located within a 100-year flood floodplain. The City is not exposed to tsunami hazards due to its inland location. In addition, no large water bodies that would pose potential for seiche are in the Project area. The potential for mudflows is unlikely given the site's distance from hillside and mountainous terrain. Additionally, according to the County of San Bernardino General Plan Hazard Overlay map for the area, the Project site is not located within a dam inundation area.[28] No impact would result.

e) **Less than Significant Impact.** As demonstrated in 4.10a-4.10.d above the Project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. A less than significant impact will occur.

4.11 – Land Use and Planning

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑	☐

a) **No Impact.** The Project is surrounded by industrial, commercial, residential, and institutional uses. The site is currently designated in the City's General Plan and Zoning Code for Industrial and M2 - Industrial uses, respectively. The proposed project is consistent with these designations and is consistent and compatible with surrounding land uses. The Project does not involve construction of any roadway, flood control channel, or other structure that would physically divide any portion of the community. Therefore, no impact would occur.

b) **Less than Significant Impact.** As described in response 4.4.b, the results of the jurisdictional delineation concluded there are approximately 0.11 acres (761 linear feet) of non-wetland waters of the state and waters of the United States under the jurisdiction of ACOE, the RWQCB, and CDFW. Additionally, there are 1.49 acres (328 linear feet) of riparian waters of the state under the jurisdiction of the RWQCB and CDFW. In order to avoid permanent loss of waters or functions and values of waters of the United States, the proposed Project will be constructed in the northeastern and southwestern corners of the site, and no physical changes to either the concrete channel or shallow basin will occur as a result of the proposed Project. Avoidance measures will be put in place during construction and operation to ensure that impacts to these waters do not occur. During construction activities, construction vehicles, personnel, and equipment will be restricted from accessing these areas, as will maintenance vehicles and operations personnel during operation of the BESS facility. Therefore, with avoidance of these features during construction and operation, the Project would not conflict with state or federal jurisdictional waters protection plans. The Project would maintain the integrity of the surrounding area in terms of density, use, and design. The Project does not include any feature that would circumvent any mitigating policies in the Grand Terrace General Plan. Impacts would be less than significant.

4.12 – Mineral Resources

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

a) **No Impact.** The Project site is in a partially urbanized area characterized by industrial and commercial development and some vacant land. According to the California Department of Conservation Mineral Lands Classification map for the San Bernardino County Production-Consumption (P-C) Region, the Project site is located within an area designated Mineral Resource Zone 3 (MRZ-3).[29] These are areas where the significance of mineral deposits cannot be determined. Additionally, according to the Project Phase I Environmental Site Assessment (ESA), the Project site is not located within any known oil or gas field boundary and there are no known producing and/or abandoned oil wells located within 1,500 feet of the site. Therefore, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state and no impact would occur.

b) **No Impact.** As stated in response 4.12.a above, the Project site is located in an area where the significance of mineral deposits cannot be determined. Additionally, the Project site is not located within any known oil or gas field boundary and there are no known producing and/or abandoned oil wells located within 1,500 feet of the site. Finally, the Grand Terrace General Plan Open Space and Conservation Element does not identify any locally-important mineral resource recovery sites within the City boundaries. Therefore, the Project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan and no impact would occur.

4.13 – Noise

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑	☐

A *Preliminary Operational Noise Analysis*, dated July 14, 2021, was prepared by Dudek for the proposed Project and is included as Appendix H of this IS/MND. The technical memorandum provides details regarding potential operational noise levels impacts. This section incorporates the technical memorandum's findings, as well as other sources of information to provide context about the proposed Project's environmental and regulatory setting (as it pertains to noise and vibration), estimated project noise levels, and potential noise and vibration impacts. This section also provides information on the fundamentals of sound production, transmission, and environmental noise analysis.

The Decibel Scale (dB)

The decibel scale (dB) is a unit of measurement that indicates the relative amplitude of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a tenfold increase in acoustic energy, while 20 dBs is 100 times more intense, 30 dBs is 1,000 more intense, and so on. In general, there is a relationship between the subjective noisiness, or loudness of a sound, and its amplitude, or intensity, with each 10 dB increase in sound level perceived as approximately a doubling of loudness.

Sound Characterization

There are several methods of characterizing sound. The most common method is the "A-weighted sound level," or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is typically most sensitive. Thus, most environmental measurements are reported in dBA, meaning decibels on the A-scale.

Human hearing matches the logarithmic A-weighted scale, so that a sound of 60 dBA is perceived as twice as loud as a sound of 50 dBA. In a quiet environment, an increase of 3 dB is usually perceptible, however, in a complex noise environment such as along a busy street, a noise increase of less than 3 dB is usually not perceptible, and an increase of 5 dB is usually perceptible. Normal human speech is in the range from 50 to 65 dBA. Generally, as environmental noise exceeds 50 dBA, it becomes intrusive and above 65 dBA noise becomes excessive. Nighttime activities, including sleep, are more sensitive to noise and are considered affected over a range of 40 to 55 dBA. Table 8 (Typical Outdoor and Indoor Noise Levels) lists typical outdoor and indoor noise levels in terms of dBA.

Table 8
Typical Outdoor and Indoor Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	-110-	Rock Band
Jet flyover at 1,000 feet		
	-100-	
Gas lawn mower at 3 feet		
	-90-	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	-80-	Garbage disposal at 3 feet
Noise urban area, daytime		
Gas lawnmower, 100 feet	-70-	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	-60-	
		Large business office
Quiet urban daytime	-50	Dishwasher next room
Quite urban nighttime	-40-	Theater, large conference room (background)
Quiet suburban nighttime		
	-30-	Library
Quite rural nighttime		Bedroom at night
	-20-	
		Broadcast/recording studio
	-10-	
Lowest threshold of human hearing	-0-	Lowest threshold of human hearing

Source: Caltrans 2013

Sound levels are typically not steady and can vary over a short time period. The equivalent noise level (Leq) is used to represent the average character of the sound over a period of time. The Leq represents the level of steady noise that would have the same acoustical energy as the sum of the time-varying noise measured over a given time period. Leq is useful for evaluating shorter time periods over the course of a day. The most common Leq averaging period is hourly, but Leq can describe any series of noise events over a given time period.

Variable noise levels are values that are exceeded for a portion of the measured time period. Thus, L01 is the level exceeded one percent of the time and L90 is the level exceeded 90 percent of the time. The L90 value usually corresponds to the background sound level at the measurement location.

Noise exposure over the course of an entire day is described by the day/night average sound level, or Ldn, and the community noise equivalent level, or CNEL. Both descriptors represent the 24-hour noise impact on a community. For Ldn, the 24-hour day is divided into a 15-hour daytime period (7 AM to 10 PM) and a nine-hour nighttime period (10 PM to 7 AM) and a 10 dB "penalty" is added to measure nighttime noise levels when calculating the 24-hour average noise level. For example, a 45 dBA nighttime sound level would contribute as much to the overall day-night average as a 55 dBA daytime sound level. The CNEL descriptor is similar to Ldn, except that it includes an additional 5 dBA penalty beyond the 10 dBA for sound events that occur during the evening time period (7 PM to 10 PM). The artificial penalties imposed during Ldn and CNEL calculations are intended to account for a receptor's increased sensitivity to sound levels during quieter nighttime periods.

Sound Propagation

The energy contained in a sound pressure wave dissipates and is absorbed by the surrounding environment as the sound wave spreads out and travels away from the noise generating source. Theoretically, the sound level of a point source attenuates, or decreases, by 6 dB with each doubling of distance from a point source. Sound levels are also affected by certain environmental factors, such as ground cover (asphalt vs. grass or trees), atmospheric absorption, and attenuation by barriers. Outdoor noise is also attenuated by the building envelope so that sound levels inside a residence are from 10 to 20 dB less than outside, depending mainly on whether windows are open for ventilation or not.

When more than one point source contributes to the sound pressure level at a receiver point, the overall sound level is determined by combining the contributions of each source. Decibels, however, are logarithmic units and cannot be directly added or subtracted together. Under the dB scale, a doubling of sound energy corresponds to a 3 dB increase in noise levels. For example, if one noise source produces a sound power level of 70 dB, two of the same sources would not produce 140 dB – rather, they would combine to produce 73 dB.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness.

Noise Effects

Noise effects on human beings are generally categorized as:

- Subjective effects of annoyance, nuisance, and/or dissatisfaction
- Interference with activities such speech, sleep, learning, or relaxing
- Physiological effects such as startling and haring loss

Most environmental noise levels produce subjective or interference effects; physiological effects are usually limited to high noise environments such as industrial manufacturing facilities or airports. Predicting the subjective and interference effects of noise is difficult due to the wide variation in individual thresholds of annoyance and past experiences with noise; however, an accepted method to determine a person's subjective reaction to a new noise source is to compare it to the existing environment without the noise source, or the "ambient" noise environment. In general, the more a new noise source exceeds the ambient noise level, the more likely it is to be considered annoying and to disturb normal activities.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness that would almost certainly cause an adverse response from community noise receptors.

Existing Noise Environment

According to the City's General Plan, transportation noise is the primary source of noise in the City.[30] The Project site is located in the southwestern portion of the City of Grand Terrace, and is bordered by Main Street to the south, Taylor Street to the east, the BNSF/Metrolink Inland Empire railroad line to the west, and the Highgrove Substation to the north. Interstate 215 (I-215) is located approximately 0.2 miles west-northwest of the proposed Project site. The City's General Plan identifies that commercial and industrial land uses near the I-215 (such as the proposed Project) are subject to some of the highest noise levels in the City. Traffic noise modeling conducted for the City's General Plan indicates noise levels within 100 feet of the centerline of Main Street, west of Mt. Vernon Avenue, were 58 CNEL in 2010 and predicted to increase to 71 CNEL by year 2030. Short-term (15-minute) noise monitoring conducted for the City's General Plan at Grand Terrace High School (immediately east of the Project site) recorded noise levels of approximately 59 dBA L_{eq}. For the purposes of this analysis, the ambient noise levels at and near the Project site are assumed to be up to 59 dBA L_{eq} and 58 CNEL. This assumption is considered conservative since this noise level is based on 2010 traffic noise modeling and traffic volumes have likely increased along Main Street since 2010.

Noise Sensitive Receptors

Noise sensitive receptors are buildings or areas where unwanted sound or increases in sound may have an adverse effect on people or land uses. Residential areas, hospitals, schools, and parks are examples of noise sensitive receptors that could be sensitive to changes in existing environmental noise levels. The noise sensitive receptors adjacent or in close proximity to (i.e., within 1,000 feet) of the perimeter of the proposed Project are limited to:

- Single-family residences approximately 540 feet west of the site on Highland Avenue (within the County of Riverside);
- Single-family residences approximately 360 feet east of the site on Sanrive Avenue and Main Street (within the County of Riverside); and
- Student receptors at the Grand Terrace High School, which is located adjacent to the Project site, across Taylor Street. The nearest school buildings are located approximately 450 feet east of the Project site.

County of Riverside Code of Ordinances

The County of Riverside regulates noise within the county through the enforcement of its Noise Ordinance, which is contained in Chapter 9.42 of its Ordinance Code. Section 9.52.040 includes Table 1, which sets forth the maximum noise levels standards (Lmax) for various land uses. Medium-, and medium-high-density residential development have a daytime (7 AM to 10 PM) standard of 55 dB Lmax and a nighttime (10 PM to 7 AM) standard of 45 dB Lmax.

Section 9.52.020 (Noise Regulation) of the County Ordinance Code establishes that noise associated with construction activities located within a quarter mile from an inhabited dwelling is considered exempt from noise level standards of the County Code as long as the construction activities occur between the hours of 6 AM and 6 PM during the months of June through September, and 7 AM and 6 PM during the months of October through May.

City of Grand Terrace Municipal Code

Title 8 of the City of Grand Terrace Municipal Code, Health and Safety, Chapter 8.108, Noise, sets forth standards that apply to the proposed Project's potential construction and operational noise levels. Relevant standards include (City of Grand Terrace, 2017):

- **Section 8.108.040, Special Activities.** This section sets forth the following noise sources are exempt from the City's noise regulations:
    - Noise sources associated with or vibration created by construction, repair, or remodeling or grading of any real property, provided the activities do not take place between the hours of 8 PM and 7 AM Monday to Saturday, or at any time on Sunday or a national holiday (Section 8.108.040(C)).
    - Noise sources associated with the maintenance of real property provided the activities take place between the hours of 8 AM and 8 PM Monday to Saturday and 9 AM to 8 PM on Sunday (Section 8.108.040(E)).
- **Section 8.108.050, Prohibited Noise.** This section sets for the following noise sources are prohibited and considered a nuisance:
    - Whistles, horns, bells, or other such devices used between 10 PM and 7 AM in such a manner as to be loud or excessive at a distance of 50 feet from the equipment being operated.
    - Loading or unloading of trucks in a manner that disturbs the peace and quiet of adjacent residential neighborhoods between the hours of 10 PM and 7 AM, including loading or unloading activities in a manner that is loud and excessive at a distance of 50 feet from the truck or vehicle being unloaded.
    - The operation or use of equipment between the hours of 10 PM and 7 AM that produces loud and excessive noise at a distance of 50 feet from the equipment

being operated, such as a pile driver, electric hoist, fork lift, or other tools, or the movement of tractors, tractor trucks, or large trucks on property adjacent to residences.

- **Section 18.74.060, Vibration Standards.** This section sets forth that land uses in the City are prohibited from generating vibration of a duration and intensity that is excessive, disturbing, or objectionable to offsite persons or which interferes with the operations of equipment and facilities of adjoining parcels.

City of Grand Terrace General Plan

The City of Grand Terrace General Plan Noise Element provides guidance for decision-making for both public and private developments where noise may be a concern and adequate mitigation measures for noise-related impacts to existing and planned land uses. General Plan Table 6.2 (Interior and Exterior Standards) establishes interior and exterior noise level standards of 45 dB and 65 dB, respectively, for residential and school land uses. General Plan Table 6.3 (Noise/Land Use Compatibility Matrix) establishes the noise environment for industrial and utility land uses is normally acceptable up to 70 CNEL, conditionally acceptable above 70 CNEL.

a) **Less than Significant Impact.**

The Project would generate both short-term construction and long-term operational noise and vibration. The Project's potential construction noise and vibration levels were estimated using Caltrans reference sound levels and standard noise propagation and attenuation equations, while the operational noise levels were estimated using DataKustik's CadnaA software. For details related to the operational noise modeling, see Appendix H. As described in more detail below, the Project would not generate significant construction or operational noise levels, nor would the land use be incompatible with the exiting noise environment.

Short-term, Temporary, Construction Noise Levels

Construction activities associated with the proposed Project are anticipated to last approximately 8 to 10 months, and generally involve site preparation, system installation, and testing, commissioning, and cleanup. These types of construction activities would generate noise and vibration from heavy equipment operation and vehicle trips and could temporarily increase noise levels at adjacent properties. Typical noise levels that could be generated by equipment at the site are presented below in
Table **9** (Typical Construction Equipment Noise Levels).

In general, construction noise would be loudest during the site preparation phase, which would require the use of a bulldozer, grader, scrapers, and other equipment (see
Table **9**). The concurrent operation of a bulldozer, grader, and two scrapers at a distance of 750 feet, the approximate distance between the southern work area and the nearest residential receptor to the southwest, would produce a sound level of approximately 63 dBA Leq, which is approximately four (4) dBA higher than the ambient noise measurement taken at Grand Terrace High School during the preparation of the City's General Plan. These same pieces of equipment operating at a distance of 630 feet, the approximate center of the northern work area to the nearest school building, would produce a sound level of approximately 65 dBA Leq, which is approximately six (6) dBA higher than the ambient noise measurement taken at Grand Terrace High School during the preparation of the City's General Plan. These sound level estimates are considered conservative (i.e., likely to overestimate noise levels), since the operation of specific pieces of off-road equipment would be

dependent on the task at hand and would likely not need to operate concurrently in the same portion of the Project site at any one time.

Table 9
Typical Construction Equipment Noise Levels

Equipment	Noise Level at 50 feet (Lmax)(A)	Percent Usage Factor(B)	Predicted Equipment Noise Levels (Leq)(C)					
			50 Feet	100 Feet	200 Feet	400 Feet	630 Feet	750 Feet
Backhoe	80	40	76	70	64	58	54	52
Bulldozer	85	40	81	75	69	63	59	57
Crane	85	16	77	71	65	59	55	54
Delivery Truck	85	40	81	75	69	63	59	57
Excavator	85	40	81	75	69	63	59	57
Grader	85	40	81	75	69	63	59	57
Scraper	85	40	81	75	69	63	59	57
Vibratory Roller	80	20	73	67	61	55	51	49

Sources: Caltrans, 2013; FHWA, 2010

(A) L_{max} noise levels based on manufacturer's specifications.

(B) Usage factor refers to the amount (percent) of time the equipment produces noise over the time period

(C) Estimate does not account for any atmospheric or ground attenuation factors. Calculated noise levels based on Caltrans, 2009: L_{eq} (hourly) = L_{max} at 50 feet – 20log (D/50) + 10log (UF), where: L_{max} = reference L_{max} from manufacturer or other source; D = distance of interest; UF = usage fraction or fraction of time period of interest equipment is in use.

Neither the City of Grand Terrace (where the Project is located) nor the County of Riverside (where single-family homes are located south of Main Street) establish quantitative sound level standards for construction activities. Rather, construction noise is exempt from noise ordinance requirements, as long as it occurs in the time frames specified in the City and County Code. As stated in the Project Description, the Project Applicant anticipates construction activities will generally occur between the hours of 7 AM to 6 PM, Monday through Friday, as required to meet the construction schedule. These proposed hours are within, and are generally more restrictive, than that required by the City or County. Whereas the City's Municipal Code does not allow for construction between the hours of 8 PM and 7:00 a.m. on weekdays and on Saturdays, and no construction is permitted at any time on Sunday or a national holiday; in general, the proposed Project would not involve construction on weekends or past 6 PM. Similarly, whereas the County of Riverside's Ordinance Code allows construction to occur on weekends, the Project would generally not involve such work.

The proposed Project would not generate excessive noise during construction activities. Project construction would occur within the timeframes specified in the City's and County's Noise Ordinances; a four (4) to six (6) dBA increase over existing sound levels may be perceptible at receptor locations, but it would not be excessive; and the overall duration of construction activities would be less than a year.

Land Use Compatibility

Table 6.3 (Noise/Land Use Compatibility Matrix) in the City's General Plan Noise Element establishes that the noise environment for industrial and utility land uses is normally acceptable up to 70 CNEL, conditionally acceptable above 70 CNEL. As described under "Existing Noise Environment", the proposed Project is located in an area that had an existing noise environment of 58 CNEL in 2010 and

was predicted to increase to 71 CNEL by year 2030. The current noise environment at the Project site is anticipated to currently be somewhere in the low- to mid-60 CNEL range, which would make it compatible based on the City's criteria. Furthermore, the proposed Project would not result in the long-term placement of any receptors at the Project site, other than those who would help service and maintain the site. Therefore, the Project would not have the potential to place a long-term receptor in a location that would be incompatible with the ambient noise environment. The Project, therefore, would be located in a noise environment that is appropriate for its designated use.

Long-term, Operational Noise Levels

Once operational, the proposed Project would generate sound levels from the operation of fans (used to cool the battery energy storage enclosures) and the operation of medium voltage (MV) transformers and high voltage (HV) transformers. Using DataKustik's CadnaA software, which models three-dimensional outdoor sound propagation based on International Organization for Standardization (ISO) 9613-2 algorithms and relevant reference data, an operational scenario of the proposed Project was modeled for purposes of this analysis. Each battery energy storage enclosure was assumed to have eight cooling fans that operate at 40% capacity, and Project components were assumed to operate 24 hours a day, 365 days per year. For specific modeling parameters, methodology, and assumptions, see Appendix H.

As shown in Table 10 (Predicted Sound Pressure Levels at Modeled Receptors), the predicted aggregate sound emission from a 1-hour-long period of all operating battery energy storage enclosures, MV transformers, and the HV transformer would be below 55 dBA Leq at the Project site boundary line. Even if the sound level at the Project property line were 55 dBA Leq, applying a 6.7 dB addition to the 1-hour average 55 dBA Leq noise level would result in a 61.7 dBA CNEL noise level. Assuming hourly noise levels were held constant at 55 dBA Leq, a 6.7 dB adjustment factor allows the hourly noise level to be converted into a 24-hour CNEL measurement. Therefore, the calculated CNEL noise level would be more than 3 dB below the City's allowable 65 dBA CNEL exterior noise level standards for the school land use (i.e., Grand Terrace High School) located to the east of the Project site (Dudek, 2021). Further, the predicted sound pressure levels at positions across the street from the south side of the project site and associated with apparent residential uses are anticipated to be below 44 dBA Leq, which as an amalgam for Lmax on the expected character of "steady-state" noise emission from the proposed project would also be compliant with the 55 dBA Lmax daytime and 45 dBA Lmax nighttime County standards (Dudek, 2021). Therefore, project operations are not expected to exceed exterior noise level standards at the residential uses to the south of the project site. Table 2 provides the predicted sound pressure levels at the modeled receptors (M1–M7) surrounding the project site.

Table 10
Predicted Sound Pressure Levels at Modeled Receptors

Modeled Receptor	Land Use	Sound Pressure Level (dBA L_{eq})
M1	Residential	42
M2	Residential	42
M3	Residential	44
M4	Residential	43
M5	Residential	42
M6	School	39
M7	School	46
Source: Dudek, 2021. Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level		

It should be noted that the predicted operational noise emissions estimated in Table 10 does include the partial noise-occluding effect of a solid, 9-foot-tall decorative block wall along the eastern and southern sides of the proposed Project, which adjoin Taylor Street and West Main Street, respectively. However, the influence of the decorative wall on the predicted values for modeled receptors M1–M7 (as shown in Table 10) is negligible for reasons including the following: (1) the noise-generating fans on the anticipated battery enclosures are located relatively high on the equipment surfaces, (2) an access gate breaks wall solidity on the southern side parallel with West Main Street, and (3) the position of the wall on the eastern side (Taylor Street) is distant from the noise-emitting sources on site. In other words, the decorative wall could instead be acoustically porous (or nonexistent) and have little or no effect on the predicted sound levels at the nearest off-site noise-sensitive receptors.

Conclusion

As discussed above, construction activities would be short in duration (i.e., less than a year), occur in the timeframes outlined in the City's and County's Noise Ordinances, and result in excessive noise levels at adjacent receptor locations. Furthermore, the Project's proposed use would be consistent with its existing noise environment, and would not result in operational noise levels that exceed City or County standards. This impact would be less than significant.

b) **Less than Significant Impact.**

Vibration is the movement of particles within a medium or object such as the ground or a building. As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared, in inches per second (in/sec). PPV represents the maximum instantaneous positive or negative peak of a vibration signal and is most appropriate for evaluating the potential for building damage. Human response to groundborne vibration is subjective and varies from person to person. Caltrans' Transportation and *Construction Vibration Guidance Manual* provides a summary of vibration criteria that have been reported by researchers, organizations, and governmental agencies (Caltrans, 2018). Chapters six and seven of this manual summarize vibration detection and annoyance criteria from various agencies and provide criteria for evaluating potential vibration impacts on buildings and humans from transportation and construction projects. These criteria are summarized in Table 11 (Caltrans' Vibration Criteria for Building Damage) and Table 12(Caltrans' Vibration Criteria for Human Response).

Table 11
Caltrans' Vibration Criteria for Building Damage

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Historic and some older buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50
Source: Caltrans 2020		

Table 12
Caltrans' Vibration Criteria for Human Response

Human Response	PPV Threshold (in/sec)	
	Transient	Continuous
Slightly perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severe/disturbing	2.00	0.10
Very disturbing	--	0.40
Source: Caltrans, 2020		

Development of the proposed project would not require rock blasting, or pile driving, but could require use a vibratory roller and bulldozer. Construction activities that use vibratory rollers and bulldozers would be mobile and not operating at the same location for a prolonged period of time; therefore, the *transient* criteria is used. The nearest land uses in proximity of the Project site is an industrial building approximately 100 feet south of the site.

To evaluate potential impacts, the *Modern Industrial and Commercial Structures* criteria is used. As shown in Table 13, the operation of a vibratory roller could generate groundborne vibration of approximately 0.046 in/sec PPV at a distance of 100 feet. Based on the criteria summarized in Table 11, this would not cause damage to any structures.

Table 13
Groundborne Vibration Estimates

Equipment	Reference PPV at 25 feet (inches/second)	Reference Lv at 25 feet (dBV)	Estimated PPV at 100 feet (inches/second)	Estimated Lv at 100 feet (dBV)
Vibratory roller	0.210	94.0	0.046	75.9
Large bulldozer	0.089	87.0	0.019	68.9
Small bulldozer	0.003	58.0	0.007	39.9
Loaded truck	0.076	86.0	0.017	67.9
Jackhammer	0.035	79.0	0.008	60.9

Source: Caltrans, 2020, FTA, 2006.

Notes: Estimated PPV calculated as: PPV(D)= PPVref*(25/D)^1.1 where PPV(D)= Estimated PPV @ Distance, PPVref=Reference PPV @ 25 feet, D=Distance from equipment to receiver, and 1.1=ground attenuation rate

Estimated Lv calculated as: Lv(D)=Lv(25 feet)-30log(D/25) where Lv(D)=velocity level in decibels, and v=RMS velocity amplitude @ 25 feet

Although some construction activities may generate groundborne vibration that is barely perceptible, this impact would be less than significant for a number of reasons. First, equipment that have the potential to generate groundborne vibration would be mobile, meaning that they would not operate at the same location and expose a potential receptor to vibration for a prolonged amount of time. Second, equipment is unlikely to operate near the property boundary on a frequent basis. Instead, the equipment would likely be used on the interior of the site where the majority of development would occur. Finally, equipment operation that could generate groundborne vibration would be short-term, since most activities that would have the potential to generate perceptible groundborne vibration would occur site preparation, which is only anticipated to last a few months. As such, the proposed project would not generate excessive groundborne vibration or groundborne noise levels. This impact would be less than significant.

c) **Less than Significant Impact.** The closest public or private airport to the proposed Project site is Flabob Airport, a small public-use airport, located approximately 4.7 miles southwest of the Project site. The next nearest airport, San Bernardino International Airport, is located approximately 6.4 miles northeast of the Project site. The City's General Plan Noise Element indicates the City is not located within an airport noise-impacted area associated with San Bernardino International Airport. Furthermore, the Project would not result in the long-term placement of receptors at the site; the only receptors at the site would be there for service and maintenance. The proposed Project, therefore, would not expose workers to excessive airport-related noise levels.

4.14 – Population and Housing

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

a) **No Impact.** The proposed Project would not require any regularly employed staff for the operation of the facility. The only operations at the facility would be sporadic maintenance visits. Therefore, the proposed Project would not be expected to generate any new employment or induce any population growth in the City or region and no impact would occur.

b) **No Impact.** Displacement, in the context of housing, can generally be defined as persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence.[31] The proposed Project would occur on an undeveloped piece of land that does not contain any housing. Therefore, the Project would not result in the displacement of any existing people or housing and no impact would occur.

4.15 – Public Services

Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?	☐	☐	☑	☐
b) Police protection?	☐	☐	☑	☐
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

a) **Less than Significant Impact.** The City of Grand Terrace contracts with San Bernardino County Fire for fire and rescue services. The City of Grand Terrace is serviced by Fire Station 23. Fire Station 23 consists of both paid and volunteer staffing. The proposed Project consists of an energy storage facility to be constructed on a vacant parcel. All facilities would be constructed to current applicable code requirements using materials that would minimize potential fire related issues. The Project would not spur the growth of the region in an unplanned manner that would place unexpected future demands on existing fire services. As such, it would not require the building of new fire protection related buildings or structures and there would be a less than significant impact related to fire protection services.

b) **Less than Significant Impact.** The City of Grand Terrace contracts with the San Bernardino County Sheriff-Coroner Department to provide for the police protection services. The Project would occur on one parcel and the property will have a security fence around it to secure the facility. No other increased demands for security would occur as a result of the proposed Project. The Project would not result in increased demand for police services and subsequently not result in the provision of new or expanded police facilities. The Project is not anticipated to increase response times to the Project site or surrounding area as operation of the Project will not require any full-time on-site employees. As required for a development of this type, the Project is subject to a law enforcement Development Impact Fee as imposed by the City of Grand Terrace. The Project does not propose or require new or physically altered police protection facilities. Therefore, impacts would be less than significant.

c) **No Impact.** The Project is a non-residential land use. The proposed Project includes the construction and operation of an energy storage facility on a vacant parcel. The proposed Project would not directly impact area schools, nor would it result in increased demand for additional schools

as there would be no increase of population. The Project would not require the construction or expansion of schools or education related facilities. There would be no impact to schools as a result of the proposed Project.

d) **No Impact.** The City has established park impact fees to offset the costs associated with increased maintenance and the addition of park facilities resulting from new development. The City's park impact fees are generated based on the number of residential units in either subdivision or non-subdivision developments. The proposed Project includes the construction of an energy storage facility on a vacant parcel. The proposed Project would not directly impact existing parks and would not create a significant increased demand or need for the construction of park facilities. Therefore, no impact would occur.

e) **No Impact.** The City requires that certain types of development pay impact fees to compensate for additional services provided by public facilities as a result of implementation of their project. The City of Grand Terrace requires development impact fees for libraries; however, the Project would not be subject to these impact fees as they are based on the number of residential units proposed by a given development. The Project does not include residential uses and would not result in a direct increase in population within the City or surrounding area. Therefore, no impacts to other public facilities would occur with Project implementation and no mitigation is required.

4.16 – Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

a) **No Impact.** The Project does not include development of any residences that could directly generate increased demand for parks and recreational facilities. Implementation of the Project would not generate an increase in demand on existing public or private parks or other recreational facilities that would either result in or increase physical deterioration of the facility. Furthermore, as the Project does not include residential uses, the Project would not be subject to a park impact fee. Therefore, no impact would result from the Project and no mitigation is required.

b) **No Impact.** As previously addressed, the Project does not include residential development and would not create a significant increased demand or need for the construction of park facilities. The Project does not include recreational facilities, nor would it require the construction or expansion of recreational facilities. Therefore, no impact would result from the Project and no mitigation is required.

4.17 – Transportation

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☑	☐
d) Result in inadequate emergency access?	☐	☐	☑	☐

a) **Less than Significant Impact.** There would be an increase in traffic during construction of the proposed Project; however, this increase would be temporary and would cease upon conclusion of construction. Operation of the facility would include occasional maintenance and landscaping trips to and from the site; however, there would be no full-time on-site employees during operation. The increase in both construction and operational traffic is considered a less than significant impact. Also, construction and operation of the proposed Project would not have an impact on the local transit system, bicycle facilities, or pedestrian facilities. The proposed Project does not include changes to roadways or design features that would conflict with the performance or safety of alternative transportation facilities. Therefore, impacts will be less than significant.

b) **Less than Significant Impact.** As stated in response 4.17.a, operation of the facility would include occasional maintenance and landscaping trips to and from the site but would not include any full-time on-site employees during operation. Therefore, the proposed Project will not generate excessive vehicles miles traveled (VMT) in the Project vicinity or region and would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Less than significant impacts associated with VMT would occur as a result of the proposed Project.

c) **Less than Significant Impact.** The Project would not involve any unusual conditions or hazardous design features, such as sharp curves, dangerous intersections, or incompatible uses. Access to the site will be provided via a driveway on Main Street and a driveway on Taylor Street and internal circulation will be restricted to a single direction. The design of the Project would comply with all applicable City and state regulations regarding minimum clearances. Furthermore, the Project does not involve changes in the alignment of Main Street or Taylor Street and the proposed energy storage facility is consistent with existing uses in the area. The Project would not result in a traffic safety hazard

due to any design features or incompatible uses. Less than significant impacts would occur with adherence to existing regulations.

d) **Less than Significant Impact.** A significant impact would occur if the design of the Project would not satisfy emergency access requirements of the San Bernardino County Fire Department or in any other way threaten the ability of emergency vehicles to access and serve the Project site or adjacent uses. The Project would not result in inadequate emergency access. As discussed above, access to the site will be provided via a driveway on Main Street and a driveway on Taylor Street and internal circulation will be restricted to a single direction. The driveway width is sufficient to provide access to fire and emergency vehicles and is consistent with the California Fire Code requiring a minimum of 20 feet paved width. All access features are subject to and must satisfy the City of Grand Terrace design requirements, including the County Fire Department's requirements. This Project would result in less than significant impacts with regard to emergency access.

4.18 – Tribal Cultural Resources

Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a Cultural Native American tribe, and that is:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☑	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☑	☐

a) **Less than Significant Impact.** As discussed in response 4.5.a, the Project site is the former site of the abandoned Cage Park, which was a landscaped feature of the Highgrove Steam Plant located immediately to the north of the site. The Highgrove Steam Plant was constructed between 1951 and 1955, making it more than 50 years old. In order to determine whether the proposed Project has the potential to impact historical resources under CEQA, the Highgrove Steam Plant was evaluated as a whole in consideration of California Register of Historic Resources (CRHR) designation criteria and integrity requirements. A detailed physical description of the Highgrove Steam Plant and a complete set of State of California Department of Parks and Recreation Series 523 forms (DPR forms) is provided in Appendix B of the Historic Resource Evaluation Report. The Highgrove Steam Plant property includes nine components, comprising six buildings, three structures, and three areas of foundations. Surrounding the property is a chain-link fence with an additional chain-link fence in the center dividing the property in two. Cage Park can be accessed from a gate along the southern boundary of the project site off West Main Street, and the Highgrove Steam Plant is accessed on the east from Taylor Street via a paved driveway. Open grass spaces are located to the south and north of the Highgrove Steam Plant. At the southern end of the property is a series of concrete-lined canals running northeast to southwest, terminating at the southeastern corner of the Project site. Multiple overgrown paths of circulation meander throughout the Project site, and a dried-up lake filled with overgrown trees is in the northwest portion of APN 1167-151-77. Multiple metal light posts are located

at the southern end of the Project site. According to the Historic Resource Evaluation Report, the Highgrove Steam Plant is not eligible under any CRHR designation criteria at the individual level due to a lack of the requisite integrity necessary to convey significant historical associations and a lack of architectural merit. As a result of the evaluation, the Highgrove Steam Plant is recommended not eligible as a historical resource under CEQA. No other historical resources were identified during field surveys of the Project site or record searches covering the project site. Historical resources with cultural value to a Cultural Native American tribe were not identified within the Project Site. Impacts would be less than significant.

b) **Less than Significant Impact.** Assembly Bill (AB) 52 specifies that a project that may cause a substantial adverse change to a defined Tribal Cultural Resources (TCRs) may result in a significant effect on the environment. AB 52 requires tribes interested in development Projects within a traditionally and culturally affiliated geographic area to notify a lead agency of such interest and to request notification of future Projects subject to CEQA prior to determining if a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. The lead agency is then required to notify the tribe within 14 days of deeming a development application subject to CEQA complete to notify the requesting tribe as an invitation to consult on the Project. AB 52 identifies examples of mitigation measures that will avoid or minimize impacts to TCR. The bill makes the above provisions applicable to Projects that have a notice of preparation or a notice of intent to adopt a negative declaration/mitigated negative declaration circulated on or after July 1, 2015. AB 52 amends Sections 5097.94 and adds Sections 21073, 21074, 2108.3.1., 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to the California Public Resources Code (PRC), relating to Native Americans.

The following tribes are listed by the NAHC as having traditional lands or cultural places within the County of San Bernardino:

- Gabrieleno/Tongva San Gabriel Band of Mission Indians;
- Gabrieleno Band of Mission Indians-Kizh Nation;
- Gabrieleno/Tongva Nation;
- San Manuel Band of Mission Indians;
- Morongo Band of Mission Indians; and
- Serrano Nation of Mission Indians.

The City sent a request to the NAHC to search their Sacred Land Files (SLF) to ascertain whether their files contained any new information relating to the presence of Native American cultural resources within the Project area generally and on the Project site specifically. A response letter was received indicating the absence of documentation of tribal resources in the Project area or on the Project site. However, the absence of documentation in the SLF does not indicate the absence of Native American cultural resources within the Project. As such, in accordance with Assembly Bill 52 (AB 52), which added various provisions to the California Public Resources Code (PRC) that concern Tribal Cultural Resources, including Section 21080.3.1(d), the City contacted local tribes requesting to be notified of Projects. No Tribal responses were received during the AB 52 consultation period. Moreover, a review of City and cultural records indicate that there are no TCRs or archaeological resources relating to TCRs (prehistoric and historic) located within the Project's boundaries or in the vicinity of the Project Area. The Project Site has been highly disturbed by modern human activities that would have displaced surface and subsurface archaeological resources relating to TCRs. Therefore, the Project will not impact TCRs or archaeological resources relating to TCRs. Impacts will be less than significant.

4.19 – Utilities and Service Systems

Would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☑	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☑	☐

a) **Less than Significant Impact.** The Project would require water, wastewater collection and treatment, storm water drainage, electrical power, natural gas, and telecommunication facilities. An analysis of impacts is provided below.

Water Supplies

Grand Terrace residents and businesses are served by the Riverside-Highland Water Company (RHWC). RHWC's service area lies partially within the Valley District service area and partially within the service area of Western Municipal Water District (Western). According to the 2015 San Bernardino Valley Regional Urban Water Management Plan (WQMP), RHWC's customers include single and multi-family residential, commercial, industrial and agricultural users. RHWC obtains water

from the Lytle Creek Sub-basin, the SBBA, the Rialto-Colton Sub-basin, Riverside North and Riverside South Basins. The service area is nearing about 85% built-out with the developments currently under construction or approved by the planning departments of the governing agencies. The major population center in the service area is the City of Grand Terrace.[32] The water supply for RHWC is from five separate groundwater basins. In addition, RHWC has entered into an agreement with Valley District for a maximum of 1,000 gallons per minute of water from the District's Base Line Feeder project. RHWC has 13 wells constructed in the groundwater basins of which eight wells produce potable water for domestic use, two wells which produce non-potable water at this time for irrigation purposes (reason for non-potable classification is nitrate which is in excess of State Drinking Water Standards), and three wells dedicated to pump water from the Bunker Hill Basin to lower the groundwater due to encroachment of the water into structures. As the need arises, RHWC will construct new wells and place them in service as future projections show the need.

The UWMP is based on area population projections as provided by SCAG. The proposed Project is consistent with SCAG Projections for the service area because it will not generate any new employment or direct or indirect population growth in the area. Project construction and operation will require a nominal amount of water and the increase in water use would be within the anticipated increase in the UWMP. In addition, operation of the proposed energy storage facility would not require the provision of any municipal water supplies. As the Project does not include the construction of dwelling units, no Water Supply Assessment (WSA) is required.[33] Water use within the City includes domestic, commercial, industrial, and landscape irrigation. Most connections within the City's service area, including landscaped areas and City parks, are metered. Based on the fact that the proposed Project will require a nominal amount municipal water supply during operation, it can be assumed that water demand from the development will not exceed the City's annual water demand and would not require the relocation or construction of new or expanded water supply facilities. Therefore, impacts will be less than significant.

Wastewater

The local wastewater treatment system is designed to comply with federal regulations (National Pollution Discharge Elimination System, NPDES) administered by the RWRCB. Moreover, the proposed Project is anticipated to generate nominal wastewater during normal operations and periodic maintenance activities, mostly as a result of landscape irrigation. Therefore, the proposed Project would not result of new or expanded wastewater treatment facilities and would have a less than significant impact.

Stormwater

At Project completion the site would be comprised of mostly pervious surfaces with nominal new impervious surfaces. As discussed in the Hydrology section of this document, stormwater associated with the new impervious surfaces associated with the proposed development would be collected on site and conveyed to detention ponds for treatment and then conveyed to the City's storm drainage system at Main Street. Implementation of BMPs would reduce pollutants in stormwater and urban runoff from the Project site. The proposed storm drainage system and BMPs must be designed to the satisfaction of the City's Public Works Director and in conformance with all applicable permits and regulations. The Project applicant/developer would be required to provide all necessary on-site infrastructure. No mitigation beyond compliance with existing regulations is required. The proposed Project would therefore not require the construction of new facilities or expansion of existing storm drainage facilities.

Electric Power

The Project represents an improvement to the existing electrical power system. Although the Project would require new electrical line tie ins for service, it would not result in the excessive use of electricity during operation. Therefore, the Project would have a less than significant impact.

Natural Gas

The Project would not require new natural gas services connections, and would not result in the need for new natural gas supplies or infrastructure. Therefore, the Project would have no impact with regard to natural gas.

Telecommunication Facilities

The proposed Project would require specialized telecommunication facilities to meet the communication requirements for interconnecting with the SCE facilities and to support remote Project operations monitoring. To provide for communication with SCE facilities, a fiber-optic cable would be placed along the line connecting the Project site generation step-up (GSU) transformer with the SCE point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the Project footprint. The Project would use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project would connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers. The cabinet holding the connection equipment would have a base of approximately 4 feet by 2 feet and would be approximately 5 feet in height. From the point of demarcation, a fiber-optic cable would be installed within the Project footprint to connect the cabinet to the SCADA equipment. The SCADA system is critical to the CAISO and SCE utility interconnection, and for the proper operation and maintenance of the Project. The SCADA system uses proprietary software; a fiber-optic transmission system; a telephone, radio, and/or microwave communication network; and other means of communication such as radio links and phase loop communication systems. The SCADA system functions as a remote start, stop, reset, and tag out for the facility, thus minimizing the labor and site diagnostic information generated from the panels. The SCADA system would also control the substations, allowing for fully centralized operation of the project to meet all CAISO and utility interconnection requirements. However, no new or expanded telecommunications facilities will be required as a result of construction and operation of the proposed Project. Impacts will be less than significant.

For the above reasons, the Project is not anticipated to require relocation or construction of new or expanded water, wastewater treatment, storm drainage, electric power, natural gas, or telecommunications facilities and impacts would be less than significant.

b) **Less than Significant Impact.** As discussed in response 4.19.a above, the Project is not anticipated to significantly increase water demand and will be within the estimated increase in water demand for the RHWC. According to the 2015 Urban Water Management Plan for RHWC, there is sufficient supply to accommodate demand under normal and single- and multiple-dry year conditions utilizing imported water. Local supplies would supplement imported supplies and provide additional supply reliability. The UWMP is based on area population Projections as provided by SCAG. The Project is consistent with SCAG Projections for the service area because it will not generate any new employment or population in the area. As the estimated increase in water use is within the anticipated increase in the UWMP and the Project is consistent with regional population Projections, impacts would be less than significant.

c) **Less than Significant Impact.** As discussed in response 4.19.a above, the local wastewater treatment system is designed to comply with federal regulations (National Pollution Discharge Elimination System, NPDES) administered by the RWRCB. Moreover, the proposed Project is anticipated to generate nominal wastewater during normal operations and periodic maintenance activities. Therefore, the proposed Project would not result of new or expanded wastewater treatment facilities and would have a less than significant impact.

Connections to local water and sewer mains would involve temporary and less than significant construction impacts that would occur in conjunction with other on-site improvements. The Project site is located within the existing service area of RHWC and the City of Grand Terrace and is surrounded by existing development that is currently connected to existing water and wastewater lines. No additional improvements are needed to either water lines, sewer lines, or treatment facilities to serve the Project. Standard connection fees would address any incremental impacts of the Project. Therefore, the Project would result in less than significant impacts with regard to the need for new or expanded wastewater treatment facilities.

d) **Less than Significant Impact.** Significant impacts could occur if the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. The City of Grand Terrace has a trash and recycling service contract provided by Burrtec Waste Industries. Solid waste generated in the City is transferred to Burrtec's West Valley Materials Recovery Facility (MRF). Solid waste that is not diverted is primarily disposed at Mid-Valley Landfill, a County Class III (i.e., municipal waste) landfill located at 2390 North Alder Avenue in Rialto (Ceballos 2009). Mid Valley Landfill has a daily permitted capacity of 7,500 tons per day (tons/day), a remaining capacity of 670,000 cubic yards (cy), and an anticipated close date of 2033 (2010 General Plan Update). Landfill capacity is expected to decrease over time with future growth and development throughout San Bernardino County and surrounding Inland Empire areas. Waste reduction and recycling programs and regulations are expected to reduce this demand and extend the life of existing landfills. Development of the proposed Project would result in a nominal net increase in solid waste disposal per year. This nominal incremental increase in solid waste disposal, assuming that all solid waste in the City would be disposed at Mid-Valley Landfill, would not be considered cumulatively considerable. Compliance with County waste reduction programs and policies would also reduce the volume of solid waste entering landfills. Individual development projects within the County would be required to comply with applicable state and local regulations, thus reducing the amount of landfill waste by at least 50 percent. Therefore, impacts related to the Project would be less than significant and no mitigation is required.

e) **Less than Significant Impact.** The Project is required to comply with all applicable federal, state, County, and City statutes and regulations related to solid waste as a standard Project condition of approval. Therefore, a less than significant impact would occur.

4.20 – Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities), that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

a) **No Impact.** The majority of Grand Terrace is urbanized, including the Project area. The Project site is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE)[34] The Project site is also not identified in the City's General Plan Health and Safety Element as being located in a Very High Fire Hazard Severity Zone.[35] Finally, the Project site is not located in a State Responsibility Area (SRA).[36] Therefore, the Project would not impair an adopted emergency response plan or emergency evacuation plan. No impact would occur.

b) **No Impact.** As discussed in response 4.20.a. above, the Project Site is not located within or near any State Responsibility Areas or Fire Hazard Severity Zone. The Project site is relatively flat and is surrounded on three sides by development. No impact would occur.

c) **No Impact.** As discussed in response 4.20.a. above, the Project Site is not located within or near any State Responsibility Areas or Fire Hazard Severity Zone. The Project would not exacerbate fire risk or result in a temporary or ongoing impact from wildfires. No impact would occur.

d) **No Impact.** As discussed in response 4.20.a. above, the Project Site is not located within or near any State Responsibility Areas or Fire Hazard Severity Zone. The Project does not propose any residential uses and would not include any full-time on-site employees. As a result, the Project would not expose people or structures to significant risk due to runoff, post-fire slope instability or drainage changes. No impact would occur.

4.21 – Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑	☐
b) Does the Project have impacts that are individually limited, but cumulatively considerable?	☐	☐	☑	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

a) **Less than Significant.** The Project site is located within a developed area with no natural habitat. The Project would not significantly impact any sensitive plants, plant communities, fish, wildlife or habitat for any sensitive species. Impacts to burrowing owl or migratory birds will be less than significant with mitigation incorporated. Adverse impacts to historic resources would not occur. The site is not known to have any association with an important example of California's history or prehistory. Based on the preceding analysis of potential impacts in the responses to items 4.1 thru 4.20, no evidence is presented that this Project would degrade the quality of the environment. Impacts related to degradation of the environment, biological resources, and cultural resources would be less than significant.

b) **Less than Significant** The Project would result in significant impacts in the following areas: /migratory/nesting birds, archaeological resources, buried human remains, and paleontological resources. All other impacts of the Project were determined either to have no impact or to be less than significant, without the need for mitigation. Cumulatively, the Project would not result in any significant impacts that would substantially combine with impacts of other current or probable future impacts. Therefore, the Project, in conjunction with other future projects, would not result in any cumulatively considerable impacts.

c) **Less than Significant .** Based on the analysis of the Project's impacts in the responses to items 4.1 thru 4.20, there is no indication that the proposed energy storage facility could result in substantial

adverse effects on human beings. While there would be a variety of temporary adverse effects during construction related these would cease to persist upon Project completion. Environmental effects would result in less than significant impacts. Based on the analysis in this Initial Study, the City finds that direct and indirect impacts to human beings would be less than significant.

BIO-1 **Pre-Construction Burrowing Owl Survey.** A burrowing owl pre-construction survey shall be conducted no less than 14 days prior to the initiation of ground disturbance activities, and a second survey shall be conducted within 24 hours prior to ground disturbance. Pre-construction surveys should be conducted by a qualified biologist. If surveys confirm occupied burrowing owl habitat is located within the impact footprint or within 500 feet of the impact footprint, avoidance measures shall be implemented consistent with the requirements of the Staff Report on Burrowing Owl Mitigation and in coordination with the City of Grand Terrace and CDFW.

BIO-2: **Pre-Construction Nesting Bird Survey.** If vegetation removal is scheduled during the nesting season (typically January 1 to September 15), then a focused survey for active nests shall be conducted by a qualified biologist (as determined by a combination of academic training and professional experience in biological sciences and related resource management activities) no more than five (5) days prior to the beginning of project-related activities (including but not limited to equipment mobilization and staging, clearing, grubbing, vegetation removal, and grading). Surveys shall be conducted in proposed work areas, staging and storage areas, and soil, equipment, and material stockpile areas. For passerines and small raptors, surveys shall be conducted within a 250-foot radius surrounding the work area (in areas where access is feasible). For larger raptors, such as those from the genus *Buteo*, the survey area shall encompass a 500-foot radius. Surveys shall be conducted during weather conditions suited to maximize the observation of possible nests and shall concentrate on areas of suitable habitat. If a lapse in project-related work of five (5) days or longer occurs, an additional nest survey shall be required before work can be reinitiated. If nests are encountered during any preconstruction survey, a qualified biologist shall determine if it may be feasible for construction to continue as planned without impacting the success of the nest, depending on conditions specific to each nest and the relative location and rate of construction activities. If the qualified biologist determines construction activities have potential to adversely affect a nest, the biologist shall immediately inform the construction manager to halt construction activities within minimum exclusion buffer of 50 feet for songbird nests, and 200 to 500 feet for raptor nests, depending on species and location. Active nest(s) within the Project Site shall be monitored by a qualified biologist during construction if work is occurring directly adjacent to the established no-work buffer. Construction activities within the no-work buffer may proceed after a qualified biologist determines the nest is no longer active due to natural causes (e.g., young have fledged, predation, or other non-anthropogenic nest failure).

CUL-1: **Conduct Archaeological Sensitivity Training for Construction Personnel.** The Applicant shall retain a qualified professional archaeologist who meets U.S. Secretary of the Interior's Professional Qualifications and Standards, to conduct an Archaeological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training session shall be carried out by a cultural resource professional with expertise in archaeology, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. The training session will include a handout and will focus on how to identify archaeological resources that may be encountered during earthmoving activities and the procedures to be followed in such an event, the duties of archaeological monitors, and, the general steps a qualified professional archaeologist would follow in conducting a salvage investigation if one is necessary.

CUL-2: **Conduct Periodic Archeological Resources Spot Checks During Grading and Earth-Moving Activities.** The Applicant shall retain a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards to conduct periodic Archaeological Spot Checks beginning at depths below two (2) feet to determine if construction excavations have exposed or have a high probability of exposing archaeological resources. After the initial Archaeological Spot Check, further periodic checks will be conducted at the discretion of the qualified archaeologist. If the qualified archaeologist determines that construction excavations have exposed or have a high probability of exposing archaeological artifacts, construction monitoring for archaeological resources will be required. The Applicant shall retain a qualified archaeological monitor, who will work under the guidance and direction of a professional archaeologist, who meets the qualifications set forth by the U.S. Secretary of the Interior's Professional Qualifications and Standards. The archaeological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into non-fill younger Pleistocene alluvial sediments. Multiple earth-moving construction activities may require multiple archaeological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known archaeological resources, the materials being excavated (native versus artificial fill soils), the depth of excavation, and if found, the abundance and type of archaeological resources encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the Project archaeologist.

CUL-3: **Cease Ground-Disturbing Activities and Implement Treatment Plan if Archaeological Resources Are Encountered.** In the event that archaeological resources are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 100 feet shall be established around the find where construction activities will not be allowed to continue until a qualified archaeologist has examined the newly discovered artifact(s) and has evaluated the area of the find. Work shall be allowed to continue outside of the buffer area. All archaeological resources unearthed by Project construction activities shall be evaluated by a qualified professional archaeologist, who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards. Should the newly discovered artifacts be determined to be prehistoric, Native American Tribes/Individuals should be contacted and consulted, and Native American construction monitoring should be initiated. The Applicant and City shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. The plan may include implementation of archaeological data recovery excavations to address treatment of the resource along with subsequent laboratory processing and analysis.

CUL-4: **Prepare Report Upon Completion of Monitoring Services.** The archaeological monitor, under the direction of a qualified professional archaeologist who meets the U.S. Secretary of the Interior's Professional Qualifications and Standards, shall prepare a final report at the conclusion of archaeological monitoring (if required). The report shall be submitted to the Applicant, the South Central Costal Information Center, the City, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures. The report shall include a description of resources unearthed, if any, evaluation of the resources with respect to the California Register and CEQA, and treatment of the resources.

CUL-5: **Cease Ground-Disturbing Activities and Notify County Coroner If Human Remains Are Encountered.** If human remains are unearthed during implementation of the Project, the City of Grand Terrace and the Applicant shall comply with State Health and Safety Code Section 7050.5. The City of Grand Terrace and the Applicant shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). After the MLD has inspected the remains and the site, they have 48 hours to recommend to the landowner the treatment and/or disposal, with appropriate dignity, the human remains and any associated funerary objects. Upon the reburial of the human remains, the MLD shall file a record of the reburial with the NAHC and the Project archaeologist shall file a record of the reburial with the CHRIS-SCCIC. If the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

GEO-1: **Conduct Paleontological Sensitivity Training for Construction Personnel.** The Applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, shall conduct a Paleontological Sensitivity Training for construction personnel prior to commencement of excavation activities. The training will include a handout and will focus on how to identify paleontological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event; the duties of paleontological monitors; notification and other procedures to follow upon discovery of resources; and, the general steps a qualified professional paleontologist would follow in conducting a salvage investigation if one is necessary.

GEO-2: **Conduct Periodic Paleontological Spot Checks During Grading and Earth-Moving activities.** The Applicant shall retain a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, shall conduct periodic Paleontological Spot Checks beginning at depths below six (6) feet to determine if construction excavations have extended into older Quaternary deposits. After the initial Paleontological Spot Check, further periodic checks will be conducted at the discretion of the qualified paleontologist. If the qualified paleontologist determines that construction excavations have extended into the older Quaternary deposits, construction monitoring for Paleontological Resources will be required. The Applicant shall retain a qualified paleontological monitor, who will work under the guidance and direction of a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology. The paleontological monitor shall be present during all construction excavations (e.g., grading, trenching, or clearing/grubbing) into the older Pleistocene alluvial deposits. Multiple earth-moving construction activities may require multiple paleontological monitors. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known paleontological resources and/or unique geological features, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of paleontological resources and/or unique geological features encountered. Full-time monitoring can be

reduced to part-time inspections if determined adequate by the qualified professional paleontologist.

GEO-3: Cease Ground-Disturbing Activities and Implement Treatment Plan if Paleontological Resources Are Encountered. In the event that paleontological resources and or unique geological features are unearthed during ground-disturbing activities, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. A buffer area of at least 50 feet shall be established around the find where construction activities shall not be allowed to continue until appropriate paleontological treatment plan has been approved by the Applicant and the City. Work shall be allowed to continue outside of the buffer area. The Applicant and City shall coordinate with a professional paleontologist, who meets the qualifications set forth by the Society of Vertebrate Paleontology, to develop an appropriate treatment plan for the resources. Treatment may include implementation of paleontological salvage excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. At the paleontologist's discretion and to reduce construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing.

GEO-4: Prepare Report Upon Completion of Monitoring Services. Upon completion of the above activities, the professional paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to the Applicant, the City, the Natural History Museums of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures.

6 References

6.1 – List of Preparers

City of Grand Terrace (Lead Agency)
Planning and Development Services Department
22795 Barton Road
Grand Terrace, California 92313
909-824-6621

- Steven A. Weiss, AICP, Director of Planning and Development Services
- Haide Aguirre, Associate Planner

MIG (Environmental Analysis)
1500 Iowa Avenue, Suite 110
Riverside, California 92507
951-787-9222

- Pamela Steele, Principal
- Bob Prasse, Director of Environmental Services
- Chris Dugan, Director of Air Quality, GHG, and Noise Services
- Phillip Gleason, Senior Environmental Analyst
- Cameron Hile, Senior Analyst

Dudek (Archaeological Resources)
38 North Marengo Avenue
Pasadena, California 91101
626-204-9800

- Linda Kry, BA, RA
- Heather McDaniel McDevitt, MA, RPA

Dudek (Historic Resources)
38 North Marengo Avenue
Pasadena, California 91101
626-204-9800

- Nicole Frank, MSHP
- Samantha Murray, MA

Dudek (Biological Resources)
38 North Marengo Avenue
Pasadena, California 91101
626-204-9800

- David Hochart, Senior PM
- Bradley Cole, PM
- Anna Cassidy, PM

Dudek (Noise)
38 North Marengo Avenue
Pasadena, California 91101
626-204-9800

- David Ortega, ETG Associate & Analyst
- Mark Storm, INCE, Bd. Cert.

Alta Environmental DBA NV5 (Phase I ESA)
3777 Long Beach Blvd., Annex Building
Long Beach California 90807
562-495-5777

- Eric Fraske, PE, SE
- Bryan Stone, VP, Senior Technical Reviewer

6.2 – Persons and Organizations Consulted

None

6.3 – Bibliography

1 City of Grand Terrace. General Plan Update/Program EIR. Page 39. January, 2010.

2 California Department of Transportation. California Scenic Highway Mapping System: San Bernardino County. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways [Accessed May 2021].

3 California Public Utilities Commission. General Order 95 (GO-95), Rule No. 37, Table 1, Case No. 3. https://ia.cpuc.ca.gov/gos/GO95/go_95_rule_37.html. [Accessed October 2021].

4 California Department of Conservation. Farmland Mapping and Monitoring Program. https://maps.conservation.ca.gov/DLRP/CIFF/ [Accessed June 2021].

5 California Department of Conservation. Williamson Act Program. https://www.conservation.ca.gov/dlrp/fmmp/Pages/SanBernardino.aspx [Accessed June 2021].

6 SCAQMD (2016a). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin. February 2016. https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=14.[Accessed June 2021]

7 CARB. (2016b) Ambient Air Quality Standards. Sacramento, CA. Web: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. [Accessed June 2021].

8 California Department of Fish and Wildlife. NCCP Plan Summaries. https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans [Accessed June 2021].

9 City of Grand Terrace. *City of Grand Terrace General Plan Open Space and Conservation Element*. April 27, 2010.

10 California Air Resources Board. *Climate Change Scoping Plan*. https://ww3.arb.ca.gov/cc/cleanenergy/clean_fs2.htm [Accessed June 2021].

11 City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Chapter 5, Page V-2.

12 California Department of Conservation. CGS Information Warehouse: Regulatory Maps. https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/ [Accessed June 2021].

13 City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Chapter 5, Page V-1 - V-2.

14 San Bernardino County: Land Use Services. Geologic Hazard Overlay maps. http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/GeologicHazardMaps.aspx [Accessed June 2021].

15 City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Chapter 5, Page V4.

16 San Bernardino County: Land Use Services. Geologic Hazard Overlay maps. http://cms.sbcounty.gov/lus/Planning/ZoningOverlayMaps/GeologicHazardMaps.aspx [Accessed June 2021].

17 State Water Resources Control Board. GeoTracker. https://geotracker.waterboards.ca.gov/ [Accessed June 2021].

18 California Environmental Protection Agency. Cortese List Data Resources. http://www.calepa.ca.gov/sitecleanup/corteselist/ [Accessed June 2021].

19 California Department of Toxic Substances Control. DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm [Accessed June 2021].

[20] California State Water Resources Control Board. GeoTracker. https://geotracker.waterboards.ca.gov/ [Accessed June 2021].

[21] California State Water Resources Control Board. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit. http://www.calepa.ca.gov/files/2016/10/SiteCleanup-CorteseList-CurrentList.pdf [Accessed June 2021].

[22] California State Water Resources Control Board. List of Active CDO and CAO. http://www.calepa.ca.gov/sitecleanup/corteselist/ [Accessed June 2021].

[23] California Department of Toxic Substances Control. Cortese List: Section 65962.5(a). https://www.calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/ [Accessed June 2021].

[24] Federal Aviation Administration. Airport Data and Contact Information. http://www.faa.gov/airports/airport_safety/airportdata_5010/ [Accessed June 2021].

[25] City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Exhibit 5.3: Very High Fire Hazard Severity Zone. Chapter 5, Page V-12.

[26] Federal Emergency Management Agency. Flood Insurance Rate Map. Map Number 06071C8689H. August 28, 2008.

[27] City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Exhibit 5.2: Flood Hazards. Chapter 5, Page V-7.

[28] County of San Bernardino. General Plan Hazard Overlay Map: San Bernardino N (FH30 B). http://www.sbcounty.gov/uploads/lus/hazmaps/fh30b_20100309.pdf. [Accessed June 2021].

[29] California Department of Conservation. *Mineral Lands Classification*. San Bernardino P-C Region: Plate 7-7. https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc [Accessed June 2021].

[30] City of Grand Terrace. General Plan Noise Element. Access June 1, 2021. https://www.grandterrace-ca.gov/UserFiles/Servers/Server_12337255/File/Departments/Planning%20&%20Development/Planning/c6_noise.pdf

[31] The Brookings Institute. Handbook for Applying the Guiding Principles on Internal Displacement. 1999.

[32] Water Systems Consulting, Inc. *2015 San Bernardino Valley Regional Urban Water Management Plan*. June 2016.

[33] Public Resources Code. State Water Code Sections 10910-10915. http://www.swrcb.ca.gov/laws_regulations/. [Accessed June 2021].

[34] California Department of Forestry and Fire Protection. California Statewide Maps. https://www.fire.ca.gov/imapdata/index.html. [Accessed June 2021]

[35] City of Grand Terrace. *Grand Terrace General Plan: Public Health and Safety Element*. Exhibit 5-3. Page V-12.

[36] California Department of Forestry and Fire Protection. California State Responsibility Areas. https://www.arcgis.com/home/item.html?id=5ac1dae3cb2544629a845d9a19e83991. [Accessed June 2021].

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Condor Battery Energy Storage Facility (Construction)

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	10.00	1000sqft	9.86	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Annual

Project Characteristics - MIG Modeler: Phil Gleason. Model run to estimate potential construction emissions.

Land Use - Project site is approximately 9.86 acres. No structures for people would be built as part of the project.

Construction Phase - Schedule updated to reflect approximately 2 weeks to demo and off-haul existing 4,000 square foot structure, then a 10 month construction timeframe. Site prep and grading condensed into one phase.

Off-road Equipment - Demo - Equipment reduced, since there is only one, 4,000 sf building slated for demolition at the site.

Off-road Equipment - Site Prep - Updated based on equipment list provided by Project Applicant.

Off-road Equipment - Site Prep and Grading - Equipment list provided by Project Applicant.

Off-road Equipment - Battery Storage Installation - Equipment adjected to reflect battery storage units would be brought into the site and installed.

Off-road Equipment -

Grading - Acres graded updated to reflect that (generally) only the northeastern and southwestern portions of the project site would be graded. Assumes approximately 6.5 acres would be graded four (4) times.

Demolition - Approximately 4,000 square feet of building space would be demoed.

Trips and VMT - Trip and VMT - Trips adjusted to reflect a maximum of 75 workers at the site, with 50 being average. Five deliveries for equipment per day.

Construction Off-road Equipment Mitigation - Assumes watering three times per day to comply with SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	146.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	3/24/2022	11/3/2021
tblConstructionPhase	PhaseEndDate	1/27/2022	10/1/2021
tblConstructionPhase	PhaseEndDate	1/28/2021	1/14/2021
tblConstructionPhase	PhaseEndDate	3/11/2021	12/10/2021
tblConstructionPhase	PhaseEndDate	2/24/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	2/11/2021	3/11/2021
tblConstructionPhase	PhaseStartDate	2/25/2022	11/4/2021

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Annual

tblConstructionPhase	PhaseStartDate	2/12/2021	12/12/2021
tblConstructionPhase	PhaseStartDate	1/28/2022	10/4/2021
tblConstructionPhase	PhaseStartDate	1/29/2021	1/15/2021
tblGrading	AcresOfGrading	80.00	26.00
tblLandUse	LandUseSquareFeet	10,000.00	0.00
tblLandUse	LotAcreage	0.23	9.86
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	75.00
tblTripsAndVMT	WorkerTripNumber	8.00	50.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1788	1.4236	1.2477	2.6700e-003	0.2156	0.0646	0.2801	0.0891	0.0601	0.1493	0.0000	232.8429	232.8429	0.0491	0.0000	234.0704
Maximum	**0.1788**	**1.4236**	**1.2477**	**2.6700e-003**	**0.2156**	**0.0646**	**0.2801**	**0.0891**	**0.0601**	**0.1493**	**0.0000**	**232.8429**	**232.8429**	**0.0491**	**0.0000**	**234.0704**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1788	1.4236	1.2477	2.6700e-003	0.1325	0.0646	0.1970	0.0477	0.0601	0.1078	0.0000	232.8427	232.8427	0.0491	0.0000	234.0702
Maximum	**0.1788**	**1.4236**	**1.2477**	**2.6700e-003**	**0.1325**	**0.0646**	**0.1970**	**0.0477**	**0.0601**	**0.1078**	**0.0000**	**232.8427**	**232.8427**	**0.0491**	**0.0000**	**234.0702**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**38.54**	**0.00**	**29.66**	**46.54**	**0.00**	**27.79**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	1.1037	1.1037
2	4-1-2021	6-30-2021	0.2095	0.2095
3	7-1-2021	9-30-2021	0.2118	0.2118
		Highest	1.1037	1.1037

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0193	0.1514	0.2680	1.1200e-003	0.0888	8.0000e-004	0.0896	0.0238	7.4000e-004	0.0245	0.0000	103.9471	103.9471	4.9400e-003	0.0000	104.0705
Waste						0.0000	0.0000		0.0000	0.0000	2.5171	0.0000	2.5171	0.1488	0.0000	6.2360
Water						0.0000	0.0000		0.0000	0.0000	0.7337	9.5940	10.3277	0.0758	1.8600e-003	12.7760
Total	**0.0193**	**0.1514**	**0.2681**	**1.1200e-003**	**0.0888**	**8.0000e-004**	**0.0896**	**0.0238**	**7.4000e-004**	**0.0245**	**3.2507**	**113.5413**	**116.7921**	**0.2295**	**1.8600e-003**	**123.0828**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0193	0.1514	0.2680	1.1200e-003	0.0888	8.0000e-004	0.0896	0.0238	7.4000e-004	0.0245	0.0000	103.9471	103.9471	4.9400e-003	0.0000	104.0705
Waste						0.0000	0.0000		0.0000	0.0000	2.5171	0.0000	2.5171	0.1488	0.0000	6.2360
Water						0.0000	0.0000		0.0000	0.0000	0.7337	9.5940	10.3277	0.0758	1.8600e-003	12.7760
Total	**0.0193**	**0.1514**	**0.2681**	**1.1200e-003**	**0.0888**	**8.0000e-004**	**0.0896**	**0.0238**	**7.4000e-004**	**0.0245**	**3.2507**	**113.5413**	**116.7921**	**0.2295**	**1.8600e-003**	**123.0828**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/14/2021	5	10	
2	Site Preparation and Grading	Site Preparation	1/15/2021	3/11/2021	5	40	
3	Battery Storage Installation	Building Construction	3/12/2021	10/1/2021	5	146	
4	Paving + Testing	Paving	10/4/2021	10/29/2021	5	20	
5	Architectural Coating	Architectural Coating	11/4/2021	11/3/2021	5	0	
6	XXXXX	Grading	12/12/2021	12/10/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
XXXXX	Excavators	1	8.00	158	0.38
Battery Storage Installation	Cranes	0	7.00	231	0.29
Battery Storage Installation	Forklifts	2	8.00	89	0.20
Battery Storage Installation	Generator Sets	0	8.00	84	0.74
Paving + Testing	Pavers	1	8.00	130	0.42
Paving + Testing	Rollers	1	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
XXXXX	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Tractors/Loaders/Backhoes	0	7.00	97	0.37
XXXXX	Graders	1	8.00	187	0.41
XXXXX	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving + Testing	Paving Equipment	1	8.00	132	0.36
Site Preparation and Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation and Grading	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Welders	2	6.00	46	0.45
Site Preparation and Grading	Scrapers	2	8.00	367	0.48
Demolition	Excavators	0	8.00	158	0.38
Site Preparation and Grading	Plate Compactors	1	6.00	8	0.43
Site Preparation and Grading	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation and Grading	Graders	1	8.00	187	0.41
Site Preparation and Grading	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading	8	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
XXXXX	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Installation	4	75.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving + Testing	3	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9700e-003	0.0000	1.9700e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0900e-003	0.0795	0.0499	9.0000e-005		4.0900e-003	4.0900e-003		3.8300e-003	3.8300e-003	0.0000	7.8060	7.8060	1.8100e-003	0.0000	7.8512
Total	**8.0900e-003**	**0.0795**	**0.0499**	**9.0000e-005**	**1.9700e-003**	**4.0900e-003**	**6.0600e-003**	**3.0000e-004**	**3.8300e-003**	**4.1300e-003**	**0.0000**	**7.8060**	**7.8060**	**1.8100e-003**	**0.0000**	**7.8512**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.1000e-003	3.4000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6663	0.6663	4.0000e-005	0.0000	0.6673
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.4300e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3640	0.3640	1.0000e-005	0.0000	0.3642
Total	**2.3000e-004**	**2.2400e-003**	**1.7700e-003**	**1.0000e-005**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**1.0303**	**1.0303**	**5.0000e-005**	**0.0000**	**1.0315**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.7000e-004	0.0000	7.7000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0900e-003	0.0795	0.0499	9.0000e-005		4.0900e-003	4.0900e-003		3.8300e-003	3.8300e-003	0.0000	7.8059	7.8059	1.8100e-003	0.0000	7.8512
Total	**8.0900e-003**	**0.0795**	**0.0499**	**9.0000e-005**	**7.7000e-004**	**4.0900e-003**	**4.8600e-003**	**1.2000e-004**	**3.8300e-003**	**3.9500e-003**	**0.0000**	**7.8059**	**7.8059**	**1.8100e-003**	**0.0000**	**7.8512**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.1000e-003	3.4000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6663	0.6663	4.0000e-005	0.0000	0.6673
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.4300e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3640	0.3640	1.0000e-005	0.0000	0.3642
Total	**2.3000e-004**	**2.2400e-003**	**1.7700e-003**	**1.0000e-005**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**1.0303**	**1.0303**	**5.0000e-005**	**0.0000**	**1.0315**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1342	0.0000	0.1342	0.0677	0.0000	0.0677	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0791	0.8800	0.5084	1.1500e-003		0.0362	0.0362		0.0333	0.0333	0.0000	101.0430	101.0430	0.0326	0.0000	101.8575
Total	**0.0791**	**0.8800**	**0.5084**	**1.1500e-003**	**0.1342**	**0.0362**	**0.1704**	**0.0677**	**0.0333**	**0.1010**	**0.0000**	**101.0430**	**101.0430**	**0.0326**	**0.0000**	**101.8575**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-003	3.4800e-003	0.0356	1.0000e-004	0.0110	7.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.0990	9.0990	2.5000e-004	0.0000	9.1054
Total	**4.6000e-003**	**3.4800e-003**	**0.0356**	**1.0000e-004**	**0.0110**	**7.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.0990**	**9.0990**	**2.5000e-004**	**0.0000**	**9.1054**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0524	0.0000	0.0524	0.0264	0.0000	0.0264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0791	0.8800	0.5084	1.1500e-003		0.0362	0.0362		0.0333	0.0333	0.0000	101.0429	101.0429	0.0326	0.0000	101.8573
Total	**0.0791**	**0.8800**	**0.5084**	**1.1500e-003**	**0.0524**	**0.0362**	**0.0885**	**0.0264**	**0.0333**	**0.0597**	**0.0000**	**101.0429**	**101.0429**	**0.0326**	**0.0000**	**101.8573**

3.3 Site Preparation and Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-003	3.4800e-003	0.0356	1.0000e-004	0.0110	7.0000e-005	0.0110	2.9100e-003	7.0000e-005	2.9800e-003	0.0000	9.0990	9.0990	2.5000e-004	0.0000	9.1054
Total	**4.6000e-003**	**3.4800e-003**	**0.0356**	**1.0000e-004**	**0.0110**	**7.0000e-005**	**0.0110**	**2.9100e-003**	**7.0000e-005**	**2.9800e-003**	**0.0000**	**9.0990**	**9.0990**	**2.5000e-004**	**0.0000**	**9.1054**

3.4 Battery Storage Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0520	0.3374	0.3587	5.0000e-004		0.0203	0.0203		0.0194	0.0194	0.0000	40.2167	40.2167	9.0200e-003	0.0000	40.4423
Total	**0.0520**	**0.3374**	**0.3587**	**5.0000e-004**		**0.0203**	**0.0203**		**0.0194**	**0.0194**	**0.0000**	**40.2167**	**40.2167**	**9.0200e-003**	**0.0000**	**40.4423**

3.4 Battery Storage Installation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7000e-004	0.0355	7.2300e-003	1.0000e-004	2.3000e-003	6.0000e-005	2.3600e-003	6.6000e-004	6.0000e-005	7.2000e-004	0.0000	9.2697	9.2697	6.2000e-004	0.0000	9.2853
Worker	0.0252	0.0191	0.1951	5.5000e-004	0.0600	3.9000e-004	0.0604	0.0159	3.6000e-004	0.0163	0.0000	49.8171	49.8171	1.3900e-003	0.0000	49.8519
Total	**0.0262**	**0.0546**	**0.2023**	**6.5000e-004**	**0.0623**	**4.5000e-004**	**0.0628**	**0.0166**	**4.2000e-004**	**0.0170**	**0.0000**	**59.0867**	**59.0867**	**2.0100e-003**	**0.0000**	**59.1372**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0520	0.3374	0.3587	5.0000e-004		0.0203	0.0203		0.0194	0.0194	0.0000	40.2166	40.2166	9.0200e-003	0.0000	40.4423
Total	**0.0520**	**0.3374**	**0.3587**	**5.0000e-004**		**0.0203**	**0.0203**		**0.0194**	**0.0194**	**0.0000**	**40.2166**	**40.2166**	**9.0200e-003**	**0.0000**	**40.4423**

3.4 Battery Storage Installation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.7000e-004	0.0355	7.2300e-003	1.0000e-004	2.3000e-003	6.0000e-005	2.3600e-003	6.6000e-004	6.0000e-005	7.2000e-004	0.0000	9.2697	9.2697	6.2000e-004	0.0000	9.2853
Worker	0.0252	0.0191	0.1951	5.5000e-004	0.0600	3.9000e-004	0.0604	0.0159	3.6000e-004	0.0163	0.0000	49.8171	49.8171	1.3900e-003	0.0000	49.8519
Total	**0.0262**	**0.0546**	**0.2023**	**6.5000e-004**	**0.0623**	**4.5000e-004**	**0.0628**	**0.0166**	**4.2000e-004**	**0.0170**	**0.0000**	**59.0867**	**59.0867**	**2.0100e-003**	**0.0000**	**59.1372**

3.5 Paving + Testing - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2800e-003	0.0646	0.0733	1.1000e-004		3.3900e-003	3.3900e-003		3.1200e-003	3.1200e-003	0.0000	10.0117	10.0117	3.2400e-003	0.0000	10.0927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.2800e-003**	**0.0646**	**0.0733**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.1200e-003**	**3.1200e-003**	**0.0000**	**10.0117**	**10.0117**	**3.2400e-003**	**0.0000**	**10.0927**

3.5 Paving + Testing - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.7400e-003	0.0178	5.0000e-005	5.4800e-003	4.0000e-005	5.5200e-003	1.4600e-003	3.0000e-005	1.4900e-003	0.0000	4.5495	4.5495	1.3000e-004	0.0000	4.5527
Total	**2.3000e-003**	**1.7400e-003**	**0.0178**	**5.0000e-005**	**5.4800e-003**	**4.0000e-005**	**5.5200e-003**	**1.4600e-003**	**3.0000e-005**	**1.4900e-003**	**0.0000**	**4.5495**	**4.5495**	**1.3000e-004**	**0.0000**	**4.5527**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.2800e-003	0.0646	0.0733	1.1000e-004		3.3900e-003	3.3900e-003		3.1200e-003	3.1200e-003	0.0000	10.0117	10.0117	3.2400e-003	0.0000	10.0927
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.2800e-003**	**0.0646**	**0.0733**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.1200e-003**	**3.1200e-003**	**0.0000**	**10.0117**	**10.0117**	**3.2400e-003**	**0.0000**	**10.0927**

3.5 Paving + Testing - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-003	1.7400e-003	0.0178	5.0000e-005	5.4800e-003	4.0000e-005	5.5200e-003	1.4600e-003	3.0000e-005	1.4900e-003	0.0000	4.5495	4.5495	1.3000e-004	0.0000	4.5527
Total	**2.3000e-003**	**1.7400e-003**	**0.0178**	**5.0000e-005**	**5.4800e-003**	**4.0000e-005**	**5.5200e-003**	**1.4600e-003**	**3.0000e-005**	**1.4900e-003**	**0.0000**	**4.5495**	**4.5495**	**1.3000e-004**	**0.0000**	**4.5527**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0193	0.1514	0.2680	1.1200e-003	0.0888	8.0000e-004	0.0896	0.0238	7.4000e-004	0.0245	0.0000	103.9471	103.9471	4.9400e-003	0.0000	104.0705
Unmitigated	0.0193	0.1514	0.2680	1.1200e-003	0.0888	8.0000e-004	0.0896	0.0238	7.4000e-004	0.0245	0.0000	103.9471	103.9471	4.9400e-003	0.0000	104.0705

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	69.70	13.20	6.80	233,117	233,117
Total	69.70	13.20	6.80	233,117	233,117

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Unmitigated	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Total	**1.0000e-005**	**0.0000**	**1.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.0000**	**2.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-004	2.5000e-004	0.0000	0.0000	2.6000e-004
Total	**1.0000e-005**	**0.0000**	**1.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.0000**	**2.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.3277	0.0758	1.8600e-003	12.7760
Unmitigated	10.3277	0.0758	1.8600e-003	12.7760

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	2.3125 / 0	10.3277	0.0758	1.8600e-003	12.7760
Total		**10.3277**	**0.0758**	**1.8600e-003**	**12.7760**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	2.3125 / 0	10.3277	0.0758	1.8600e-003	12.7760
Total		**10.3277**	**0.0758**	**1.8600e-003**	**12.7760**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5171	0.1488	0.0000	6.2360
Unmitigated	2.5171	0.1488	0.0000	6.2360

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	12.4	2.5171	0.1488	0.0000	6.2360
Total		**2.5171**	**0.1488**	**0.0000**	**6.2360**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	12.4	2.5171	0.1488	0.0000	6.2360
Total		**2.5171**	**0.1488**	**0.0000**	**6.2360**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Condor Battery Energy Storage Facility (Construction)

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	10.00	1000sqft	9.86	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Summer

Project Characteristics - MIG Modeler: Phil Gleason. Model run to estimate potential construction emissions.

Land Use - Project site is approximately 9.86 acres. No structures for people would be built as part of the project.

Construction Phase - Schedule updated to reflect approximately 2 weeks to demo and off-haul existing 4,000 square foot structure, then a 10 month construction timeframe. Site prep and grading condensed into one phase.

Off-road Equipment - Demo - Equipment reduced, since there is only one, 4,000 sf building slated for demolition at the site.

Off-road Equipment - Site Prep - Updated based on equipment list provided by Project Applicant.

Off-road Equipment - Site Prep and Grading - Equipment list provided by Project Applicant.

Off-road Equipment - Battery Storage Installation - Equipment adjected to reflect battery storage units would be brought into the site and installed.

Off-road Equipment -

Grading - Acres graded updated to reflect that (generally) only the northeastern and southwestern portions of the project site would be graded. Assumes approximately 6.5 acres would be graded four (4) times.

Demolition - Approximately 4,000 square feet of building space would be demoed.

Trips and VMT - Trip and VMT - Trips adjusted to reflect a maximum of 75 workers at the site, with 50 being average. Five deliveries for equipment per day.

Construction Off-road Equipment Mitigation - Assumes watering three times per day to comply with SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	146.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	3/24/2022	11/3/2021
tblConstructionPhase	PhaseEndDate	1/27/2022	10/1/2021
tblConstructionPhase	PhaseEndDate	1/28/2021	1/14/2021
tblConstructionPhase	PhaseEndDate	3/11/2021	12/10/2021
tblConstructionPhase	PhaseEndDate	2/24/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	2/11/2021	3/11/2021
tblConstructionPhase	PhaseStartDate	2/25/2022	11/4/2021

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Summer

tblConstructionPhase	PhaseStartDate	2/12/2021	12/12/2021
tblConstructionPhase	PhaseStartDate	1/28/2022	10/4/2021
tblConstructionPhase	PhaseStartDate	1/29/2021	1/15/2021
tblGrading	AcresOfGrading	80.00	26.00
tblLandUse	LandUseSquareFeet	10,000.00	0.00
tblLandUse	LotAcreage	0.23	9.86
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	75.00
tblTripsAndVMT	WorkerTripNumber	8.00	50.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2067	44.1592	27.4889	0.0631	7.2703	1.8124	9.0827	3.5329	1.6680	5.2008	0.0000	6,116.0845	6,116.0845	1.8110	0.0000	6,161.3603
Maximum	**4.2067**	**44.1592**	**27.4889**	**0.0631**	**7.2703**	**1.8124**	**9.0827**	**3.5329**	**1.6680**	**5.2008**	**0.0000**	**6,116.0845**	**6,116.0845**	**1.8110**	**0.0000**	**6,161.3603**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2067	44.1592	27.4889	0.0631	3.1763	1.8124	4.9887	1.4682	1.6680	3.1362	0.0000	6,116.0845	6,116.0845	1.8110	0.0000	6,161.3603
Maximum	**4.2067**	**44.1592**	**27.4889**	**0.0631**	**3.1763**	**1.8124**	**4.9887**	**1.4682**	**1.6680**	**3.1362**	**0.0000**	**6,116.0845**	**6,116.0845**	**1.8110**	**0.0000**	**6,161.3603**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.31**	**0.00**	**45.07**	**58.44**	**0.00**	**39.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1627	1.0690	2.1822	8.6800e-003	0.6581	5.7800e-003	0.6639	0.1761	5.4100e-003	0.1815		885.1736	885.1736	0.0400		886.1740
Total	**0.1628**	**1.0690**	**2.1832**	**8.6800e-003**	**0.6581**	**5.7800e-003**	**0.6639**	**0.1761**	**5.4100e-003**	**0.1815**		**885.1758**	**885.1758**	**0.0400**	**0.0000**	**886.1763**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1627	1.0690	2.1822	8.6800e-003	0.6581	5.7800e-003	0.6639	0.1761	5.4100e-003	0.1815		885.1736	885.1736	0.0400		886.1740
Total	**0.1628**	**1.0690**	**2.1832**	**8.6800e-003**	**0.6581**	**5.7800e-003**	**0.6639**	**0.1761**	**5.4100e-003**	**0.1815**		**885.1758**	**885.1758**	**0.0400**	**0.0000**	**886.1763**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/14/2021	5	10	
2	Site Preparation and Grading	Site Preparation	1/15/2021	3/11/2021	5	40	
3	Battery Storage Installation	Building Construction	3/12/2021	10/1/2021	5	146	
4	Paving + Testing	Paving	10/4/2021	10/29/2021	5	20	
5	Architectural Coating	Architectural Coating	11/4/2021	11/3/2021	5	0	
6	XXXXX	Grading	12/12/2021	12/10/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
XXXXX	Excavators	1	8.00	158	0.38
Battery Storage Installation	Cranes	0	7.00	231	0.29
Battery Storage Installation	Forklifts	2	8.00	89	0.20
Battery Storage Installation	Generator Sets	0	8.00	84	0.74
Paving + Testing	Pavers	1	8.00	130	0.42
Paving + Testing	Rollers	1	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
XXXXX	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Tractors/Loaders/Backhoes	0	7.00	97	0.37
XXXXX	Graders	1	8.00	187	0.41
XXXXX	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving + Testing	Paving Equipment	1	8.00	132	0.36
Site Preparation and Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation and Grading	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Welders	2	6.00	46	0.45
Site Preparation and Grading	Scrapers	2	8.00	367	0.48
Demolition	Excavators	0	8.00	158	0.38
Site Preparation and Grading	Plate Compactors	1	6.00	8	0.43
Site Preparation and Grading	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation and Grading	Graders	1	8.00	187	0.41
Site Preparation and Grading	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading	8	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
XXXXX	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Installation	4	75.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving + Testing	3	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	1.6185	15.9050	9.9721	0.0179		0.8174	0.8174		0.7658	0.7658		1,720.9169	1,720.9169	0.3993		1,730.8998
Total	**1.6185**	**15.9050**	**9.9721**	**0.0179**	**0.3937**	**0.8174**	**1.2111**	**0.0596**	**0.7658**	**0.8254**		**1,720.9169**	**1,720.9169**	**0.3993**		**1,730.8998**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0107	0.4106	0.0636	1.4000e-003	0.0315	1.1600e-003	0.0327	8.6400e-003	1.1100e-003	9.7500e-003		148.5341	148.5341	7.9600e-003		148.7332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0251	0.3312	8.8000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		87.5264	87.5264	2.4900e-003		87.5887
Total	**0.0514**	**0.4357**	**0.3948**	**2.2800e-003**	**0.1209**	**1.7300e-003**	**0.1227**	**0.0324**	**1.6400e-003**	**0.0340**		**236.0606**	**236.0606**	**0.0105**		**236.3219**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1536	0.0000	0.1536	0.0233	0.0000	0.0233			0.0000			0.0000
Off-Road	1.6185	15.9050	9.9721	0.0179		0.8174	0.8174		0.7658	0.7658	0.0000	1,720.9169	1,720.9169	0.3993		1,730.8998
Total	**1.6185**	**15.9050**	**9.9721**	**0.0179**	**0.1536**	**0.8174**	**0.9709**	**0.0233**	**0.7658**	**0.7891**	**0.0000**	**1,720.9169**	**1,720.9169**	**0.3993**		**1,730.8998**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0107	0.4106	0.0636	1.4000e-003	0.0315	1.1600e-003	0.0327	8.6400e-003	1.1100e-003	9.7500e-003		148.5341	148.5341	7.9600e-003		148.7332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0251	0.3312	8.8000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		87.5264	87.5264	2.4900e-003		87.5887
Total	**0.0514**	**0.4357**	**0.3948**	**2.2800e-003**	**0.1209**	**1.7300e-003**	**0.1227**	**0.0324**	**1.6400e-003**	**0.0340**		**236.0606**	**236.0606**	**0.0105**		**236.3219**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7114	0.0000	6.7114	3.3847	0.0000	3.3847			0.0000			0.0000
Off-Road	3.9526	44.0021	25.4190	0.0576		1.8088	1.8088		1.6647	1.6647		5,569.0442	5,569.0442	1.7955		5,613.9308
Total	**3.9526**	**44.0021**	**25.4190**	**0.0576**	**6.7114**	**1.8088**	**8.5202**	**3.3847**	**1.6647**	**5.0493**		**5,569.0442**	**5,569.0442**	**1.7955**		**5,613.9308**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2541	0.1570	2.0699	5.4900e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		547.0403	547.0403	0.0156		547.4295
Total	**0.2541**	**0.1570**	**2.0699**	**5.4900e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**547.0403**	**547.0403**	**0.0156**		**547.4295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6175	0.0000	2.6175	1.3200	0.0000	1.3200			0.0000			0.0000
Off-Road	3.9526	44.0021	25.4190	0.0576		1.8088	1.8088		1.6647	1.6647	0.0000	5,569.0442	5,569.0442	1.7955		5,613.9308
Total	**3.9526**	**44.0021**	**25.4190**	**0.0576**	**2.6175**	**1.8088**	**4.4262**	**1.3200**	**1.6647**	**2.9847**	**0.0000**	**5,569.0442**	**5,569.0442**	**1.7955**		**5,613.9308**

3.3 Site Preparation and Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2541	0.1570	2.0699	5.4900e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		547.0403	547.0403	0.0156		547.4295
Total	**0.2541**	**0.1570**	**2.0699**	**5.4900e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**547.0403**	**547.0403**	**0.0156**		**547.4295**

3.4 Battery Storage Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7126	4.6216	4.9139	6.8900e-003		0.2786	0.2786		0.2652	0.2652		607.2783	607.2783	0.1363		610.6852
Total	**0.7126**	**4.6216**	**4.9139**	**6.8900e-003**		**0.2786**	**0.2786**		**0.2652**	**0.2652**		**607.2783**	**607.2783**	**0.1363**		**610.6852**

3.4 Battery Storage Installation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0129	0.4822	0.0907	1.3500e-003	0.0320	8.3000e-004	0.0329	9.2200e-003	7.9000e-004	0.0100		142.2947	142.2947	8.9900e-003		142.5195
Worker	0.3811	0.2356	3.1049	8.2400e-003	0.8383	5.3600e-003	0.8437	0.2223	4.9400e-003	0.2273		820.5604	820.5604	0.0234		821.1442
Total	**0.3940**	**0.7177**	**3.1956**	**9.5900e-003**	**0.8703**	**6.1900e-003**	**0.8765**	**0.2316**	**5.7300e-003**	**0.2373**		**962.8550**	**962.8550**	**0.0323**		**963.6637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7126	4.6216	4.9139	6.8900e-003		0.2786	0.2786		0.2652	0.2652	0.0000	607.2783	607.2783	0.1363		610.6852
Total	**0.7126**	**4.6216**	**4.9139**	**6.8900e-003**		**0.2786**	**0.2786**		**0.2652**	**0.2652**	**0.0000**	**607.2783**	**607.2783**	**0.1363**		**610.6852**

3.4 Battery Storage Installation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0129	0.4822	0.0907	1.3500e-003	0.0320	8.3000e-004	0.0329	9.2200e-003	7.9000e-004	0.0100		142.2947	142.2947	8.9900e-003		142.5195
Worker	0.3811	0.2356	3.1049	8.2400e-003	0.8383	5.3600e-003	0.8437	0.2223	4.9400e-003	0.2273		820.5604	820.5604	0.0234		821.1442
Total	**0.3940**	**0.7177**	**3.1956**	**9.5900e-003**	**0.8703**	**6.1900e-003**	**0.8765**	**0.2316**	**5.7300e-003**	**0.2373**		**962.8550**	**962.8550**	**0.0323**		**963.6637**

3.5 Paving + Testing - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6278	6.4596	7.3266	0.0114		0.3389	0.3389		0.3118	0.3118		1,103.6054	1,103.6054	0.3569		1,112.5286
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6278**	**6.4596**	**7.3266**	**0.0114**		**0.3389**	**0.3389**		**0.3118**	**0.3118**		**1,103.6054**	**1,103.6054**	**0.3569**		**1,112.5286**

3.5 Paving + Testing - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2541	0.1570	2.0699	5.4900e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		547.0403	547.0403	0.0156		547.4295
Total	**0.2541**	**0.1570**	**2.0699**	**5.4900e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**547.0403**	**547.0403**	**0.0156**		**547.4295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6278	6.4596	7.3266	0.0114		0.3389	0.3389		0.3118	0.3118	0.0000	1,103.6054	1,103.6054	0.3569		1,112.5286
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6278**	**6.4596**	**7.3266**	**0.0114**		**0.3389**	**0.3389**		**0.3118**	**0.3118**	**0.0000**	**1,103.6054**	**1,103.6054**	**0.3569**		**1,112.5286**

3.5 Paving + Testing - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2541	0.1570	2.0699	5.4900e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		547.0403	547.0403	0.0156		547.4295
Total	**0.2541**	**0.1570**	**2.0699**	**5.4900e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**547.0403**	**547.0403**	**0.0156**		**547.4295**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1627	1.0690	2.1822	8.6800e-003	0.6581	5.7800e-003	0.6639	0.1761	5.4100e-003	0.1815		885.1736	885.1736	0.0400		886.1740
Unmitigated	0.1627	1.0690	2.1822	8.6800e-003	0.6581	5.7800e-003	0.6639	0.1761	5.4100e-003	0.1815		885.1736	885.1736	0.0400		886.1740

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	69.70	13.20	6.80	233,117	233,117
Total	69.70	13.20	6.80	233,117	233,117

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Unmitigated	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Total	**1.0000e-004**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1900e-003**	**2.1900e-003**	**1.0000e-005**		**2.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Total	**1.0000e-004**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1900e-003**	**2.1900e-003**	**1.0000e-005**		**2.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Condor Battery Energy Storage Facility (Construction)

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	10.00	1000sqft	9.86	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Winter

Project Characteristics - MIG Modeler: Phil Gleason. Model run to estimate potential construction emissions.

Land Use - Project site is approximately 9.86 acres. No structures for people would be built as part of the project.

Construction Phase - Schedule updated to reflect approximately 2 weeks to demo and off-haul existing 4,000 square foot structure, then a 10 month construction timeframe. Site prep and grading condensed into one phase.

Off-road Equipment - Demo - Equipment reduced, since there is only one, 4,000 sf building slated for demolition at the site.

Off-road Equipment - Site Prep - Updated based on equipment list provided by Project Applicant.

Off-road Equipment - Site Prep and Grading - Equipment list provided by Project Applicant.

Off-road Equipment - Battery Storage Installation - Equipment adjected to reflect battery storage units would be brought into the site and installed.

Off-road Equipment -

Grading - Acres graded updated to reflect that (generally) only the northeastern and southwestern portions of the project site would be graded. Assumes approximately 6.5 acres would be graded four (4) times.

Demolition - Approximately 4,000 square feet of building space would be demoed.

Trips and VMT - Trip and VMT - Trips adjusted to reflect a maximum of 75 workers at the site, with 50 being average. Five deliveries for equipment per day.

Construction Off-road Equipment Mitigation - Assumes watering three times per day to comply with SCAQMD Rule 403.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	146.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	PhaseEndDate	3/24/2022	11/3/2021
tblConstructionPhase	PhaseEndDate	1/27/2022	10/1/2021
tblConstructionPhase	PhaseEndDate	1/28/2021	1/14/2021
tblConstructionPhase	PhaseEndDate	3/11/2021	12/10/2021
tblConstructionPhase	PhaseEndDate	2/24/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	2/11/2021	3/11/2021
tblConstructionPhase	PhaseStartDate	2/25/2022	11/4/2021

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Winter

tblConstructionPhase	PhaseStartDate	2/12/2021	12/12/2021
tblConstructionPhase	PhaseStartDate	1/28/2022	10/4/2021
tblConstructionPhase	PhaseStartDate	1/29/2021	1/15/2021
tblGrading	AcresOfGrading	80.00	26.00
tblLandUse	LandUseSquareFeet	10,000.00	0.00
tblLandUse	LotAcreage	0.23	9.86
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName	Paving	Paving + Testing
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	PhaseName		Site Preparation and Grading
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOnRoadDust	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	PhaseName	Paving	Paving + Testing
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	WorkerTripNumber	20.00	50.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	75.00
tblTripsAndVMT	WorkerTripNumber	8.00	50.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2072	44.1673	27.1168	0.0625	7.2703	1.8124	9.0827	3.5329	1.6680	5.2008	0.0000	6,059.7931	6,059.7931	1.8091	0.0000	6,105.0211
Maximum	**4.2072**	**44.1673**	**27.1168**	**0.0625**	**7.2703**	**1.8124**	**9.0827**	**3.5329**	**1.6680**	**5.2008**	**0.0000**	**6,059.7931**	**6,059.7931**	**1.8091**	**0.0000**	**6,105.0211**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2072	44.1673	27.1168	0.0625	3.1763	1.8124	4.9887	1.4682	1.6680	3.1362	0.0000	6,059.7931	6,059.7931	1.8091	0.0000	6,105.0211
Maximum	**4.2072**	**44.1673**	**27.1168**	**0.0625**	**3.1763**	**1.8124**	**4.9887**	**1.4682**	**1.6680**	**3.1362**	**0.0000**	**6,059.7931**	**6,059.7931**	**1.8091**	**0.0000**	**6,105.0211**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.31**	**0.00**	**45.07**	**58.44**	**0.00**	**39.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1432	1.0765	1.8834	8.0100e-003	0.6581	5.8100e-003	0.6639	0.1761	5.4400e-003	0.1815		817.9690	817.9690	0.0402		818.9744
Total	**0.1433**	**1.0765**	**1.8844**	**8.0100e-003**	**0.6581**	**5.8100e-003**	**0.6639**	**0.1761**	**5.4400e-003**	**0.1815**		**817.9711**	**817.9711**	**0.0402**	**0.0000**	**818.9767**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1432	1.0765	1.8834	8.0100e-003	0.6581	5.8100e-003	0.6639	0.1761	5.4400e-003	0.1815		817.9690	817.9690	0.0402		818.9744
Total	**0.1433**	**1.0765**	**1.8844**	**8.0100e-003**	**0.6581**	**5.8100e-003**	**0.6639**	**0.1761**	**5.4400e-003**	**0.1815**		**817.9711**	**817.9711**	**0.0402**	**0.0000**	**818.9767**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/14/2021	5	10	
2	Site Preparation and Grading	Site Preparation	1/15/2021	3/11/2021	5	40	
3	Battery Storage Installation	Building Construction	3/12/2021	10/1/2021	5	146	
4	Paving + Testing	Paving	10/4/2021	10/29/2021	5	20	
5	Architectural Coating	Architectural Coating	11/4/2021	11/3/2021	5	0	
6	XXXXX	Grading	12/12/2021	12/10/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Condor Battery Energy Storage Facility (Construction) - San Bernardino-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
XXXXX	Excavators	1	8.00	158	0.38
Battery Storage Installation	Cranes	0	7.00	231	0.29
Battery Storage Installation	Forklifts	2	8.00	89	0.20
Battery Storage Installation	Generator Sets	0	8.00	84	0.74
Paving + Testing	Pavers	1	8.00	130	0.42
Paving + Testing	Rollers	1	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
XXXXX	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Tractors/Loaders/Backhoes	0	7.00	97	0.37
XXXXX	Graders	1	8.00	187	0.41
XXXXX	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving + Testing	Paving Equipment	1	8.00	132	0.36
Site Preparation and Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation and Grading	Rubber Tired Dozers	1	8.00	247	0.40
Battery Storage Installation	Welders	2	6.00	46	0.45
Site Preparation and Grading	Scrapers	2	8.00	367	0.48
Demolition	Excavators	0	8.00	158	0.38
Site Preparation and Grading	Plate Compactors	1	6.00	8	0.43
Site Preparation and Grading	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation and Grading	Graders	1	8.00	187	0.41
Site Preparation and Grading	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	18.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation and Grading	8	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
XXXXX	6	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Installation	4	75.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving + Testing	3	50.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	1.6185	15.9050	9.9721	0.0179		0.8174	0.8174		0.7658	0.7658		1,720.9169	1,720.9169	0.3993		1,730.8998
Total	**1.6185**	**15.9050**	**9.9721**	**0.0179**	**0.3937**	**0.8174**	**1.2111**	**0.0596**	**0.7658**	**0.8254**		**1,720.9169**	**1,720.9169**	**0.3993**		**1,730.8998**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0112	0.4121	0.0726	1.3600e-003	0.0315	1.1800e-003	0.0327	8.6400e-003	1.1300e-003	9.7600e-003		144.6415	144.6415	8.6500e-003		144.8576
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0264	0.2717	7.9000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		78.5198	78.5198	2.1900e-003		78.5745
Total	**0.0519**	**0.4385**	**0.3443**	**2.1500e-003**	**0.1209**	**1.7500e-003**	**0.1227**	**0.0324**	**1.6600e-003**	**0.0340**		**223.1613**	**223.1613**	**0.0108**		**223.4321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1536	0.0000	0.1536	0.0233	0.0000	0.0233			0.0000			0.0000
Off-Road	1.6185	15.9050	9.9721	0.0179		0.8174	0.8174		0.7658	0.7658	0.0000	1,720.9169	1,720.9169	0.3993		1,730.8998
Total	**1.6185**	**15.9050**	**9.9721**	**0.0179**	**0.1536**	**0.8174**	**0.9709**	**0.0233**	**0.7658**	**0.7891**	**0.0000**	**1,720.9169**	**1,720.9169**	**0.3993**		**1,730.8998**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0112	0.4121	0.0726	1.3600e-003	0.0315	1.1800e-003	0.0327	8.6400e-003	1.1300e-003	9.7600e-003		144.6415	144.6415	8.6500e-003		144.8576
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0264	0.2717	7.9000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		78.5198	78.5198	2.1900e-003		78.5745
Total	**0.0519**	**0.4385**	**0.3443**	**2.1500e-003**	**0.1209**	**1.7500e-003**	**0.1227**	**0.0324**	**1.6600e-003**	**0.0340**		**223.1613**	**223.1613**	**0.0108**		**223.4321**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7114	0.0000	6.7114	3.3847	0.0000	3.3847			0.0000			0.0000
Off-Road	3.9526	44.0021	25.4190	0.0576		1.8088	1.8088		1.6647	1.6647		5,569.0442	5,569.0442	1.7955		5,613.9308
Total	**3.9526**	**44.0021**	**25.4190**	**0.0576**	**6.7114**	**1.8088**	**8.5202**	**3.3847**	**1.6647**	**5.0493**		**5,569.0442**	**5,569.0442**	**1.7955**		**5,613.9308**

3.3 Site Preparation and Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2546	0.1652	1.6978	4.9300e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		490.7488	490.7488	0.0137		491.0903
Total	**0.2546**	**0.1652**	**1.6978**	**4.9300e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**490.7488**	**490.7488**	**0.0137**		**491.0903**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6175	0.0000	2.6175	1.3200	0.0000	1.3200			0.0000			0.0000
Off-Road	3.9526	44.0021	25.4190	0.0576		1.8088	1.8088		1.6647	1.6647	0.0000	5,569.0442	5,569.0442	1.7955		5,613.9308
Total	**3.9526**	**44.0021**	**25.4190**	**0.0576**	**2.6175**	**1.8088**	**4.4262**	**1.3200**	**1.6647**	**2.9847**	**0.0000**	**5,569.0442**	**5,569.0442**	**1.7955**		**5,613.9308**

3.3 Site Preparation and Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2546	0.1652	1.6978	4.9300e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		490.7488	490.7488	0.0137		491.0903
Total	**0.2546**	**0.1652**	**1.6978**	**4.9300e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**490.7488**	**490.7488**	**0.0137**		**491.0903**

3.4 Battery Storage Installation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7126	4.6216	4.9139	6.8900e-003		0.2786	0.2786		0.2652	0.2652		607.2783	607.2783	0.1363		610.6852
Total	**0.7126**	**4.6216**	**4.9139**	**6.8900e-003**		**0.2786**	**0.2786**		**0.2652**	**0.2652**		**607.2783**	**607.2783**	**0.1363**		**610.6852**

3.4 Battery Storage Installation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0137	0.4771	0.1061	1.3000e-003	0.0320	8.5000e-004	0.0329	9.2200e-003	8.1000e-004	0.0100		136.7676	136.7676	9.9700e-003		137.0167
Worker	0.3819	0.2478	2.5467	7.3900e-003	0.8383	5.3600e-003	0.8437	0.2223	4.9400e-003	0.2273		736.1233	736.1233	0.0205		736.6355
Total	**0.3956**	**0.7248**	**2.6528**	**8.6900e-003**	**0.8703**	**6.2100e-003**	**0.8766**	**0.2316**	**5.7500e-003**	**0.2373**		**872.8908**	**872.8908**	**0.0305**		**873.6523**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7126	4.6216	4.9139	6.8900e-003		0.2786	0.2786		0.2652	0.2652	0.0000	607.2783	607.2783	0.1363		610.6852
Total	**0.7126**	**4.6216**	**4.9139**	**6.8900e-003**		**0.2786**	**0.2786**		**0.2652**	**0.2652**	**0.0000**	**607.2783**	**607.2783**	**0.1363**		**610.6852**

3.4 Battery Storage Installation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0137	0.4771	0.1061	1.3000e-003	0.0320	8.5000e-004	0.0329	9.2200e-003	8.1000e-004	0.0100		136.7676	136.7676	9.9700e-003		137.0167
Worker	0.3819	0.2478	2.5467	7.3900e-003	0.8383	5.3600e-003	0.8437	0.2223	4.9400e-003	0.2273		736.1233	736.1233	0.0205		736.6355
Total	**0.3956**	**0.7248**	**2.6528**	**8.6900e-003**	**0.8703**	**6.2100e-003**	**0.8766**	**0.2316**	**5.7500e-003**	**0.2373**		**872.8908**	**872.8908**	**0.0305**		**873.6523**

3.5 Paving + Testing - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6278	6.4596	7.3266	0.0114		0.3389	0.3389		0.3118	0.3118		1,103.6054	1,103.6054	0.3569		1,112.5286
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6278**	**6.4596**	**7.3266**	**0.0114**		**0.3389**	**0.3389**		**0.3118**	**0.3118**		**1,103.6054**	**1,103.6054**	**0.3569**		**1,112.5286**

3.5 Paving + Testing - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2546	0.1652	1.6978	4.9300e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		490.7488	490.7488	0.0137		491.0903
Total	**0.2546**	**0.1652**	**1.6978**	**4.9300e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**490.7488**	**490.7488**	**0.0137**		**491.0903**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6278	6.4596	7.3266	0.0114		0.3389	0.3389		0.3118	0.3118	0.0000	1,103.6054	1,103.6054	0.3569		1,112.5286
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6278**	**6.4596**	**7.3266**	**0.0114**		**0.3389**	**0.3389**		**0.3118**	**0.3118**	**0.0000**	**1,103.6054**	**1,103.6054**	**0.3569**		**1,112.5286**

3.5 Paving + Testing - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2546	0.1652	1.6978	4.9300e-003	0.5589	3.5700e-003	0.5625	0.1482	3.2900e-003	0.1515		490.7488	490.7488	0.0137		491.0903
Total	**0.2546**	**0.1652**	**1.6978**	**4.9300e-003**	**0.5589**	**3.5700e-003**	**0.5625**	**0.1482**	**3.2900e-003**	**0.1515**		**490.7488**	**490.7488**	**0.0137**		**491.0903**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 XXXXX - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1432	1.0765	1.8834	8.0100e-003	0.6581	5.8100e-003	0.6639	0.1761	5.4400e-003	0.1815		817.9690	817.9690	0.0402		818.9744
Unmitigated	0.1432	1.0765	1.8834	8.0100e-003	0.6581	5.8100e-003	0.6639	0.1761	5.4400e-003	0.1815		817.9690	817.9690	0.0402		818.9744

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	69.70	13.20	6.80	233,117	233,117
Total	69.70	13.20	6.80	233,117	233,117

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553113	0.036408	0.180286	0.116335	0.016165	0.005101	0.018218	0.063797	0.001357	0.001565	0.005903	0.000808	0.000944

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Unmitigated	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Total	**1.0000e-004**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1900e-003**	**2.1900e-003**	**1.0000e-005**		**2.3300e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1900e-003	2.1900e-003	1.0000e-005		2.3300e-003
Total	**1.0000e-004**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1900e-003**	**2.1900e-003**	**1.0000e-005**		**2.3300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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3615 MAIN STREET, SUITE 103
RIVERSIDE, CALIFORNIA 92501

MEMORANDUM

To:	Condor Energy Storage, LLC
From:	David Hochart, Bradley Cole, and Anna Cassady (Dudek)
Subject:	Condor Energy Storage Project, Jurisdictional Waters Delineation and Biological Resources Assessment
Date:	January 27, 2021
Attachment(s):	Attachment A, Figures Attachment B, OHWM Forms Attachment C, Wetland Data Station Forms Attachment D, Site Photographs Attachment E, Vascular Plant Species Observed Attachment F, Wildlife Species Observed Attachment G, Special-Status Plant Species Detected or Potentially Occurring in the Review Area Attachment H, Special-Status Wildlife Species Detected or Potentially Occurring in the Review Area

This jurisdictional waters and wetlands delineation and biological resources assessment memo describes existing jurisdictional waters and the existing biological conditions of the proposed Condor Energy Storage Project (project) site, hereafter referred to as the "site" or the "review area." The assessment was conducted over the approximately 9.9-acre review area, wherein the project and special-status biological resources were analyzed in the context of the California Environmental Quality Act (CEQA), the Clean Water Act (CWA), and the California Fish and Game Code. This letter documents the results of the jurisdictional waters and wetlands delineation and the results of the biological resources assessment, and provides recommendations for additional measures to reduce potential impacts to existing biological resources and special-status plant and wildlife species that could occur on the review area.

1 Project Location and Description

The review area is located in the City of Grand Terrace within San Bernardino County. The review area is generally located north of State Route 60 and Interstate 215, south of Interstate 10, and east of State Route 91. The review area is bounded by Main Street to the south and Taylor Street to the east (Figure 1, Project Location; all figures provided in Attachment A). The site occurs within the U.S. Geological Survey (USGS) 7.5-minute San Bernardino South topographic quadrangle map. The approximate center of the property is at latitude 34°1′13.43″N and longitude 117°19′56.49″. The site is a mostly undeveloped parcel with existing structures to the south and adjacent development to the north, south, east, and west. A Southern California Edison (SCE) generation station lies to the north. The northeastern portion of the review area has been previously developed as a southerly extension of the SCE station, and the remainder of the site is undeveloped but shows evidence of previous disturbance. The site was formally a recreational park known as Cage Park.

The proposed project will consist of lithium-ion energy batteries installed in racks, inverters, switchgear, and other associated equipment to directly or indirectly connect into the SCE Highgrove Substation located immediately adjacent to the northern property limits.

2 Regulatory Background

2.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Pursuant to Section 404 of the CWA, any person or public agency proposing to discharge dredged or fill material into waters of the United States, including jurisdictional wetlands, must obtain a permit from the U.S. Army Corps of Engineers (ACOE). On January 23, 2020, ACOE and the U.S. Environmental Protection Agency finalized the Navigable Waters Protection Rule, which establishes a new definition of waters of the United States under the CWA and became effective on June 22, 2020. The new Navigable Waters Protection Rule repeals the 2015 Clean Water Rule and replaces it with a definition that reduces the scope of federal regulation to a narrower collection of aquatic resource features. The changes with most relevance to the Inland Empire region include the removal of ephemeral tributaries (previously jurisdictional if they had a significant nexus to a traditional navigable water) and the redefinition of the term "adjacent" as used when referring to an "adjacent wetland." For an adjacent wetland to be jurisdictional, it must touch "at least one point or side of a jurisdictional water" or have a direct hydrological surface connection to a traditional navigable waterway. Hydrological connections through groundwater, which have been suggested to maintain federal jurisdiction in the past, are now outside of the scope of federal purview. Most importantly, the Navigable Waters Protection Rule identifies four specific categories of aquatic resource features that will be regulated by the federal government under the CWA, leaving oversight for other excluded waterbodies to states and tribes. The four specific categories of aquatic resources regulated under the CWA are as follows:

1. Territorial seas and traditional navigable waters
2. Perennial and intermittent tributaries
3. Certain lakes, ponds, and impoundments
4. Wetlands that are adjacent to jurisdictional waters

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high water mark (OHWM) when no adjacent wetlands are present. As defined in Title 33 Code of Federal Regulations, Part 328.3(c)(6), the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." If adjacent wetlands are present, the jurisdiction extends to the limit of the wetlands.

Wetlands are "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR, Part 328.3). Wetlands are jurisdictional if they meet this definition and the definition of waters of the United States. Three criteria must be satisfied to classify an area as a wetland under ACOE jurisdiction: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). ACOE uses the methodology in the Regional Supplements to the Corps of Engineers Wetland Delineation Manual to determine whether an area meets these three criteria. In the review area, the supplement for the Arid West Region (ACOE 2008a) is used.

ACOE-Regulated Activities

Under Section 404 of the CWA, ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material, into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

2.2 State Statutes and Regulations – Regional Water Quality Control Board

The State of California has jurisdiction under Section 401 of the CWA for wetland and non-wetland waters of the United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the state will exert independent jurisdiction via the Porter-Cologne Water Quality Control Act.

Section 401 of the Clean Water Act

Section 401 of the CWA requires that any applicant for a federal permit for activities that involve a discharge to waters of the United States provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal CWA. Therefore, in California, before ACOE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification or waiver from the appropriate Regional Water Quality Control Board (RWQCB) or State Water Resources Control Board.

Under Section 401 of the CWA, the RWQCB regulates at the state level all activities that are regulated at the federal level by ACOE.

Porter-Cologne Water Quality Control Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state" (California Water Code Section 13260[a]), pursuant to provisions of the state Porter-Cologne Water Quality Control Act. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code Section 13050[e]).

Under the Porter-Cologne Water Quality Control Act, the RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into waters of the state, that are not regulated by ACOE due to a lack of connectivity with a navigable water body.

2.3 State Statutes and Regulations – California Department of Fish and Wildlife

California Fish and Game Code Sections 1600–1616 mandate that "it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity."

California Department of Fish and Wildlife (CDFW) jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction extends to riparian habitat and may include oak woodlands in canyon bottoms. Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but reemerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. CDFW does not have jurisdiction over ocean or shoreline resources.

Under California Fish and Game Code Sections 1600–1616, CDFW has the authority to regulate work that will substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake. CDFW also has the authority to regulate work that will deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects.

3 Methods

3.1 Literature Review

For this biological resources assessment, "special-status" species are those that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act; (2) listed or candidates for listing as threatened or endangered under the California Endangered Species Act; (3) a state fully protected species; (4) a CDFW species of special concern; or (5) a species listed on the California Native Plant Society Inventory of Rare and Endangered Plants with a California Rare Plant Rank of 1B or 2B.

Other special-status biological resources considered include sensitive plant communities. Special-status vegetation communities are those communities identified as high priority for inventory in the List of Vegetation Alliances and Associations (CDFW 2020a) by a state rarity ranking of S1, S2, or S3.

Special-status biological resources potentially present on the review area were identified through a literature search using the following sources: U.S. Fish and Wildlife Service's Critical Habitat and Occurrence Data (USFWS 2020a); CDFW's California Natural Diversity Database (CDFW 2020b); the California Native Plant Society's online Inventory of Rare, Threatened, and Endangered Plants (CNPS 2020); and the Calflora database, which compiles observation and plant data from both private and public institutions, including the Consortium of California Herbaria (Calflora 2020). Searches were completed for the San Bernardino South USGS 7.5-minute quadrangle, within which the review area occurs, and the eight surrounding quadrangles.

The following available resources were reviewed to assess the potential for jurisdictional waters: aerial photographs (Google Earth 2020; Historic Aerials 2020); the USGS 7.5-minute topographic quadrangle (USGS 2020); a Natural Resources Conservation Service soil map (USDA 2020a); U.S. Environmental Protection Agency Watershed Assessment, Tracking & Environmental Results System (EPA 2020), which includes the National Hydrography Dataset (NHD); and the National Wetland Inventory (USFWS 2020b).

3.2 Field Reconnaissance

Dudek biologist Anna Cassady conducted a jurisdictional waters and wetlands delineation and a general biological survey of the review area on October 5, 2020, from 11:00 a.m. to 2:45 p.m. The survey was conducted when weather conditions were favorable, with no cloud cover, wind speeds of 1 to 3 miles per hour, and temperatures ranging from 88°F to 97°F. A follow-up site visit was conducted by Anna Cassady on October 17, 2020, to confirm the location of an outlet pipe indicated on NHD data. The surveys were conducted on foot and the undeveloped portions of the site were walked thoroughly to complete the resource inventory. Much of the woodland region in the northwestern corner was assessed on foot; however, some portions were avoided due to the presence of homeless encampments.

3.2.1 Jurisdictional Delineation

Dudek surveyed the review area for the following types of features:

- Waters of the state under the jurisdiction of the State Water Resources Control Board, pursuant to Section 401 of the federal CWA and the Porter-Cologne Water Quality Control Act, as wetlands or drainages
- Streambeds under CDFW jurisdiction, pursuant to Section 1602 of the California Fish and Game Code

Based on the Navigable Waters Protection Rule released in April 2020 that went into effect on June 22, 2020, ephemeral waters are no longer protected waters of the United States. Waters are classified as ephemeral, intermittent, or perennial using the methods described in the Streamflow Duration Assessment Method (Cummings, pers. comm. 2020). The OHWMs of all features within the review area were delineated in accordance with the procedures defined in A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (ACOE 2008 Field Guide; ACOE 2008b). Features with an OHWM were assessed to determine if they were ephemeral, intermittent, or perennial. Waters of the state were mapped in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State adopted April 2, 2019. As described in these procedures, wetland waters of the state were mapped based on the procedures in ACOE's 1987 Wetlands Delineation Manual and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (ACOE 1987, 2008a). Non-wetland waters were mapped at the OHWM based on the procedures defined in the ACOE 2008 Field Guide.

CDFW jurisdictional areas were mapped to include the bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under Section 1602 of the California Fish and Game Code.

To aid in the delineation and in conformance with the ACOE 2008 Field Guide, one OHWM datasheet (OHWM-1) was recorded at potential non-wetland waters within the review area to determine the OHWM indicators within those features. The OHWM datasheet is included as Attachment B. The jurisdictional delineation review area did not contain any features that met the State Water Resources Control Board wetland criteria; however, due to the presence of hydrophytic vegetation, two wetland determination data forms were completed (DS-1 and DS-2). Wetland determination data forms are included as Attachment C.

Streambeds are typically delineated at the width of the channel or lake measured at the top of bank or the extent of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support

riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement. To aid in the delineation, streambeds were delineated based on watercourse characteristics present in the field, which include surface flow, sediment transportation and sorting, physical indicators of channel forms, channel morphology, and riparian habitat associated with a streambed.

The limits of aquatic resources were collected in the field using a Trimble R1 and Esri Collector mobile application with sub-meter accuracy. The geographic extents were digitized in geographic information system based on the GPS data and data collected directly onto field maps into a project-specific geographic information system using ArcGIS software. Photos of the aquatic resources were taken and are provided in Attachment D.

3.2.2 Biological Resources Assessment

All native and naturalized plant species encountered within the review area were identified and recorded. The potential for special-status plant and wildlife species to occur within the review area was evaluated based on the observed vegetation communities, soils present, and surrounding features. Vegetation communities and land covers on site were mapped directly in the field.

Latin and common names for plant species with a California Rare Plant Rank follow the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS 2020). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2020), and common names follow the U.S. Department of Agriculture's Natural Resources Conservation Service Plants Database (USDA 2020b). Natural vegetation communities were mapped in the field following A Manual of California Vegetation, second edition (Sawyer et al. 2009) where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Oberbauer et al. (2008). Latin and common names of animals follow Crother (2012) for reptiles and amphibians, the American Ornithologists' Union (AOU 2015) for birds, Wilson and Reeder (2005) for mammals, the North American Butterfly Association (NABA 2001) for butterflies, and Moyle (2002) for fish.

Dudek used geographic information system (ArcGIS) software to map biological resources and provide figures.

3.3 Survey Limitations

The vegetation mapping was conducted during the day and during months of the year when most spring and summer blooming annuals and perennials would not have been evident or identifiable. Due to the timing of the biological survey, any late summer to fall annual and cryptic perennials may have still been detectable.

Surveys specifically aimed at detection of the full range of wildlife species were not conducted. However, notes were taken for incidental wildlife observations made during surveys to establish a general baseline of wildlife diversity within the review area. These surveys were conducted during the daytime, which usually results in few observations of mammals, many of which may be active at night. In addition, many species of reptiles and amphibians are nocturnal or cryptic in their habitats and are difficult to observe using standard meandering transects.

The current survey effort provides an accurate representation of the potential for special-status species to occur in the review area. The surveys conducted to date were thorough and comprehensive, and the results of the study contained herein provide a reasonable, accurate assessment of the review area.

4 Biological Resources Results

4.1 Site Description

The majority of the review area is characterized as undeveloped land, but the northeastern corner of the site has previously been developed for industrial use. Vegetation on the review area is dominated by non-native grasses and weedy forbs, and the observed surface soils show evidence of previous disturbance. A structure is located on the southeastern corner of the review area. The review area historically functioned as Cage Park and contains ornamental tree species consistent with this use. A concrete drainage extends from the southeast to the central portion of the site. A mixed ornamental and riparian woodland patch lies in the northwestern corner. The review area is relatively flat with elevations ranging from approximately 939 feet above mean sea level in the west to approximately 960 feet above mean sea level in the east. Representative photographs of the review area are included in Attachment D.

4.2 Soils

Two soil series types, Monserate sandy loam, 2% to 9% slopes, and Saugus sandy loam, 30% to 50% slopes, are mapped within the review area and are described in more detail below (USDA 2020a). Figure 2, Soils, illustrates the distribution of soils mapped within the review area.

- **Monserate Series** consists of fine-loamy, mixed, superactive, thermic Typic Durixeralfs that formed in alluvium derived principally from granitic rocks. Monserate soils are found on nearly level to moderately steep old dissected terraces and fans at elevations of 700 to 2,500 feet above sea level. These soils drain moderately well to well with slow to rapid runoff and moderately slow permeability. Monserate soils are moderately distributed throughout the western portion of interior valleys in Southern California. Typical vegetation within this series includes annual grasses and forbs. This soil series comprises the majority of the review area.
- **Saugus Series** consists of coarse–loamy, mixed, superactive, nonacidic, thermic Typic Xerorthents. Saugus soils are found on dissected terraces and foothills at elevations of 600 to 2,500 feet above sea level. These soils are well drained with medium to rapid runoff and moderate permeability. Saugus soils are moderately distributed throughout the foothills in the western part of Southern California. Typical vegetation within this series includes chamise and other shrubs, as well as perennial grasses. This soil series comprises a small portion of the northwestern corner of the review area.

4.3 Vegetation Communities and Land Covers

Three vegetation communities—disturbed Goodding's willow–red willow riparian woodland and forest, Eucalyptus groves, and non-native grassland—and three land cover types—unvegetated channel, disturbed habitat, and urban/developed land—were identified and mapped within the review area based on general characteristics and/or

species composition. Figure 3, Vegetation Communities, illustrates the distribution of vegetation communities and land covers, and Table 1 provides a summary of each land cover's extent within the review area.

Table 1. Vegetation Communities and Land Covers within the Review Area

Vegetation Community/Land Cover	Acreage
Vegetation Communities	
Disturbed Goodding's willow–red willow riparian woodland and forest	1.49
Eucalyptus groves	0.06
Non-native grassland	6.4
Non-Natural Land Covers	
Unvegetated channel	0.11
Disturbed habitat	1.26
Urban/developed	0.48
Total[a]	**9.87**

Sources: Sawyer et al. 2009; Oberbauer et al. 2008.
Note:
[a] Totals may not sum precisely due to rounding.

4.3.1 Disturbed Goodding's Willow–Red Willow Riparian Woodland

The Goodding's willow–red willow riparian woodland alliance features Goodding's willow (*Salix gooddingii*) and/or red willow (*Salix laevigata*) as the dominant or co-dominant species in the tree canopy with other characteristic species. Per alliance membership rules, Goodding's willow or red willow should generally make up more than 50% of relative cover in the tree canopy; if other willows are present, Goodding's willow or red willow can make up 30% or more of the relative cover. Communities within this alliance can have an open to continuous tree canopy under 30 meters (98 feet) in height with a sparse to continuous shrub layer and variable herbaceous layer. Other characteristic species include box-elder (*Acer negundo*), California buckeye (*Aesculus californica*), white alder (*Alnus rhombifolia*), incense cedar (*Calocedrus decurrens*), Oregon ash (*Fraxinus latifolia*), foothill pine (*Pinus sabiniana*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), valley oak (*Quercus lobata*), shining willow (*Salix lucida*), or California fan palm (*Washingtonia filifera*). Goodding's willow–red willow riparian woodlands occur at elevations under 2,000 meters (6,562 feet) above mean sea level in canyons, stream floodplains, large river terraces, seeps, springs, ditches, and lake edges (Sawyer et al. 2009).

Goodding's willow–red willow riparian woodlands within the review area were mapped within the northwestern quadrant of the review area. This community is dominated by black willow (*Salix nigra*); however, it also includes a "disturbed" designator due to the presence of non-native and ornamental woodland species such as Tasmanian bluegum (*Eucalyptus globulus*), Peruvian peppertree (*Schinus molle*), shamel ash (*Fraxinus uhdei*), Chinese elm (*Ulmus parvifolia*), and blue jacaranda (*Jacaranda mimosifolia*). Non-native species comprised approximately 45% of the tree canopy. Other native species associated with this community in the review area include Fremont cottonwood and California sycamore. The understory is primarily comprised of leaf litter.

The Goodding's willow–red willow riparian woodland alliance is ranked by CDFW as a G4S3 alliance (CDFW 2020a). This ranking indicates that it is apparently secure globally but vulnerable and at moderate risk within California (CDFW 2020a). Therefore, this community is considered a sensitive community.

4.3.2 Eucalyptus Groves

The eucalyptus–tree of heaven–black locust groves alliance features tree of heaven (*Ailanthus altissima*), eucalyptus trees (*Eucalyptus* spp.), or black locust (*Robinia pseudoacacia*) as the dominant or co-dominant species in the tree canopy. Per alliance membership rules, any of these species must make up more than 80% of the relative cover in the tree canopy. Communities within this alliance can have an open to continuous shrub canopy less than 60 meters (197 feet) in height with a sparse to intermittent herbaceous layer. Eucalyptus–tree of heaven–black locust groves occur at elevations under 1900 meters (6234 feet) above mean sea level on human-altered landscapes, where these trees have been planted as ornamental vegetation, groves for harvest, and windbreaks or where they have naturalized on uplands and bottomlands adjacent to stream courses, lakes, or levees (Sawyer et al. 2009).

Eucalyptus–tree of heaven–black locust groves within the review area were mapped as the *Eucalyptus globulus* provisional association. The *Eucalyptus globulus* provisional association is found on the southwestern edge of the review area. Tasmanian bluegum was observed as the dominant species in this vegetation community with an understory of red brome (*Bromus madritensis* ssp. *rubens*).

The eucalyptus–tree of heaven–black locust groves alliance is ranked by CDFW as a semi-natural alliance and does not have specific global or state rankings. Therefore, the *Eucalyptus globulus* provisional association is not considered a sensitive community (CDFW 2020a).

4.3.3 Non-Native Grassland

Non-native grassland includes areas that are dominated by non-native grasses with a sub-dominance of ruderal (weedy) forbs. This type of vegetative community does not readily support native plant or wildlife species.

Non-native grassland is located within the majority the review area. Sporadic ornamental trees associated with the woodland area extend into the non-native grassland area; however, these trees were not present at a high enough density to comprise their own vegetation community and appear to have been planted in order to support the site's previous function as a park. Commonly observed non-native species in this community include red brome, ripgut brome (*Bromus diandrus*), slender oat (*Avena barbata*), Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and stinknet (*Oncosiphon piluliferum*). The complete list of plant species observed on the review area is included in Attachment E, Vascular Plant Species Observed. Non-native grasslands would be listed by CDFW under red brome or Mediterranean grass grasslands. The red brome or Mediterranean grass grasslands alliance is ranked by CDFW as a semi-natural alliance and does not have specific global or state rankings; therefore, these alliances are not considered sensitive communities (CDFW 2020a).

4.3.4 Unvegetated Channel

Although not recognized by the Manual of California Vegetation, Online Edition (Sawyer et al. 2009), or the Natural Communities List (CDFW 2020b), unvegetated channels (or non-vegetated floodplains) are described by Oberbauer

et al. (2008). Oberbauer describes non-vegetated floodplains or channels as sandy, gravelly, or rocky areas along waterways or flood channels that are unvegetated on a relatively permanent basis due to variable water levels. Vegetation, if present, comprises non-native grasses at the outer edges with usually less than 10% absolute cover.

Within the review area, unvegetated channels are mapped from the southeastern corner through the central portion of the review area.

Unvegetated channel is not a listed vegetation community under the California Natural Communities List (CDFW 2020a); however, it best describes what was observed in the field. This vegetation community is not considered a sensitive community (CDFW 2020a); however, its function as a waterway makes this community sensitive as a jurisdictional resource, more information for which is contained in Section 5.2, Jurisdictional Delineation.

4.3.5 Disturbed Habitat

Although not recognized by the Vegetation Alliances of Western Riverside County (Klein and Evens 2006), the classification of disturbed habitat is due to the predominance of bare ground and compacted soils with a sparse covering of non-native plant species and other disturbance-tolerant plant species. Oberbauer et al. (2008) describes disturbed habitat as areas that have been physically disturbed by previous human activity and are no longer recognizable as a native or naturalized vegetation association but that continue to retain a soil substrate.

Within the review area, disturbed habitat is located within the northeastern end of the review area where the SCE substation historically extended onto the site. These disturbed areas are comprised of primarily bare ground and gravel; however, there are small numbers of short-podded mustard (*Hirschfeldia incana*) and common stork's bill (*Erodium cicutarium*).

4.3.6 Urban/Developed Land

Urban/developed land includes areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation (Oberbauer et al. 2008).

Within the review area, developed areas include the southern end of the site and contain permanent structures. Developed land is not a vegetation community; therefore, it is not considered a sensitive biological resource under CEQA (CDFW 2020a).

4.4 Floral Diversity

A total of 31 species of vascular plants, including 12 natives (39%) and 19 non-natives (61%), were recorded within the review area. The low plant diversity reflects the review area's small size, its proximity to adjacent roadways and other developed areas, and previous development occurring on portions of the review area. The high proportion of ornamental species is attributed to the review area's historical function as a recreational park. Plant species observed within the review area are listed in Attachment E.

4.5 Wildlife

A total of nine bird species were detected within the review area, including northern mockingbird (*Mimus polyglottos*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), and Cassin's kingbird (*Tyrannus vociferans*). No bird nests were observed during the survey. One reptile, western fence lizard (*Sceloporus occidentalis*), and one mammal, California ground squirrel (*Spermophilus [Otospermophilus] beecheyi*), were observed. No amphibians were observed. Wildlife species observed within the review area are listed in Attachment F, Wildlife Species Observed.

4.6 Special-Status Plant Species

Attachment G, Special-Status Plant Species Detected or Potentially Occurring in the Review Area, lists special-status plant species that have been documented in the USGS quadrangle and the eight surrounding quadrangles (CDFW 2020a). A determination was made regarding each special-status species and the potential for that species to occur in the review area. The determination was based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

No federally or state-listed species have a potential to occur within the review area. No other non-listed special-status species have a moderate or high potential to occur within the review area. No focused special-status plant surveys were conducted, and no special-status plants species were incidentally detected within the review area during the 2020 biological survey.

4.7 Special-Status Wildlife Species

Attachment H, Special-Status Wildlife Species Detected or Potentially Occurring in the Review Area, lists special-status wildlife species that have been documented in the USGS quadrangle and the eight surrounding quadrangles (CDFW 2020a). A determination was made regarding each special-status species and the potential for that species to occur in the review area. The determination was based on information gathered during the field reconnaissance, including known habitat preferences and knowledge of the species' relative distribution in the area.

No federally or state-listed species have a potential to occur within the review area. However, one California species of special concern, burrowing owl (*Athene cunicularia*), was determined to have a low potential to occur within the review area. The review area contains non-native grasslands and disturbed habitat that could be suitable foraging habitat for burrowing owl; however, no suitable burrows or burrow surrogates (features with openings 4 inches or greater in diameter) were detected within the review area. Further, the review area is located within an industrial urbanized complex and is not contiguous with or near suitable nesting or foraging habitat for this species. Given the lack of suitable nesting habitat and the location of the review area within fragmented habitat, potential for the species to occur on site is considered low. No burrowing owl burrows or individuals were observed during the course of the general field survey. The remainder of the non-listed special-status species were determined to have low potential to occur or were not expected to occur within the review area. In order for the project to comply with California Fish and Game Code, a pre-construction burrowing owl survey is recommended.

No focused special-status wildlife surveys were conducted. No special-status wildlife species were incidentally detected within the review area during the 2020 biological survey.

4.8 Nesting Birds

No nests were observed within the review area during the survey. However, suitable habitat for raptors and ground nesting birds does occur within the review area. Potential impacts to nesting birds could occur if project activities take place within the general nesting bird season of January 1 through September 15. In order for the project to comply with California Fish and Game Code, a pre-construction nesting bird survey is recommended if the project activities are unable to avoid the general nesting bird season.

5 Jurisdictional Waters Delineation Results

5.1 Hydrology

The review area is located within the Middle Santa Ana River watershed in the Santa Ana Subbasin, within which the Santa Ana River is the major surface water body (Figure 4, Hydrologic Units). According to the Water Quality Control Plan for the Santa Ana River Basin (RWQCB 2019), the Santa Ana River begins at its headwaters in the San Bernardino Mountains before traveling southwest through the inland valleys, passing through the Santa Ana Mountains, and depositing in the Pacific Ocean. Prior to human settlement in the area, the Santa Ana River is believed to have flowed throughout much of the year. Geological formations created a high water table in some areas, forcing groundwater to the surface and supporting springs, swamps, and marsh habitat alongside the river.

The Santa Ana River is supported by numerous natural and artificially modified tributaries (Figure 5, Hydrology). As settlement increased within the region, irrigation diversions were introduced to support agricultural development. Additional flood control modification to the river and its tributaries proliferated with urban development. Presently, the river downstream of Rialto Channel contains perennial flow from wastewater treatment plant effluent. Upstream of Rialto Channel is only seasonally inundated.

The review area depicts one NHD ephemeral stream extending from the western boundary of the review area, extending west to connect with an unnamed tributary to the Santa Ana River.

Beneficial uses for the valley reaches of tributaries to the Santa Ana River, which are applicable to the features in the review area, include municipal and domestic supply, groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, and wildlife habitat (RWQCB 2019).

5.2 Jurisdictional Delineation

As further described below, the survey identified two water bodies, a concrete channel and a shallow basin, within the review area as waters of the state under the jurisdiction of RWQCB and CDFW. The concrete channel is also a water of the United States. No other potentially jurisdictional waters were observed within the review area. The limits of jurisdictional waters are provided in Figure 6, Jurisdictional Delineation Results. An OHWM form and

Wetland Determination data forms are included as Attachment B and Attachment C. Photos of the jurisdictional features are provided in Attachment D.

5.2.1 Concrete Channel

The review area contains a concrete channel. The trapezoidal concrete channel extends from three separate inlets, two from Taylor Street and one from Main Street. The northern inlet is characterized as a break in the curb where runoff from Taylor Street enters the channel. The southern inlet on Taylor Street is a pipe inlet that appears to convey flows from off site to the east, presumed to be stormwater runoff from the surrounding development. The inlet on Main Street is characterized as a pipe inlet that also appears to convey flows from off site to the south, presumed to be stormwater runoff from surrounding development. These inlets convey flows northwest through the concrete channel until its terminus in the shallow basin at the northwestern end of the review area. Approximately 40 feet of the concrete channel is undergrounded through a pipe under an old roadway in the review area. The channel continues for approximately 30 feet within the shallow basin as a natural, sandy bottomed channel before dissipating. The channel loses consistent hydrology indicators within the shallow basin, appearing to continue along periodic, low topographic areas until reaching a pipe at the western boundary where flow exits the review area. NHD data suggest this pipe continues through a series of storm drain pipes beneath Interstate 215 to a natural drainage west of La Cadena Drive. The natural drainage, located approximately 0.3 miles from the review area, continues southwest to the Santa Ana River.

The concrete channel is a remnant of a historical drainage that extended through the review area and connected with a tributary to the Santa Ana River (Historic Aerials 2020). This feature is observed as early as 1938 and appears to have been channelized on the review area between 1948 and 1959 (Historic Aerials 2020). On both historic aerials and topographic maps, the drainage appears to originate on site in approximately the same location as present day.

The concrete channel is approximately 8 feet in width and an average of 3 feet deep. Hydrology indicators included standing water, debris wracking, and sediment deposition. The feature also contained defined banks. The concrete channel was primarily unvegetated; however, a small (approximately 8-foot) segment had excess sediment buildup that supported obligate and facultative wetland species such as broadleaf cattail (*Typha latifolia*) and tall flatsedge (*Cyperus eragrostis*). The concrete channel was delineated at the boundary of the defined bank.

Due to the presence of obligate and facultative wetland species within the concrete channel, a wetland delineation was conducted within the vegetation. A data station (DS-1) taken in this location resulted in a dominance of hydrophytic vegetation and evidence of wetland hydrology, further described in Section 5.3, Wetland Delineation Summary. Given that the vegetation was contained within excess (1–3 inches) of sedimentation on top of an impermeable concrete layer, hydric soils were considered absent. Additionally, given the small extent of the vegetation, this feature was considered a non-wetland water consistent with the remainder of the concrete channel.

Due to the presence of standing water and obligate and facultative wetland vegetation, the concrete channel is not an ephemeral feature. The feature connects with a traditional navigable water through its connectivity to the Santa Ana River; therefore, the concrete channel is a water of the United States under ACOE jurisdiction. Based on the presence of hydrology indicators and connection with the Santa Ana River, the concrete channel was delineated as a non-wetland water of the state under RWQCB jurisdiction of and a streambed under CDFW jurisdiction.

5.2.2 Shallow Basin

The review area contains a shallow basin. The shallow basin is located at the terminus of the concrete channel in the northwestern end of the review area. This feature is vegetated as disturbed Goodding's willow–red willow riparian woodland and comprises native species such as black willow and California sycamore, but also contains high cover of non-native and ornamental tree species such as Tasmanian bluegum, Peruvian peppertree, Chinese elm, and blue jacaranda. The high cover of ornamental tree species is likely a relic of the review area's previous function as a park. The shallow basin did not contain hydrology indicators, with the exception of topographic relief on the west, north, and eastern sides, suggesting that flows, if present, would pool in the location. Additionally, topographic relief extending from the concrete channel continues on an intermittent basis northwest until reaching a pipe at the western boundary where flow exits the review area. Additionally, an inlet pipe was observed at the southwestern edge of the shallow basin; however, no hydrology indicators were observed leading from it, indicating it may no longer be in use or flows infrequently. No other hydrology indicators were observed. The tree understory was comprised of a deep layer of leaf litter. A small patch of tall flatsedge was observed at the northern end of the shallow basin. The shallow basin was delineated at the dripline of riparian vegetation.

The shallow basin is remnant of a historical drainage that extended through the review area and connected with a tributary to the Santa Ana River (Historic Aerials 2020). This basin feature is mapped on historic topographic maps beginning in 1955 (Historic Aerials 2020). The area appears to have been converted into a park between 1948 and 1959 (Historic Aerials 2020).

Due to the presence of facultative wetland species within the shallow basin, a wetland delineation was conducted within this vegetation community. A data station (DS-2) taken in this location resulted in a dominance of hydrophytic vegetation; however, no evidence of wetland hydrology or hydric soils were observed, as further described in Section 5.3. Given the lack of hydrology indicators and hydric soils, this feature was considered a non-wetland water consistent with the remainder of the shallow basin.

Based on the presence of hydrology indicators and ephemeral connection with the Santa Ana River, the shallow basin was delineated to be a non-wetland water of the state under RWQCB jurisdiction and a riparian lakebed under CDFW jurisdiction. The shallow basin lacks OHWM indicators and therefore would not be considered a water of the United States.

5.3 Wetland Delineation Summary

As described above, hydrology, vegetation, and soils were assessed at two data station locations to determine the presence or absence of wetlands field indicators (Figure 6). Results of the two data stations are summarized in Table 2 and the data collected at each data station are included in Attachment C, on ACOE's Wetland Determination Data Forms for the Arid West Region.

Table 2. Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Vegetation Community	Determination	Jurisdiction
	Vegetation	Hydric Soils	Hydrology			
1	✓	None	✓	Unvegetated channel	Non-wetland waters	ACOE/RWQCB/ CDFW
2	✓	None	None	Disturbed Goodding's willow–red willow riparian woodland	Non-wetland waters	ACOE/RWQCB/ CDFW

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.

DS-1 is located within the concrete channel. This data station contained evidence of wetland vegetation with presence of broadleaf cattail (Obligate), tall flatsedge (Facultative Wetland [FACW]), and saltgrass (*Distichlis spicata*; Facultative). This data station contained evidence of hydrology, including surface water at a depth of 1 inch, sediment deposition, and drift deposits. However, the data station lacked viable hydric soil indicators given its presence within a concrete channel. Sediment deposition ranging from 1 to 3 inches supported the presence of herbaceous hydrophytic vegetation; however, this sediment was contained within a concrete channel that likely functioned as an artificial duripan that supported the vegetation growth. Due to the lack of hydric soils, this data point is not within a wetland.

DS-2 is located within the shallow basin. This data station contained evidence of wetland vegetation with presence of black willow (FACW) and tall flatsedge (FACW); however, it lacked viable hydric soil indicators and hydrology indicators. Due to the lack of hydric soils and hydrology, this data point is not within a wetland.

5.4 Jurisdictional Delineation Conclusion

The results of the jurisdictional delineation concluded there are approximately 0.11 acres (761 linear feet) of non-wetland waters of the state and waters of the United States under the jurisdiction of ACOE, the RWQCB, and CDFW. Additionally, there are 1.49 acres (328 linear feet) of riparian waters of the state under the jurisdiction of the RWQCB and CDFW. Table 3 summarizes the total acreage of these features within the review area. The features are depicted on Figure 6.

Table 3. Waters of the State and United States in the Review Area

Waters Type	Jurisdiction	Feature	Total Acres (Linear Feet)	Cowardin Type	Hydrology Indicators	Dominant Vegetation	Latitude/ Longitude
Non-wetland waters	Waters of the United States and state (ACOE/RWQCB/ CDFW)	Concrete channel	0.11 (761)	Riverine	Defined bed and bank	Unvegetated Channel	34°1′12.59″N, 117°19′55.65″W
Non-wetland riparian waters	Waters of the state (ACOE/RWQCB)	Shallow basin	1.49 (328)	Lacustrine	Dripline of riparian vegetation (Goodding's willow–red willow riparian woodland and forest)	Disturbed Goodding's willow–red willow riparian woodland	34°1′14.68″N, 117°19′58.87″W
		Non-Wetland Waters Total[a]	**1.60 (1,089)**	N/A	N/A	N/A	N/A

Notes: ACOE = Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; N/A = not applicable.
[a] Acreage may not sum precisely due to rounding.

6 Recommendations

6.1 Nesting Birds

Due to the potential for the review area to contain suitable habitat for nesting bird species, and in order to maintain compliance with the California Fish and Game Code, project activities should avoid the avian nesting season (January 1 through September 15) to reduce potential impacts to nesting birds.

If ground disturbance and/or vegetation clearance activities are scheduled to occur during the avian nesting season, it is recommended that a pre-construction nesting bird survey be conducted by a qualified biologist within the project footprint and a 300-foot buffer around the project footprint. Surveys should be conducted within 3 days prior to initiation of activity between dawn and noon.

If an active nest is detected during the nesting bird survey, avoidance buffers should be implemented as determined by a qualified biologist. The buffer will be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests will be monitored as determined by the qualified biologist until nestlings have fledged and dispersed or it is confirmed that the nest has been unsuccessful or abandoned.

6.2 Burrowing Owl

Prior to initiation of construction activities, a burrowing owl pre-construction survey should be conducted in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). In accordance with these instructions, one survey should be conducted no less than 14 days prior to the initiation of ground disturbance activities, and a second survey should be conducted within 24 hours prior to ground disturbance. Pre-construction surveys should be conducted by a qualified biologist.

If surveys confirm occupied burrowing owl habitat is located within the impact footprint or within 500 feet of the impact footprint, avoidance measures should be implemented consistent with the requirements of the Staff Report on Burrowing Owl Mitigation (CDFW 2012) and in coordination with the City of Grand Terrace and CDFW.

6.3 Jurisdictional Waters

ACOE requires a permit pursuant to Section 404 of the Clean Water Act (404 permit) prior to discharging fill into waters of the United States. Impacts associated with commercial development (including industrial facilities) are covered under Nationwide Permit 39, if impacts do not exceed 0.5 acres and 300 linear feet of waters of the United States. For intermittent drainages, a waiver of the 300 linear feet can be requested from the district engineer. A pre-construction notification to ACOE is required for use of Nationwide Permit 39. A Water Quality Certification is required from the RWQCB pursuant to Section 401 of the Clean Water Act (401 Certification) for any federal action, including a 404 permit; therefore, an application for a 401 Certification must be submitted to the RWQCB. A notification of a Streambed Alteration Agreement to CDFW is also required prior to modification of jurisdictional streambeds. Mitigation will be required for permanent loss of waters or functions and values of waters.

7 References

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed December 2018. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0). Environmental Laboratory, ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center. September 2008. Accessed December 2018. http://www.usace.army.mil/CECW/Pages/reg_supp.aspx.

ACOE. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual*. Cold Region Research and Environmental Laboratory, ERDC/CRREL TR-08-12. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center. August 2008.

AOU (American Ornithologists' Union). 2015. "AOU Checklist of North and Middle American Birds." http://checklist.aou.org/taxa/.

Calflora. 2020. Information on California plants for education, research, and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. Berkeley, California. Accessed May 2020. http://www.calflora.org/.

CDFG (California Department of Fish and Game). 2012. Staff Report on Burrowing Owl Mitigation.

CDFW (California Department of Fish and Wildlife). 2020a. California Natural Diversity Database (CNDDB). RareFind, Version 5 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2020. https://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

CDFW. 2020b. *List of Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form.* September 9, 2020. Accessed October 2020. https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List.

CNPS (California Native Plant Society). 2020. *Inventory of Rare and Endangered Plants of California.* Online ed. Version 8-03. Sacramento, California: CNPS. Accessed October 2020. http://www.rareplants.cnps.org.

Crother, B.I. 2012. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding,* edited by J.J. Moriarty. 7th ed. Society for the Study of Amphibians and Reptiles (SSAR); Herpetological Circular, no. 39. August 2012. http://home.gwu.edu/~rpyron/publications/Crother_et_al_2012.pdf.

Cummings, D. 2020. Personal communication re: Classification of waters using the Streamflow Duration Assessment Method. November 12, 2020.

EPA (U.S. Environmental Protection Agency). 2020. "Watershed Assessment, Tracking & Environmental Results (WATERS)." Last updated February 05, 2014. Accessed 2020. https://www.epa.gov/waterdata/viewing-waters-data-using-google-earth.

Google Earth. 2020. Aerial Photograph. 1:200 scale. Historic Aerials. 2020. Aerial Images. www.historicaerials.com. Accessed October 2020.

Jepson Flora Project. 2020. *Jepson eFlora*. Berkeley, California: University of California. Accessed October 2020. http://ucjeps.berkeley.edu/IJM.html.

Klein, A., and J. Evens. 2006. *Vegetation Alliances of Western Riverside County, California.* Prepared for California Department of Fish and Game. May 2006.

Moyle, P.B. 2002. *Inland Fishes of California*. Revised and expanded. Berkeley and Los Angeles, California, and London, England: University of California Press.

NABA (North American Butterfly Association). 2001. "Checklist of North American Butterflies Occurring North of Mexico." 2.3 ed. Adapted from *North American Butterfly Association (NABA) Checklist and English Names of North American Butterflie*s, edited by B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. 2nd ed. Morristown, New Jersey: NABA. http://naba.org/pubs/enames2_3.html.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* March 2008. Accessed October 2019. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.

RWQCB (Santa Ana Regional Water Quality Control Board). 2019. Santa Ana River Basin Plan. January 24, 1995, Revised June 2019. https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/

Sawyer, J., T. Keeler-Wolf., and J.M. Evens. 2009. *A Manual of California Vegetation*. 2nd ed. Sacramento, California: California Native Plant Society.

USDA (U.S. Department of Agriculture). 2020a. Web Soil Survey. USDA, Natural Resources Conservation Service, Soil Survey Staff. Accessed May 2020. http://websoilsurvey.nrcs.usda.gov/.

USDA. 2020b. "California." State PLANTS Checklist. Accessed May 2020. http://plants.usda.gov/dl_state.html.

USFWS (U.S. Fish and Wildlife Service). 2020a. Critical Habitat and Occurrence Data [digital GIS data]. ArcGIS. Accessed October 2020. http://fws.maps.arcgis.com/home/webmap/viewer.html?webmap= 9d8de5e265ad4fe09893cf75b8dbfb77.

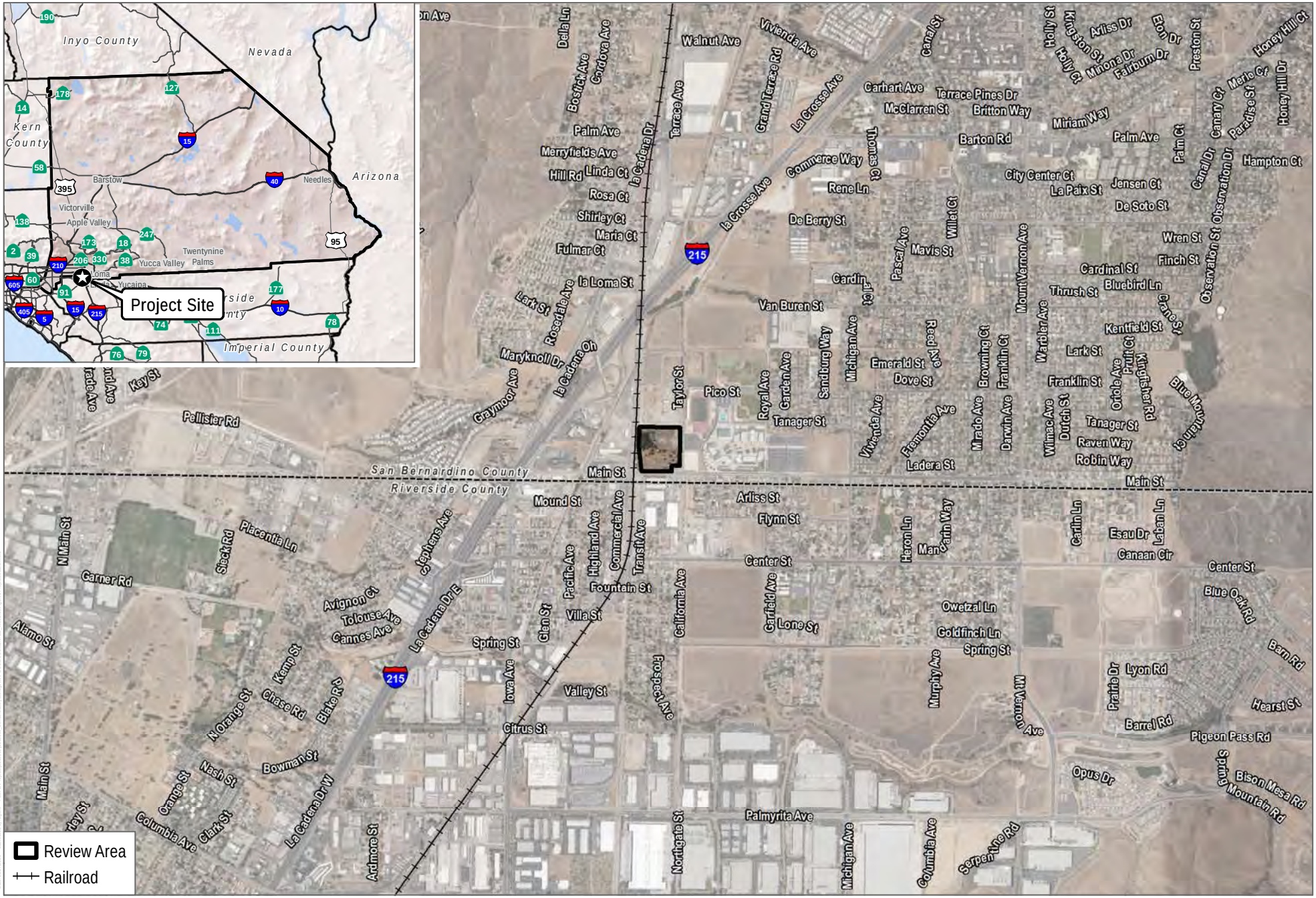
USFWS. 2020b. "National Wetland Inventory." Last updated June 25, 2018. Accessed 2020. http://www.fws.gov/wetlands/Data/Mapper.html.

USGS (U.S. Geological Survey). 2020. "National Hydrography Dataset." https://www.usgs.gov/core-science-systems/ngp/national-hydrography.

Wilson, D.E., and D.M. Reeder. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*, 3rd ed. (MSW3 database). Accessed September 2020. http://www.bucknell.edu/msw3/.

Attachment A

Figures



SOURCE: County of Riverside, 2020; County of San Bernardino 2020; Bing Maps

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

SOURCE: USDA NRCS; County oF San Bernardino 2020; Bing Maps

DUDEK

0 50 100 Feet

FIGURE 3

Soils

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

SOURCE: County oF San Bernardino 2020; Bing Maps

DUDEK

0 50 100 Feet

FIGURE 3

Vegetation Communities

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

SOURCE: USGS; Bing Maps

DUDEK

0 1 2 Miles

FIGURE 4

Hydrologic Units

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

SOURCE: USGS NHD; County oF San Bernardino 2020; Bing Maps

DUDEK

0 1,500 3,000 Feet

FIGURE 5

Hydrology

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

Review Area

Railroad

Jurisdictional Delineation

Non-wetland Waters of the United States/State (ACOE/RWQCB/CDFW)

Non-Wetland Water of the State (RWQCB/CDFW Riparian)

Culvert

Data Stations

Storm Drain Inlet

Road Runoff Inlet

Pipe Outlet

Vegetation Communities

dWRF, disturbed Goodding's willow-red willow riparian woodland and forest

EUC - Eucalyptus

NNG - Non-native Grassland

UVC - Unvegetated Channel

DH - Disturbed Habitat

DEV - Urban/Developed

SOURCE: County of San Bernardino, 2020; Bing Maps

DUDEK

0 50 100 Feet

FIGURE 6

Jurisdictional Delineation Results

Jurisdictional Waters Delineation and Biological Resources Assessment for the Condor Energy Storage Project

Attachment B

OHWM Forms

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Condor – Grand Terrace
Project Number: 12655.06
Stream: concrete channel
Investigator(s): Anna Cassady

Date: 10/5/20 **Time:**
Town: Grand Terrace **State:** CA
Photo begin file#: Attachment D **Photo end file#:**

Y ☐ / N ☒ Do normal circumstances exist on the site?

Y ☒ / N ☐ Is the site significantly disturbed?

Location Details: NW of intersection of Main street and Taylor street

Projection: **Datum:**
Coordinates:

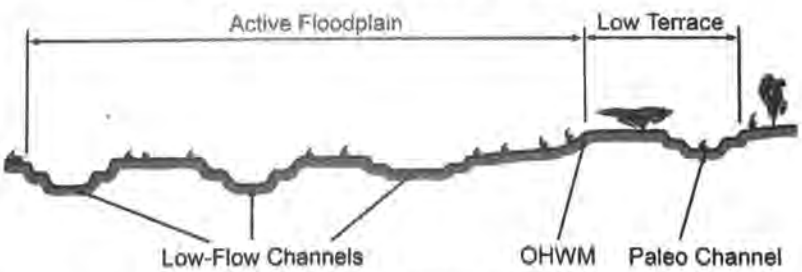
Potential anthropogenic influences on the channel system:
channel is concrete lined and exists with industrial development on all four sides.

Brief site description: site consists of a historical park comprised primarily of non-native grassland vegetation with a dsturbed riparian woodland in the NW corner. site supports many ornamental species.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1938 to present
- ☒ Topographic maps
- ☒ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

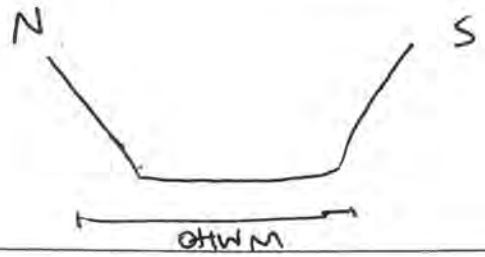


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

ect ID: Cross section ID: concrete channel Date: 10/5/20 Time:

ross section drawing:



OHWM

GPS point: 34° 1' 11.97" N, 117° 19' 53.98" W

Indicators:

- ☒ Change in average sediment texture
- ☒ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

concrete trapazoidal channel.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Attachment C

Wetland Data Station Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Condor - Grand Terrace | City/County: Grand Terrace/ San Bernardino | Sampling Date: 10/5/20

Applicant/Owner: P&W | State: CA | Sampling Point: DS 1

Investigator(s): Anna Cassady | Section, Township, Range: Section 6, Township 2S, Range 4W

Landform (hillslope, terrace, etc.): Channel | Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion (LRR): C - Mediterranean California | Lat: 34° 1'12.74"N | Long: 117°19'56.16"W | Datum:

Soil Map Unit Name: Monserate sandy loam | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉	No ○	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Tamarix ramosissima*	10	Yes	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Distichlis spicata*	75	Yes	FAC
2. *Typha latifolia*	10	No	OBL
3. *Cyperus eragrostis*	35	Yes	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	120 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: DS 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
							Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Concrete Channel

Depth (inches): 1-3

Hydric Soil Present? Yes ○ No ◉

Remarks: Data station is within concrete channel that contains approximately one to three inches of sediment buildup that supports herbaceous hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 1

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Condor - Grand Terrace City/County: Grand Terrace/ San Bernardino Sampling Date: 10/5/20

Applicant/Owner: P&W State: CA Sampling Point: DS 2

Investigator(s): Anna Cassady Section, Township, Range: Section 6, Township 2S, Range 4W

Landform (hillslope, terrace, etc.): Swale Basin Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): C - Mediterranean California Lat: 34° 1'15.64"N Long: 117°19'59.17"W Datum:

Soil Map Unit Name: Saugus sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ○ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉	No ○	
Hydric Soil Present?	Yes ○	No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○	No ◉	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	5		FACW
2. *Eucalyptus globulus*	20		Not Listed
3.			
4.			
Total Cover:	25 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Cyperus eragrostis*	20	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 75 % % Cover of Biotic Crust 0 %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	(A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Bare ground was comprised of deep leaf litter.

SOIL

Sampling Point: DS 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2								Leaf Litter
2-12	5Y 2.5/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Attachment D

Site Photographs

Photo 1: View of northern inlet off Taylor Street.

Photo 2: View of southern inlet off Taylor Street.

Photo 3: Facing southeast towards twin pipe inlet from Main Street.

Photo 4: View of pipe culvert beneath on-site dirt road.

Photo 5: View of channel terminus into disturbed riparian woodland region. Note that the skinny pipe in photo is debris and is not connected.

Photo 6: View of pipe inlet from railroad at southwestern end of disturbed riparian woodland. No hydrology indicators extend from the pipe, suggesting it may convey little flow into the review area.

Photo 7: View of pipe at western boundary of review area where flows are presumed to exit the site.

Photo 8: View of concrete channel with standing water, facing southeast.

Photo 9: View of vegetated segment of concrete channel at Data Station 1, facing east.

Photo 10: View of shallow basin with patch of *Cyperus eragrostis* in background. Location of Data Station 2. Facing south from northern boundary of Goodding's willow–red willow riparian woodland and forest.

Photo 11: View of disturbed Goodding's willow–red willow riparian woodland and forest. Facing west from eastern-central edge of vegetation boundary.

Photo 12: View of western segment of site from southern border, facing north.

Photo 13: View of old road within review area, facing south from central portion of review area.

Photo 14: View of disturbed habitat in northeastern edge of review area.

Photo 15: View of eastern portion of site, facing south from northern boundary.

Photo 16: View of structure at southern border of review area.

Attachment E

Vascular Plant Species Observed

Vascular Species

Eudicots

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

* *Schinus molle*—Peruvian peppertree

APOCYNACEAE—DOGBANE FAMILY

* *Nerium oleander*—oleander

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia acanthicarpa—flatspine bur ragweed
* *Centaurea melitensis*—Maltese star-thistle
Erigeron canadensis—Canadian horseweed
Helianthus gracilentus—slender sunflower
Heterotheca grandiflora—telegraphweed
* *Lactuca serriola*—prickly lettuce
* *Oncosiphon piluliferum*—stinknet
* *Sonchus asper*—spiny sowthistle

BIGNONIACEAE—BIGNONIA FAMILY

* *Jacaranda mimosifolia*—blue jacaranda

BRASSICACEAE—MUSTARD FAMILY

* *Hirschfeldia incana*—shortpod mustard

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Salsola tragus*—prickly Russian thistle

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus globulus*—Tasmanian bluegum

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamore

SALICACEAE—WILLOW FAMILY

Populus fremontii—Fremont cottonwood
Salix gooddingii—Goodding's willow

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—tamarisk

ULMACEAE—ELM FAMILY

* *Ulmus parvifolia*—Chinese elm

Monocots

CYPERACEAE—SEDGE FAMILY

Cyperus eragrostis—tall flatsedge

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
* *Bromus diandrus*—ripgut brome
* *Bromus madritensis* ssp. *rubens*—red brome
Distichlis spicata—salt grass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Schismus barbatus*—common Mediterranean grass
* *Sorghum halepense*—Johnsongrass

TYPHACEAE—CATTAIL FAMILY

Typha latifolia—broadleaf cattail

* signifies introduced (non-native) species

Attachment F

Wildlife Species Observed

Bird

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus vociferans—Cassin's kingbird

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus corax—common raven

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Melozone crissalis—California towhee

Mammal

Squirrels

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

Reptile

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Attachment G

Special-Status Plant Species Detected or Potentially Occurring in the Review Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Abronia villosa var. *aurita*	chaparral sand-verbena	None/None/1B.1	Chaparral, coastal scrub, desert dunes; sandy/annual herb/(Jan)Mar–Sep/245–5,245	Not expected to occur. No suitable habitat is found on the review area.
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	None/None/4.2	Chaparral, lower montane coniferous forest; sandy or gravelly/annual herb/June–Sep/4,000–8,530	Not expected to occur. The site is outside of the species' known elevation range.
Allium howellii var. *clokeyi*	Mt. Pinos onion	None/None/1B.3	Great Basin scrub, meadows and seeps (edges), pinyon and juniper woodland/perennial bulbiferous herb/Apr–June/4,265–6,065	Not expected to occur. The site is outside of the species' known elevation range.
Ambrosia monogyra	singlewhorl burrobrush	None/None/2B.2	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/30–1,640	Not expected to occur. No suitable habitat is found on the review area.
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/65–1,360	Not expected to occur. The review area is located within species' known elevation range, contains grassland vegetation, and sandy loam soils; however, the review area is within a fragmented and disturbed grassland system within an urban landscape and does not contain suitable upland terraces adjacent to rivers or drainages to support this species (USFWS 2010). The nearest documented occurrence is from 2006 and located 8.7 miles to the southwest (CDFW 2020). There are no documented occurrences of this species within San Bernardino County (CDFW 2020; Calflora 2020).
Arenaria paludicola	marsh sandwort	FE/SE/1B.1	Marshes and swamps (freshwater or brackish); sandy, openings/perennial stoloniferous herb/May–Aug/5–560	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Astragalus hornii var. *hornii*	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, playas; lake margins, alkaline/annual herb/May–Oct/195–2,785	Not expected to occur. No suitable habitat is found on the review area.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2,705	Not expected to occur. While the review area is within the species' known elevation range and contains sandy loam soils, this species is known to occur in gravelly wash margins in alluvial scrub and on coarse soils in chaparral, which are both absent at the site (USFWS 2009). The nearest documented occurrence is located 5.0 miles to the southwest (CDFW 2020). Furthermore, this conspicuous, perennial shrub would likely have been observed during the site visit if present.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3,670	Not expected to occur. While the review area is within the species' known elevation range and grasslands are present, the site does not contain suitable clay soils to support this species and has supported historical disturbances from the power plant to the north and from being a historical park with ornamental species. The nearest documented occurrence is located 12.0 miles north (CDFW 2020).
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None/None/1B.2	Chaparral, lower montane coniferous forest, meadows and seeps; mesic/perennial bulbiferous herb/Apr–July/2,325–7,840	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Carex comosa	bristly sedge	None/None/2B.1	Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2,050	Not expected to occur. The review area contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species.
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None/None/1B.2	Chaparral, meadows and seeps, pebble (pavement) plain, riparian woodland, upper montane coniferous forest; mesic/annual herb (hemiparasitic)/May–Aug/4,265–7,840	Not expected to occur. The site is outside of the species' known elevation range.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2,095	Low potential to occur. The review area is within species' known elevation range and contains grassland and disturbed riparian woodland; however, there are no alkaline soils present to support this species. The nearest CNDDB occurrence is 4.5 miles northeast of the review area (CDFW 2020).
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/SE/1B.2	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct(Nov)/0–100	Not expected to occur. The site is outside of the species' known elevation range.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/None/1B.1	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; sandy or rocky, openings/annual herb/Apr–June/900–4,000	Low potential to occur. The review area is located within the species' known elevation range, contains grassland vegetation, and sandy loam soils. However, the review area has supported historical disturbances from the power plant to the north and from being a historical park with ornamental species, leaving behind marginal habitat for

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
				this species. The nearest CNDDB occurrence is 5 miles east of the review area (CDFW 2020).
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	None/None/1B.2	Coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland; sandy or gravelly/annual herb/Apr–June/980–3,935	Not expected to occur. No suitable vegetation is found on the review area.
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None/None/2B.2	Marshes and swamps (freshwater)/annual vine (parasitic)/July–Oct/45–920	Not expected to occur. The review area contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species.
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1	Chaparral, coastal scrub/perennial stem succulent/Apr–May/95–490	Not expected to occur. The site is outside of the species' known elevation range.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, cismontane woodland, coastal scrub (alluvial fan); sandy/annual herb/Apr–June/655–2,490	Not expected to occur. While the review area is within the species' known elevation range and contains sandy loam soils, there is no alluvial fan habitat (chaparral, cismontane woodland, or coastal scrub) within the review area to support this species. The nearest documented occurrence is located approximately 3.8 miles to the northeast within the Santa Ana River (CDFW 2020).
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE/SE/1B.1	Chaparral, coastal scrub (alluvial fan); sandy or gravelly/perennial herb/Apr–Sep/295–2,000	Not expected to occur. While the review area is within the species' known elevation range and contains sandy loam soils, there is no alluvial fan habitat (chaparral or coastal scrub) within the review area to

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
				support this species. The nearest documented occurrence is located approximately 1.9 miles to the north within the Santa Ana River (CDFW 2020).
Fimbristylis thermalis	hot springs fimbristylis	None/None/2B.2	Meadows and seeps (alkaline, near hot springs)/perennial rhizomatous herb/July–Sep/360–4,395	Not expected to occur. No suitable habitat is found on the review area.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/30–5,000	Not expected to occur. The review area contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species.
Heuchera parishii	Parish's alumroot	None/None/1B.3	Alpine boulder and rock field, Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest; rocky, sometimes carbonate/perennial rhizomatous herb/June–Aug/4,920–12,465	Not expected to occur. The site is outside of the species' known elevation range.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), cismontane woodland, coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2,655	Not expected to occur. No suitable vegetation is found on the review area.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Imperata brevifolia	California satintail	None/None/2B.1	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), riparian scrub; mesic/perennial rhizomatous herb/Sep–May/0–3,985	Low potential to occur. While the review area is within the species' known elevation range, it does not contain alkaline substrate or suitable vegetation communities. While the review area contains a disturbed riparian woodland community, no riparian scrub species are present. The nearest documented occurrence is located 12 miles to the northeast (CDFW 2020).
Ivesia argyrocoma var. *argyrocoma*	silver-haired ivesia	None/None/1B.2	Meadows and seeps (alkaline), pebble (pavement) plain, upper montane coniferous forest/perennial herb/(May)June–Aug/4,795–9,710	Not expected to occur. The site is outside of the species' known elevation range.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/0–4,000	Not expected to occur. The review area contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species.
Lilium parryi	lemon lily	None/None/1B.2	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4,000–9,005	Not expected to occur. The site is outside of the species' known elevation range.
Malacothamnus parishii	Parish's bush-mallow	None/None/1A	Chaparral, coastal scrub/perennial deciduous shrub/June–July/1,000–1,490	Not expected to occur. No suitable vegetation is found on the review area.
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
			grassland/perennial rhizomatous herb/June–Oct/2,395–7,200	
Monardella pringlei	Pringle's monardella	None/None/1A	Coastal scrub (sandy)/annual herb/May–June/980–1,310	Not expected to occur. No suitable vegetation is found on the review area.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland/perennial stem succulent/Apr–June(Aug)/1,390–5,905	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present to support this species.
Perideridia parishii ssp. *parishii*	Parish's yampah	None/None/2B.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest/perennial herb/June–Aug/4,805–9,840	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present to support this species.
Phacelia stellaris	Brand's star phacelia	None/None/1B.1	Coastal dunes, coastal scrub/annual herb/Mar–June/0–1,310	Not expected to occur. No suitable habitat is found on the review area.
Ribes divaricatum var. *parishii*	Parish's gooseberry	None/None/1A	Riparian woodland/perennial deciduous shrub/Feb–Apr/210–985	Low potential to occur. The review area is within the species' known elevation range and contains a disturbed riparian woodland vegetation. The review area has supported historical disturbances from the power plant to the north and from being a historical park with ornamental species, leaving behind marginal habitat for this species. The nearest documented occurrence is located 8.5 miles to the north (CDFW 2020). Additionally, this conspicuous, perennial shrub would have likely been observed during the site visit, if present.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Schoenus nigricans	black bog-rush	None/None/2B.2	Marshes and swamps (often alkaline)/perennial herb/Aug–Sep/490–6,560	Not expected to occur. The review area contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species. Additionally, the review area does not contain alkaline soils that are associated with this species.
Sidalcea malviflora ssp. *dolosa*	Bear Valley checkerbloom	None/None/1B.2	Lower montane coniferous forest (meadows and seeps), meadows and seeps, riparian woodland, upper montane coniferous forest (meadows and seeps)/perennial herb/May–Aug/4,900–8,805	Not expected to occur. The site is outside of the species' known elevation range.
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas; alkaline, mesic/perennial herb/Mar–June/45–5,015	Not expected to occur. No suitable vegetation is found on the review area.
Sphenopholis obtusata	prairie wedge grass	None/None/2B.2	Cismontane woodland, meadows and seeps; mesic/perennial herb/Apr–July/980–6,560	Not expected to occur. No suitable habitat is found on the review area.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/5–6,690	Low potential to occur. The review area is located within the appropriate elevation range and contains grassland vegetation. The review area also contains minimal artificial marsh habitat that is completely enveloped within a concrete channel that does not contain natural topsoil that could support this species. The review area has supported historical

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet amsl)	Potential to Occur
				disturbances from the power plant to the north and from being a historical park with ornamental species, leaving behind marginal habitat for this species.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None/2B.2	Meadows and seeps (seeps and streams)/perennial rhizomatous herb/Jan–Sep/160–2,000	Not expected to occur. No suitable habitat is found on the review area.

Status Legend:
Federal:
FE: Federally listed as endangered
FT: Federally listed as threatened
State:
SE: State listed as endangered
ST: State listed as threatened
CRPR: California Rare Plant Rank
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Threat Rank:
.1 Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Notes: amsl = above mean sea level; CNDDB = California Natural Diversity Database.

References

Calflora. 2020. Information on California plants for education, research, and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. Berkeley, California. Accessed May 2020. http://www.calflora.org/.

CDFW (California Department of Fish and Wildlife). 2020. California Natural Diversity Database (CNDDB). RareFind, Version 5 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed October 2020. https://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

USFWS (U.S. Fish and Wildlife Service). 2009. Berberis nevinii *(Nevin's barberry) 5-Year Review: Summary and Evaluation*. August 14, 2009. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20090814_5YR_BENE.pdf.

USFWS. 2010. Ambrosia pumila *(San Diego ambrosia) 5-Year Review: Summary and Evaluation.* July 15, 2010. https://www.fws.gov/carlsbad/SpeciesStatusList/5YR/20100715_5YR_AMPU.pdf.

Attachment H

Special-Status Wildlife Species Detected or Potentially Occurring in the Review Area

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Amphibians				
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The concret- lined channel does not provide suitable aquatic habitat for this species to occur.
Spea hammondii	western spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Anniella stebbinsi	southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill grasslands, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Low potential to occur. The review area contains grasslands, disturbed riparian woodland, and sandy loam soils. However, the review area is isolated and surrounded by industrial development on all sides, lowering the quality of the on-site habitat. The nearest CNDDB occurrence is 1.8 miles from the review area (CDFW 2020).

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Arizona elegans occidentalis	California glossy snake	None/SSC	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Low potential to occur. The review area contains sandy loam soils and openings that could provide marginal habitat for this species. The nearest CNDDB occurrence is 3.2 miles from the review area (CDFW 2020).
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Low potential to occur. The review area contains disturbed riparian woodland; however, the review area is isolated and surrounded by industrial development on all sides, lowering the quality of the on-site habitat. The nearest CNDDB occurrence is 2.7 miles northwest of the review area (CDFW 2020).
Charina umbratica	southern rubber boa	None/ST	Montane oak–conifer and mixed-conifer forests, montane chaparral, wet meadows; usually in vicinity of streams or wet meadows	Not expected to occur. The concrete-lined channel does not provide suitable habitat for this species to occur. Additionally, the review area is located outside of the known elevation range for this species.
Coleonyx variegatus abbotti	San Diego banded gecko	None/SSC	Rocky areas within coastal scrub and chaparral	Not expected to occur. No suitable habitat is present on site.
Crotalus ruber	red diamondback rattlesnake	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Low potential to occur. The review area contains grasslands; however, the review area is isolated and surrounded by industrial development on all sides, lowering the quality of the on-site habitat.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Low potential to occur. The review area contains grasslands, disturbed riparian woodland, and sandy loam soils. However, the review area is isolated and surrounded by industrial development on all sides, lowering the quality of the on-site habitat. The nearest CNDDB occurrence is 0.5 miles from the review area (CDFW 2020).

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	Low potential to occur. The review area contains marginal grassland vegetation; however, the review area is isolated and surrounded by industrial development on all sides, lowering the quality of the on-site habitat. The nearest CNDDB occurrence is 10.2 miles east of the review area (CDFW 2020).
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Birds				
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to occur. The review area does not contain sufficient emergent vegetation to support this species. Additionally, the review area is surrounded by industrial development on all sides and does not contain nearby habitat for this species. The nearest CNDDB occurrence is 3.7 miles northeast of the review area (CDFW 2020).
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Low potential to nest and forage. The review area contains disturbed habitat and grasslands with open space that could support this species; however, no burrows or debris piles with openings 4 inches or greater in diameter were observed within the review area.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to nest or forage. While the review area contains disturbed riparian woodland and grasslands that could support foraging, it is fragmented and surrounded by industrial development. It is not adjacent to woodland areas that could support nesting.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. The review area contains disturbed riparian woodland vegetation; however, it is small in its extent (1.5 acres), does not contain variation in structure, and is not nearby or contiguous with other larger riparian patches outside of the review area.
Coturnicops noveboracensis	yellow rail	BCC/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	Not expected to occur. No suitable habitat is present on site.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. The review area contains disturbed riparian woodland vegetation; however, it is small in its extent (1.5 acres), does not contain variation in structure, and is not nearby or contiguous with other larger riparian patches outside of the review area.
Haliaeetus leucocephalus (nesting and wintering)	bald eagle	FDL, BCC/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to occur. No suitable habitat is present on site.
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. The review area contains disturbed riparian woodland vegetation; however, it is small in its extent (1.5 acres), does not contain variation in structure, and is not nearby or contiguous with other larger riparian patches outside of the review area. The nearest CNDDB occurrence is 2.6 miles southwest of the review area (CDFW 2020).

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Low potential to nest and forage. The review area has an open habitat present. However, the grassland is surrounded by industrial development on all sides, reducing the quality of habitat on site.
Laterallus jamaicensis coturniculus	California black rail	BCC/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. No suitable habitat is present on site.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. No suitable habitat is present on site.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. The review area contains disturbed riparian woodland vegetation; however, it is small in its extent (1.5 acres), does not contain variation in structure, and is not nearby or contiguous with other larger riparian patches outside of the review area. The nearest CNDDB occurrence is 6.3 miles from the review area (CDFW 2020).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. The review area contains disturbed riparian woodland vegetation; however, it is small in its extent (1.5 ac), does not contain variation in structure, and is not nearby or contiguous with other larger riparian patches outside of the review area. The nearest CNDDB occurrence is 2.6 miles southwest of the review area (CDFW 2020).

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
Fishes				
Catostomus santaanae	Santa Ana sucker	FT/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Oncorhynchus mykiss irideus pop. 10	southern steelhead – Southern California DPS	FE/None	Clean, clear, cool, well-oxygenated streams; needs relatively deep pools in migration and gravelly substrate to spawn	Not expected to occur. The site is outside of the species' known geographic range and there is no suitable vegetation present.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. The concrete-lined channel does not provide suitable aquatic habitat for this species to occur.
Mammals				
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Low potential to roost and forage. The review area contains trees and constructed structures adjacent to open habitat; however, the review area is surrounded by industrial development on all sides, limiting the potential for this species.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub,	Low potential to occur. The review area contains grasslands that could support this species; however, the review area is

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
			pinyon–juniper, and annual grassland	surrounded by industrial development on all sides, limiting the potential for this species.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. No suitable habitat is present on-site.
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE/SSC, PSE	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	Not expected to occur. The review area does not contain alluvial fan habitat that could support this species.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas	Low potential to occur. The review area contains grasslands that could support this species; however, the review area is surrounded by industrial development on all sides, limiting the potential for this species. The nearest CNDDB occurrence is 2.9 miles east of the review area (CDFW 2020).
Eumops perotis californicus	western mastiff bat	None/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to roost or forage. No suitable habitat is present on site.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None/SSC	Coniferous and deciduous forests, including riparian forests	Not expected to occur. The review area is outside of the known elevation range for this species.
Lasiurus xanthinus	western yellow bat	None/SSC	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	Low potential to roost and forage. The riparian habitat on-site is isolated and surrounded by disturbed and developed areas creating low quality habitat for this species to occur.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. The review area contains grasslands that could support this species; however, the review area is

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
				surrounded by industrial development on all sides, limiting the potential for this species.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Not expected to occur. No suitable habitat present on site.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Not expected to occur. No suitable habitat present on site.
Onychomys torridus ramona	southern grasshopper mouse	None/SSC	Grassland and sparse coastal scrub	Low potential to occur. The review area contains grasslands that could support this species; however, the review area is surrounded by industrial development on all sides, limiting the potential for this species.
Perognathus alticolus alticolus	white-eared pocket mouse	None/SSC	Arid ponderosa pine communities	Not expected to occur. No suitable habitat present on site.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/SSC	Lower-elevation grassland, alluvial sage scrub, and coastal scrub	Low potential to occur. The review area contains grasslands that could support this species; however, the review area is surrounded by industrial development on all sides, limiting the potential for this species. The nearest CNDDB occurrence is 2.8 miles northwest of the review area (CDFW 2020).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. No suitable habitat present on site.
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/PSE	Open grassland and scrub communities supporting suitable floral resources.	Not expected to occur. The review area contains non-native grasslands; however, it is surrounded by industrial development on all sides. The review area does not contain

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur[2]
				suitable floral resources to support this species.
Euphydryas editha quino	Quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta*, *Antirrhinum coulterianum*, and *Plantago patagonica* (Silverado Occurrence Complex)	Not expected to occur. The review area contains disturbed habitat and non-native grasslands historically disturbed and surrounded by industrial development. No known host plants were observed within the review area.
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	FE/None	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover	Not expected to occur. The review area does not contain Delhi soils.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None	Vernal pools, non-vegetated ephemeral pools	Not expected to occur. The review area did not contain poorly draining soils or contain evidence of ponding.

Notes:

1 **Status Abbreviations:**
FE: Federally listed as endangered
BCC: U.S. Fish and Wildlife Service—Birds of Conservation Concern
SE: State listed as endangered
ST: State listed as threatened
CSE: Candidate for state endangered
SSC: California species of special concern

2 Refers to records within the Topanga U.S. Geological Survey 7.5-minute quadrangle.

References

CDFW (California Department of Fish and Wildlife). 2020. *RareFind*, Version 5.2.14. California Natural Diversity Database (CNDDB). Accessed October 2020. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

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Historic Resource Evaluation Report for the Condor Energy Storage Project, 21660 Main Street, Grand Terrace, California

Prepared for:

Condor Energy Storage, LLC

Prepared by:

Nicole Frank, MSHP, and Samantha Murray, MA

DUDEK

3615 Main Street, Suite 103
Riverside, California 92501

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TABLES

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APN	Assessor's Parcel Number
BESS	battery energy storage system
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
MW	megawatt
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
SCE	Southern California Edison

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Executive Summary

Dudek was retained by Condor Energy Storage, LLC, to prepare a Historic Resource Evaluation Report for the Condor Energy Storage Project (project), which proposes to develop an approximately 200-megawatt battery energy storage system (BESS) located on an approximately 10-acre parcel of land located at 21660 Main Street in the City of Grand Terrace, California. The project site is primarily undeveloped, with a single building located in the southeast corner adjacent to Main Street. This report was prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15064.5, for historical resources.

This report includes development of a built environment study area map; a pedestrian survey of the proposed project study area for built environment resources; and a historical significance evaluation of the Highgrove Steam Plant in consideration of state designation criteria and integrity requirements. The significance evaluation found that the Highgrove Steam Plant is not eligible under any designation criteria due to a lack of the requisite integrity necessary to convey significant historical associations and a lack of architectural merit. As such, the Highgrove Steam Plant is not considered a historical resource under CEQA. Therefore, no historical resources were identified within the study area. As a result of the current study, Dudek recommends a finding of less than significant impact to historical resources under CEQA.

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1 Introduction

Dudek was retained by Condor Energy Storage, LLC, to prepare a Historic Resource Evaluation Report for the Condor Energy Storage Project (project). The proposed project involves development of an approximately 200-megawatt (MW) battery energy storage system (BESS) on an approximately 10-acre parcel of land at 21660 Main Street in the City of Grand Terrace, California. The project site is primarily undeveloped, with a single building located in the southeast corner adjacent to Main Street. This report was prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15064.5, for historical resources.

1.1 Project Location and Description

Project Location

The project site is located at 21660 Main Street in the City of Grand Terrace, California, on a 9.86-acre parcel (Assessor's Parcel Number [APN] 116-715-177). The project site is roughly bounded by Taylor Street to the east, Main Street to the south, and BNSF Railway tracks to the west. Regionally, the site is located in the southwest part of the City of Grand Terrace (City), east of Interstate 215, south of Interstate 10, at an elevation of approximately 941 feet above mean sea level (Figure 1, Project Location). The surrounding area is fully developed with civic, industrial, and residential properties.

Project Description

The proposed project would involve the construction of an approximately 200 MW BESS on an approximately 10-acre parcel of land at 21660 Main Street in the City of Grand Terrace, California.

The proposed project will consist of lithium-ion energy batteries installed in racks, inverters, switchgear, and other associated equipment to directly interconnect into the Southern California Edison (SCE) Highgrove Substation (point of interconnection) located immediately adjacent to the northern property limits. The batteries will be installed in either containers or purpose-built enclosures, which will be designed for aesthetic compatibility with the surrounding area. The containers will have battery storage racks separated with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC may be located outside the containers or purpose-built enclosures, along with transformers to step up the voltage.

The proposed facility will provide a service to the regional electric grid by receiving energy (charging) from the SCE Highgrove Substation, storing energy on the site, and then later delivering energy (discharging) back to the point of interconnection when needed. Following construction, the proposed use will not emit pollutants, will not require sanitary facilities, and will not require water except for limited maintenance activities. Construction of the project will accomplish the following objectives:

- Establish a new energy storage facility to reliably capture and manage renewable energy in an economically feasible and commercially financeable manner.
- Provide economic benefit to the City, the region, and the state, through construction jobs, property and sales taxes, and increased energy efficiency and grid reliability.

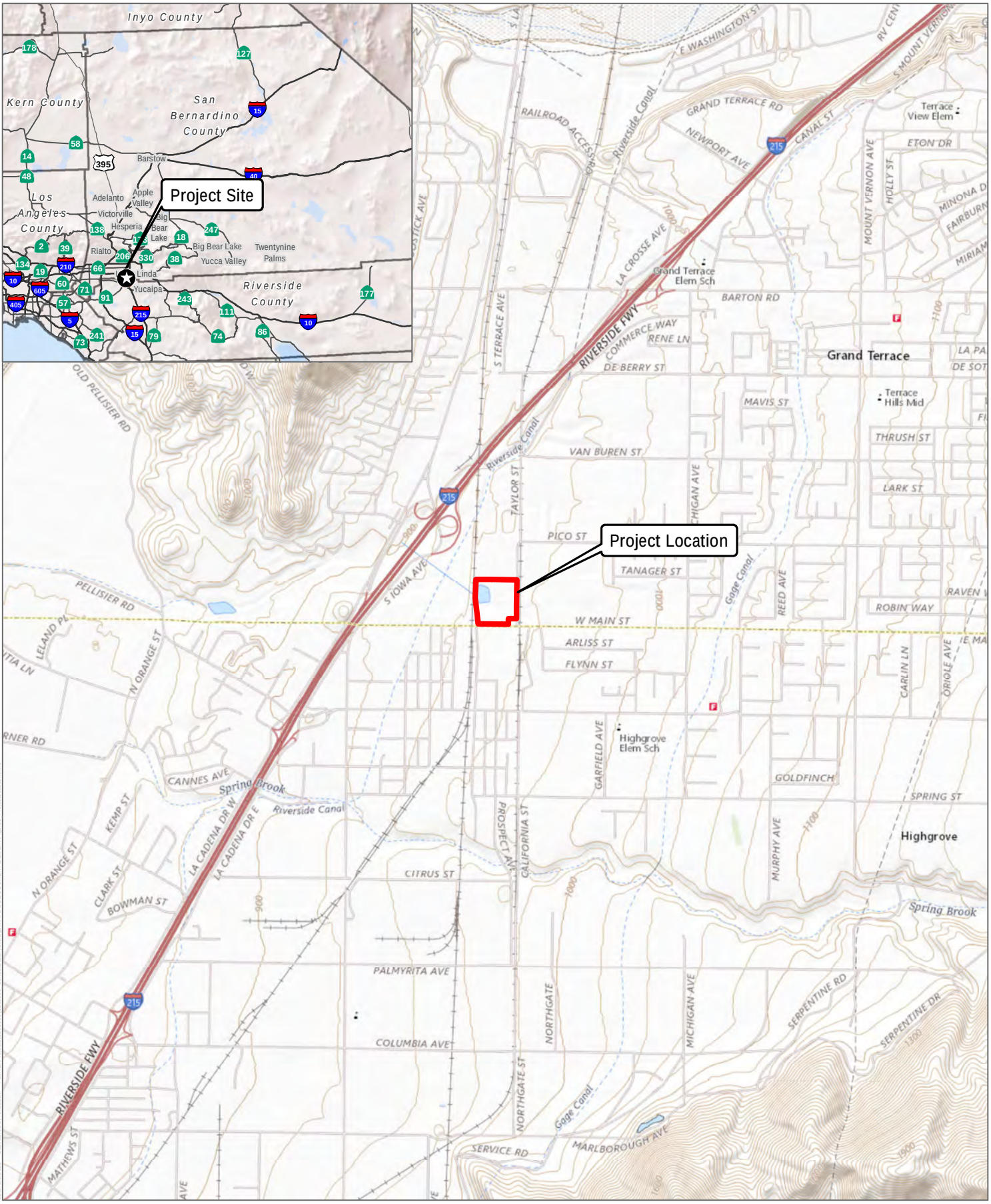
- Use proven and established energy storage technology that is efficient, requires low maintenance, and is recyclable.
- Assist California in meeting its greenhouse gas emissions reduction goals by 2020 and 2030 as required by the California Global Warming Solutions Act (Assembly Bill 32), as amended by Senate Bill 32 in 2016.
- Provide the region with a battery energy storage facility with the ability to help avoid the challenges recently experienced with rolling blackouts by allowing renewable energy to be stored on site and provide approximately 200,000 homes with power when needed.

1.2 Project Personnel

This report, including all fieldwork, research, and the associated property significance evaluation, was prepared by Dudek architectural historian Nicole Frank, MSHP. This report was reviewed by for quality assurance/quality control by Dudek principal architectural historian Samantha Murray, MA. All personnel meet the Secretary of the Interior's Professional Qualification Standards for Architectural History (36 CFR Part 61, Appendix A[c]). Resumes for all key personnel are provided in Appendix A of this report.

1.3 Built Environment Study Area

Designation of the built environment study area follows the maximum possible area of impact resulting from the proposed project (Figure 2, Built Environment Study Area Map). The project footprint comprises APN 1167-151-77. Review of historic aerial photographs indicates that the project footprint falls within an area that was once part of the Highgrove Steam Plant. For this reason, the built environment study area encompasses the entire historic boundary of the Highgrove Steam Plant, which was constructed between 1951 and 1955, making it more than 45 years old. The 35.20-acre built environment study area is composed of six APNs, including 1167-151-77, 1167-151-40, 1167-151-41, 1167-151-64, 1167-151-68, and 1167-151-76. To the north is the Riverside Canal, which was not included in the study area because the proposed project has no potential to impact it.



SOURCE: USGS 7.5-Minute Series San Bernardino South Quadrangle
Township 2S / Range 4W / Section 06

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FIGURE 1
Project Location
Condor Energy Storage Project

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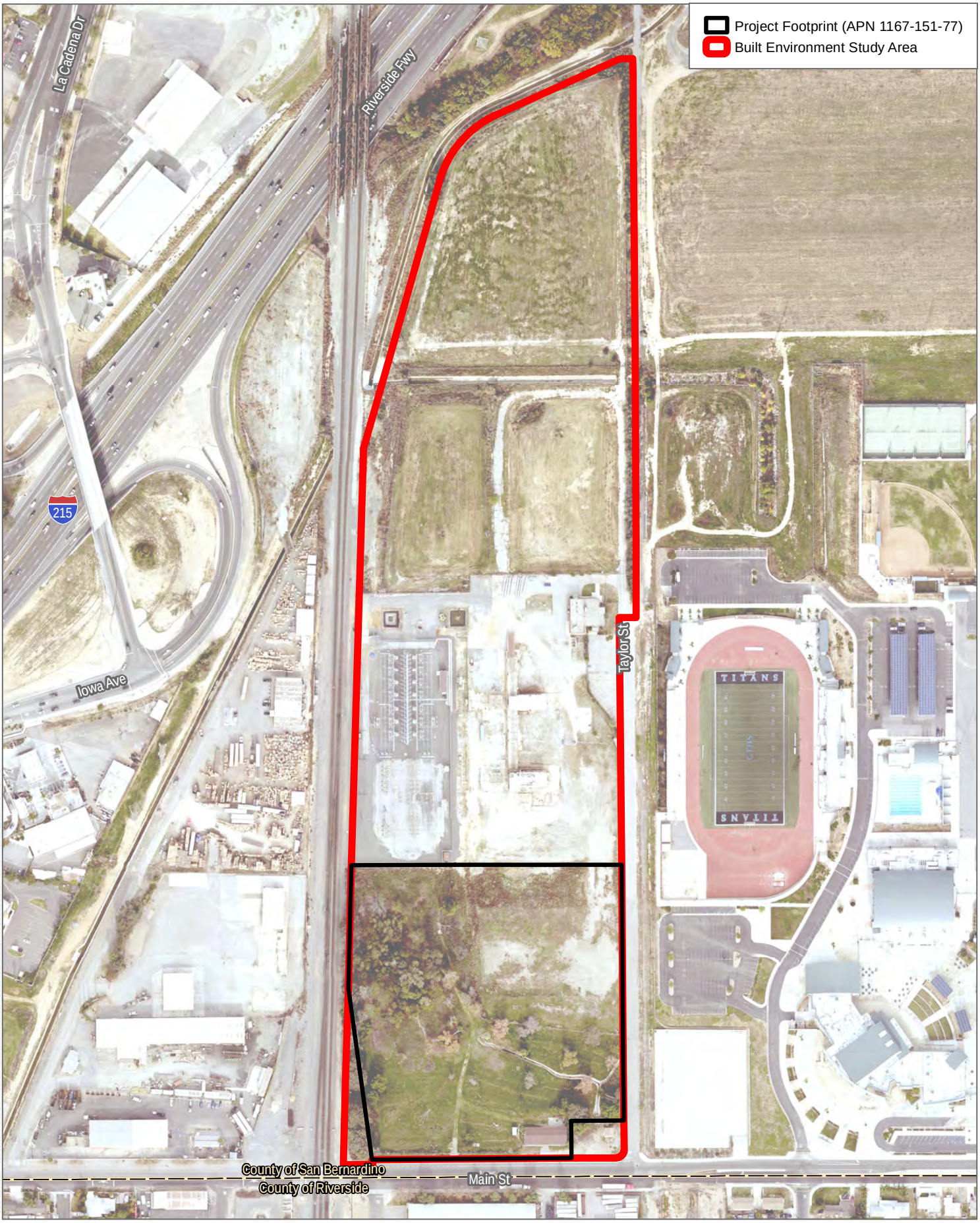

SOURCE: Riverside County 2019; San Bernardino County 2020; Open Street Map 2019

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0 150 300 Feet

FIGURE 2

Built Environment Study Area Map

Condor Energy Storage Project

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1.4 Regulatory Setting

State

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code, Section 5020.1[j]). In 1992, the California Legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1[a]). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP) and are enumerated below. According to California Public Resources Code, Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852[d][2]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code, Section 21083.2(g), defines "unique archaeological resource."
- California Public Resources Code, Section 21084.1, and CEQA Guidelines, Section 15064.5(a), define "historical resources." In addition, CEQA Guidelines, Section 15064.5(b), defines the phrase "substantial

adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of a historical resource.

- California Public Resources Code, Section 21074(a), defines "tribal cultural resources."
- California Public Resources Code, Section 5097.98, and CEQA Guidelines, Section 15064.5(e), set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated cemetery.
- California Public Resources Code, Sections 21083.2(b) and (c), and CEQA Guidelines, Section 15126.4, provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[b]). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code, Section 5024.1[q]), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5[b][1]; California Public Resources Code, Section 5020.1[q]). In turn, CEQA Guidelines, Section 15064.5(b)(2), states that the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any historical resources, then evaluates whether the project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance would be materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require that reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (California Public Resources Code, Sections 21083.2[a], [b], and [c]).

California Public Resources Code, Section 21083.2(g), defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code, Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a non-unique archaeological resource qualifies as Tribal cultural resource (California Public Resources Code, Sections 21074[c] and 21083.2[h]), further consideration of significant impacts is required. CEQA Guidelines, Section 15064.5, assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed in California Public Resources Code, Section 5097.98.

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2 Background Research

Building Development and Archival Research

As part of development of the historic context section and in support of the historical significance evaluation of the Highgrove Steam Plant, Dudek completed background research using the sources shown in the following paragraphs.

Built Environment Resource Directory

The Built Environment Resource Directory files provide information, organized by county, regarding non-archaeological resources in the Office of Historic Preservation (OHP) inventory. The OHP inventory contains information only for built environment resources that have been processed through the OHP. This includes resources reviewed for eligibility for the NRHP and the California Historical Landmarks programs through federal and state environmental compliance laws and resources nominated under federal and state registration programs. The Built Environment Resource Directory replaces the Historic Properties Directory, which previously provided evaluation status information for resources processed through the OHP.

Dudek accessed the San Bernardino County Built Environment Resource Directory from the OHP on February 3, 2021, and identified no resources that overlapped the project study area and no resources adjacent to the project study area within 1 mile.

Historical Newspaper Review

Historical newspapers for the City of Grand Terrace covering the development of the area were reviewed in an effort to understand the progressive development of the project site.

Sanborn Fire Insurance Maps

A review of historical Sanborn Map Company fire insurance maps covering the Cities of Grand Terrace, Riverside, and San Bernardino was conducted as part of the archival research effort for the proposed project. Maps from the following years were reviewed: 1884, 1885, 1887, 1888, 1891, 1894, 1895, 1906, 1908, 1950, 1951, and 1952. The subject property does not fall within the mapped area of the County of San Bernardino (County) and census-designated places.

Historical Aerial Photographs

A review of historical aerial photographs was conducted as part of the archival research effort. Aerial photographs from the following years were reviewed: 1931, 1938, 1948, 1953, 1959, 1963, 1966, 1967, 1968, 1978, 1980, 1995, 2002, 2004, 2005, 2009, 2010, 2012, 2014, and 2016. Table 1 presents a summary of the results of this review, showing the development of the project site from 1931 to 2016 (NETR 2021; UCSB 2021).

Table 1. Review of Historical Aerial Photographs of Project Study Area and Surrounding Area

Photograph Year	Observations and Findings
1931	This is the earliest aerial photograph of the project site. The site displays one rectangular in plan residential building with two auxiliary buildings to the east and south. The buildings are surrounded by

Table 1. Review of Historical Aerial Photographs of Project Study Area and Surrounding Area

Photograph Year	Observations and Findings
	agricultural and open land with a stream to the direct north. Access to the site is from the south by a driveway from Main Street. Surrounding the property are agricultural fields. To the west of the site are Southern Pacific Railroad tracks.
1938	No discernible changes.
1948	The 1948 image displays an increase in the number of trees surrounding the stream on the property. The buildings on the site display no discernible changes. Surrounding the site there is an increase in density to the north and west.
1953	The 1953 aerial displays several alterations, including the demolition of the original three buildings on the site. The site's use changed from residential and agricultural to industrial. Thirteen new buildings and structures were constructed with the southern portion of the site being used as an open greenspace with pedestrian pathways and a water feature. The land surrounding the site shows an increase in agricultural land being converted for different uses including industrial, residential, and commercial.
1959	The 1959 image displays the construction of an additional industrial building at the southern end of the site. To the northwest of the site is the development of the Riverside Freeway (Interstate 215) and South Iowa Avenue interchange.
1963	No discernible changes.
1966	No discernible changes.
1967	No discernible changes.
1968	There are no discernible changes to the project site. The land surrounding the property shows an increase in development.
1978	There are no discernible changes to the project site. To the east, west, and south of the site is an increase in development with industrial and commercial properties.
1980	The 1980 aerial displays no discernible changes to the project site. The land to the west of the site shows further development into a commercial property.
1995	The 1995 image displays no discernible changes to the site's buildings. The water feature at the southern end of the property appears to be smaller in size while the pedestrian paths remain in their original locations. The land to the west of the site shows further development into a commercial property.
2002	The 2002 image displays the demolition of the three round storage tanks located at the northern end of the site. The land to the west of the site shows further development into a commercial property.
2004	No discernible changes.
2005	No discernible changes.
2009	The 2009 aerial displays the demolition of one of the small auxiliary buildings at the southern end of the site. The land to the east of the site underwent a large-scale demolition of the original industrial properties.
2010	The 2010 image shows the demolition of four of the rectangular industrial buildings at the southern end of the site. No discernible changes are evident surrounding the property.
2012	The 2012 aerial displays the removal of multiple built components to the northern building on the site. The land to the east of the site displays the construction of Grand Terrace High School.

Table 1. Review of Historical Aerial Photographs of Project Study Area and Surrounding Area

Photograph Year	Observations and Findings
2014	The 2014 image displays the demolition of the small auxiliary building at the southeast corner of the property. No discernible changes are evident surrounding the property.
2016	The 2016 aerial shows the construction of a small square in plan auxiliary building at the southeast corner of the property. No discernible changes are evident surrounding the property.

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3 Historic Context

This chapter addresses relevant themes concerning the history of the project site. It begins with an overview of the regional history of the area, followed by an overview of the development of Grand Terrace, and concludes with a discussion of the historical development of the Highgrove Steam Plant.

3.1 Historical Period Overview

Post-Contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, signals the beginning of the American Period, when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers conducted sailing expeditions along the coast of Southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríguez Cabrílllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabrílllo explored the shorelines of present-day Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabrílllo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

More than 200 years passed before Spain began the colonization and inland exploration of Alta (upper) California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the king of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring Southern California, Franciscan friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823 (Bancroft 1885; Gumprecht 1999).

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angeles of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (O'Neil 2002). Mission San Fernando Rey de España was established nearly 30 years later, on September 8, 1797.

Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to convert the Native American population to Christianity and integrated communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; however, just three pueblos were established during the Spanish Period, only two of which were successful and grew into California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955; O'Neil 2002).

Extensive land grants were established in the interior during the Mexican period, in part to increase the population inland from the more settled coastal areas where the Spanish first concentrated their colonization efforts. However, no Ranchos were established that overlapped the project site. The Cities of Fontana and Rialto fell outside the extent of the Ranchos. The closest Ranchos were the 13,000-acre Cucamonga Rancho, awarded to Tiburcio Tapia in 1839, to the west; Rancho San Bernardino, awarded to José del Carmen Lugo, José María Lugo, Vicente Lugo, and Diego Sepulveda in 1842, to the east; and Rancho Jurupa, awarded to Juan Bandini in 1838, to the south (Bancroft 1885; Dallas 1955).

During the supremacy of the Ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of non-native inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities (Dallas 1955).

American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident *Californios* and Americans in the San Bernardino area. The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American period. California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the Rancho system, continued to dominate the Southern California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the cattle boom of the 1850s, Rancho *vaqueros* drove large herds from Southern to Northern California to feed the region's burgeoning mining and commercial boom. The cattle boom ended for Southern California as neighboring states and territories drove herds to Northern California at reduced prices. Operation of the huge Ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005).

3.2 Historical Overview of Grand Terrace

As early as 1819, San Bernardino County had been settled by Europeans, after the *Asistencia* San Bernardino was established to serve Mission San Gabriel. Throughout the 1850s, Mormon settlers began arriving in the San Bernardino Valley and in 1851 colonists purchased Rancho San Bernardino from the Lugo family and built Fort San Bernardino. The County was established in 1853, created from portions of Los Angeles County, San Diego County, and Mariposa County. In 1854, the City of San Bernardino incorporated as the County seat and by 1856 San Bernardino had a population of nearly 3,000. Development in the area was further encouraged with the establishment of the Southern Pacific Railroad between Yuma, Arizona, and Los Angeles in 1877 and the expansion of the Atchison, Topeka and Santa Fe Railway with the addition of a line from Barstow to San Diego in 1885 and a line to Los Angeles in 1887. The Southern Pacific Railroad line passed through what would eventually become Grand Terrace, prompting land speculation in the area (Brown and Boyd 1922; Tang and Hogan 2019; Masters 2015).

In 1876, there were nine buildings reported in the Terrace–Colton area. Initially the area to the south of San Bernardino was called "the Terrace," with the word "Grand" added around 1898 due to the beautiful views surrounding the City. The Grand Terrace–Highgrove area, also known as East Riverside, furthered its development with the construction of the Gage Canal between 1885 and 1889. The canal was financed by Matthew Gage, a Canadian jeweler. To fulfill a claim for 640 acres under the Desert Land Act of 1877, Gage had 3 years to bring water to the land. The canal Gage financed in fulfillment of the claim began 11.91 miles from the Santa Ana River and was later extended by another 8.22 miles through Grand Terrace. The canal doubled citrus production in the area and established Grand Terrace as a large producer of citrus (FCCP 2021).

In 1906, 300 acres of the Grand Terrace tract within the Highgrove District was for sale by local landowner M.L. Howell. The land was bounded on three sides by orange groves, with an abundance of water. A trolley line from Colton to Riverside passed through Grand Terrace and provided prospective land buyers access to the area (SBS 1906). Citrus groves dominated the agriculturally based economy until 1913, when a devastating freeze caused many to replace their citrus groves with hardier walnut trees and peaches as quick-profit crops. Despite the economic setback, Grand Terrace continued as an agricultural enclave between two growing cities, Riverside and San Bernardino. The community's social activities in the 1900s focused on the Farm Bureau Extension Service and the Woman's Club. There were no local churches, so residents traveled to surrounding communities for worship and other communal events. Residential development was primarily focused on the community's west side after the construction of the Barton Road offramp from Interstate 215 in the 1950s. This access allowed for the construction of both residential tracts and custom-built dwellings farther east abutting the City's eastern terminus, Blue Mountain (De Atley 2011).

Grand Terrace looked to preserve its local identity through the organization of the Grand Terrace Chamber of Commerce in 1962. One of the group's main concerns was pushing for cityhood, which led to the formation of a local governing body in 1976. This body, known as the Municipal Advisory Council, underwent negotiations and meetings with the County, resulting in a vote by residents to become a city. On November 30, 1978, the Charter City Council was created, and Grand Terrace became San Bernardino County's 16th city. By the 1970s, the agricultural and citrus industry was on the decline, with the majority of farmers unable to operate under adverse economic conditions, including financial hardship caused by having to replant more smog-resistant citrus tree varieties (Ellis 1974). Agricultural fields continued to be replaced with residential tracts and by 1980, the population had risen to 8,498. The City's manufacturing and industrial-zoned properties were concentrated on the

western side near the Atchison, Topeka and Santa Fe Railway and Southern Pacific Railroad tracks. Grand Terrace's population continued to increase, with just over 12,000 people living in the 3.5-square-mile City by 2011. Despite losing the majority of the area's agricultural land, Grand Terrace was able remain a small town in the shadow of two larger urban neighbors (De Atley 2011).

3.3 Development History of the Project Site

The study area comprises the historic boundary of the Highgrove Steam Plant, which was constructed in 1951 when the California Electric Power Company (also known as Calectric) purchased the 35-acre site previously developed as a small residence and agricultural land (NETR 2021; SCER 2009). The plant was located between Riverside and San Bernardino, surrounded by orange groves and small ranches. A master generating unit was constructed on the site first with two more units completed in 1952 and third and fourth units planned for later that year. The Highgrove Steam Plant represented an investment of $20 million, and with the construction of the third and fourth units, the plant was able to increase the amount of power it produced by 140,000 kilowatts per hour. The new power capacity was expected to exceed that of any other electric generating unit in the Calectric system, which included eight hydroelectric facilities in the High Sierra and from the Hoover Dam (LAT 1952).

Steam power generation played an important part in California's energy production throughout the twentieth century. Despite the early dominance of hydroelectricity during the 1920s through 1940s, multiple events during the late 1920s and early 1930s gradually reversed that trend. These events included an extended drought throughout California; a greater than ninefold increase in the fuel efficiency of steam power plants; and construction of several new natural gas pipelines to supply natural gas to Northern and Southern California (Williams 1998). The rapid growth in Southern California during and after World War II led to an increase in the demand for power generation. The general design criteria for steam power plants at the time included reducing transmission costs by constructing facilities close to load centers, ensuring proximity to fuel supplies and a water source, and choosing a site suitable for a good, solid foundation. Steam power plants were also designed to be expanded when market conditions dictated such was necessary (Steele 1950).

In the 1950s, Calectric was the leading force in new steam power plant construction in California, opening several new plants, including Redondo No. 2 (1952), Etiwanda (1953), El Segundo (1955), Alamitos (1956), and Huntington Beach (1958), in the greater Los Angeles area alone. In California at large, Pacific Gas & Electric Company, a competing electric company, also updated and expanded several existing plants in the 1950s, including their Kern plant (1948–1950), Contra Costa (1951–1953), Moss Landing (1950–1952), Morro Bay (1955), Hunters Point (addition 1958), Humboldt Bay (1956–1958), and Pittsburg (1959–1960) (Fluor 1954; Herbert and Walters 2006; Myers 1986; RDF 1952).

As a completely outdoor facility, the Highgrove Steam Plant represented a change in steam power plant design (Exhibit 1). This was done to add resistance to earthquakes, increase operating efficiency, and consequently reduce construction costs. All four of the Highgrove Steam Plant units were designed and constructed by the Fluor Corporation (Fluor), headquartered in Los Angeles. The only enclosed spaces were the operator's control and switchgear room, with the rest of the plant's components located outside. This attracted the interest of power production engineers across the United States and from several foreign countries. A total of 6,309 cubic yards of concrete went into the construction of the first two units. A total of 16.2 miles of pipe was used in the project and 3,074 valves were installed. Splashproof motors were used on all auxiliaries apart from the cooling tower fans, which were driven by totally enclosed, fan-cooled motors. To generate electricity, fuel was burned in a boiler to turn

water into steam. The steam, under high pressure, would be directed against the blades or fins of a steam turbine, which caused the turbine shaft to turn. A magnet fastened to the shaft of the turbine then revolved inside a coil of wire known as the generator, and electricity was produced (SBCS 1952a; 1952b; 1954; LAT 1952).

Exhibit 1. The Highgrove Steam Plant – circa 1960 (11-00414)
Source: SCEPN 2021.

In 1952, Calectric made a point of opening the facility to the public between September 10 and 12, with guided tours for viewing the facility between 10 a.m. and 4 p.m. Civic and state officials, engineering authorities, and industrial leaders were invited to join in observing the operations at the Highgrove Steam Plant, which at the time was called one of "the newest and most modern steam electric generating installations" (SBCS 1952a) (Exhibit 2). Calectric's then-president, Albert Cage, was one of the primary driving forces behind the Highgrove Steam Plant's construction and continued to work toward its expansion. Cage was a pioneer in the development of the Southern Sierras Power Co. and served as Calectric's president for 11 years until his retirement in 1957. Under Cage's leadership the company expanded its operation to many parts of San Bernardino and Riverside Counties. It was under Cage's leadership that it was decided that the company's headquarters must be located within the community it serves. Cage also pioneered the installation of steam generator plants for Calectric, including the Highgrove Steam Plant (SBCS 1957).

In 1953, the company paid the General Electric Corporation $1,461,816.15, the biggest single check for equipment ever written by Calectric for the turbine-generator, switchgear, and other equipment manufactured by General Electric Corporation for the Highgrove Steam Plant's third unit (Exhibit 3) (SBCS 1953). Construction began as planned on the plant's fourth unit in 1954 and was finished in November 1955. The $5,393,000 project was part of Calectric's continuing program to meet and anticipate expansion within its service area. The demands for power

included industrial, military, agricultural, and domestic users in California and Nevada. Completion of the new unit increased the Highgrove Steam Plant's total output to more than 140,000 kilowatts (DS 1954; SBCS 1952a).

Exhibit 2. Advertisement for the Highgrove Steam Plant's Open House – September 10, 1952
Source: SBCS 1952a.

Exhibit 3. Albert Cage (*right*), Calectric President, paying the General Electric Corporation representatives for Highgrove Equipment – July 30, 1953
Source: SBCS 1953.

In addition to the machinery and outbuildings for the generation of steam power, the Highgrove Steam Plant site also featured a park with a small lake at its southwest corner fronting Main Street (Exhibit 4). The park was named Cage Park and is assumed to have been named after the then-president of Calectric, Albert Cage. Cage Park was privately owned by Calectric; members of the public had to reserve use of it through an employee. Events held at the park included the annual Eastern Division Picnic for current and retired employees; the Highgrove Picnic; the annual Norwegian Independence Day picnic held by the Sons of Norway, Soldalen Lodge No. 67; and local high school class reunions (RDF 1971a, 1971b; SBCS 1979, 1993). In 1982, the Grand Terrace Parks and Recreation Committee recommended that the City purchase Cage Park to be used for the public after SCE expressed interest in selling the property. Two years later, the City Council directed then Community Services Director Randy Anstine to negotiate with SCE to purchase Cage Park (SBCS 1982; Stern 1984). The park continued to be used by the community as a site for fundraisers, concerts, and celebrations into the early 2000s.

Exhibit 4. Drawing of the Highgrove Steam Electric Generating Plant – May 27, 1954
Source: DS 1954.

In 1964, Calectric merged with SCE, which is based in Rosemead, California. Through this merger, SCE gained access to Calectric's 450,000 customers and 41,500-square-mile territory, including the Highgrove Steam Plant (SCER 2009). By 1965, the Grand Terrace Chamber of Commerce had authorized the proceedings toward an election on proposed incorporation. The proposed area of incorporation was 5 square miles, with the County line to the south and the Colton City limits to the north as boundaries. Included in the annexation was the Highgrove Steam Plant and Vista Substation facilities owned by SCE (SBCS 1965). SCE eventually became the largest electric utility in California and one of the largest investor-owned electric utilities in the United States, serving more than 13 million people in 15 counties of central, coastal, and southern California (SCER 2009).

Starting in the 1970s, a shift toward renewable energy resources began. Despite this, Southern California had more than 20 fossil-fuel-based steam power plants between San Francisco and San Diego. However, the power generated by aging plants (i.e., those built before the 1980s) had steadily decreased since 2001, with the slack being picked up by newer, more efficient combined-cycle power plants. Between 2001 and 2013, eight of these aging fuel-fired power plants were closed. During the same period, the number of combined-cycle power plants increased from 2 to 34. Combined-cycle power plants use gas and steam turbines together to produce up to 50% more electricity than a traditional simple-cycle plant. This is accomplished through using the waste heat from the gas turbine and rerouting it to a nearby steam turbine, which generates extra power. Many of the aging power plants underwent modernization projects in the 2000s to convert them from once-through cooling systems to combined-cycle systems or fast-start natural gas combustion turbines that use "dry cooling" technology (GE 2021; LADWP 2011; Nyberg 2014; Williams 1997).

The Highgrove Steam Plant continued to function as an SCE steam power plant until 1998, when SCE sold the plant to Thermo Ecotek, a division of Thermo Electron Corp. of Waltham, Massachusetts. This was done as part of California's restructuring of the electric utility industry. The $9.5 million agreement included the Highgrove and San Bernardino plants. The Highgrove Steam Plant was operated by Riverside Canal Power Company, a Thermo Ecotek subsidiary, and had the capacity to produce enough power to serve approximately 100,000 homes. In 2000, to help alleviate the California electric generation shortfall, SCE reached an agreement with Thermo Ecotek to allow the utility to lease and return the Highgrove Steam Plant to full operation after being placed on standby status in 1999 (EI 2000). In 2001, the AES Corporation (AES) purchased the power plant from Thermo Ecotek. AES had its headquarters in Arlington, Virginia, and was one of the world's leading power companies, operating in 15 countries. Soon afterward, the power plant was mothballed, which entails closing up a building or site temporarily to protect it from the weather and secure it from vandalism. In 2009, AES made plans to build and operate a 300 MW power plant on the site, but the project did not go through because it could not meet deadlines for moving the project forward (Wall 2009; Park 1993).

By 2010, multiple buildings on the power plant site began to be removed, including the four buildings at the southern end of the property, and 2 years later the majority of the plant's equipment was removed (Exhibit 5). The lake at Cage Park was not maintained and by the mid-2000s had dried up and become overgrown with trees. The park's paths of circulation also became overgrown and access to the plant was restricted. Subdivisions during this period resulted in the large plant facility being divided into six separate parcels. The Highgrove Steam Plant and Cage Park were sectioned off from each other with fences, and both remained closed into the 2010s (Exhibit 6) (NETR 2021).

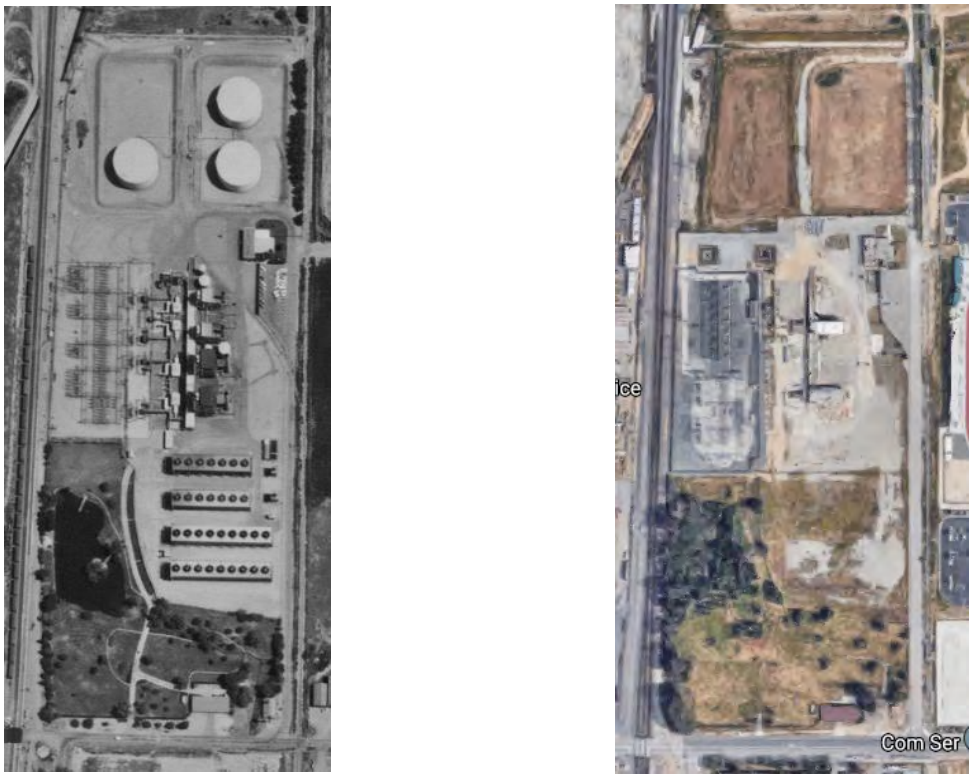

Exhibit 5. 1963 aerial photo of the Highgrove Steam Plant site (*left*), compared to the current site (*right*)
Sources: SCEPN 2021; UCSB 2021; Google Maps 2021.

Exhibit 6. Highgrove Steam Plant site, circa 1960 (*left*), compared to the current site (*right*) (Dudek photo file no. DSC01961)

3.4 Architectural Style: Mid-Century Modern (1933–1965)

Mid-Century Modern style is reflective of International and Bauhaus styles popular in Europe in the early twentieth century. This style and its living designers (e.g., Mies Van der Rohe and Gropius) were disrupted by WWII and moved to the United States. During WWII, the United States established itself as a burgeoning manufacturing and industrial leader, with incredible demand for modern buildings to reflect modern products in the mid-twentieth century. As a result, many industrial buildings are often "decorated boxes"—plain buildings with applied ornament to suit the era and appear more modern, without detracting from the importance of the activity inside the building. Following WWII, the United States had a focus on forward thinking, which sparked architectural movements like Mid-Century Modern. Practitioners of the style were focused on the most cutting-edge materials and techniques. Architects throughout Southern California implemented the design aesthetic made famous by early Modernists like Richard Neutra and Frank Lloyd Wright, who created a variety of modern architectural forms throughout Southern California. Like other buildings of this era, Mid-Century Modern buildings had to be quickly assembled and use modern materials that could be mass-produced (McAlester 2013; Morgan 2004).

Key character-defining features of the Mid-Century Modern style include (McAlester 2013; Morgan 2004; Gebhard and Winter 2003):

- Low, boxy, horizontal proportions
- Mass-produced materials
- Flat, smooth sheathing
- Flat roofed without coping at roof line; flat roofs hidden behind parapets

- Lack of exterior decoration or abstract geometrical motif
- Simple windows (metal or wood)
- Industrially plain doors
- Large window groupings
- Commonly asymmetrical
- Whites, buffs, and pale pastel colors

3.5 Engineer and Designer: Fluor Corporation (1912–Present)

In 1912, John Simon "Si" Fluor, a Swiss immigrant, founded the Fluor Construction Company (Fluor) in Santa Ana, California. The company began as a general contracting firm and quickly gained a reputation for both quality and innovation. By 1915, the company was hired by the Southern California Gas Company to build meter shops and an office building. Fluor continued to gain recognition and expanded its services in the 1920s into the oil and gas field, building plants and patenting technologies. The firm grew quickly and by 1930 had its first major project outside California. By 1947, Fluor had taken its services overseas with its expansion of Aramco facilities into Saudi Arabia. Fluor offices began opening around the world, including Canada, the Netherlands, England, and China. After diversifying into oil drilling and coal mining in the 1960s, a global recession in the oil and gas industry in the 1980s led to Fluor selling its oil operations and expanding its construction work into a broader range of services. In the 1990s new services, including equipment rentals, staffing, and nuclear waste cleanup projects, became a significant portion of Fluor's revenues. Some of the company's most notable projects include the Buddha Cooling Tower, a water-cooling tower named after the Buddhist shrine it resembles (1921), the Trans-Alaska Pipeline (1973), and construction of the Gordie Howe International Bridge connecting Detroit and Ontario (2018). The company continues to operate as the largest engineering and construction company in the Fortune 500 rankings, with offices in 25 countries (Fluor 2021).

Fluor's notable commissions and innovative designs (Fluor 2021):

- Buddha Cooling Tower, 1921
- Air-Cooled Muffler and Gas Cleaner, 1926
- Carter Oil Refinery, Montana, 1946
- Titan II Missile Complex, 1961
- Trans-Alaska Pipeline, Alaska, 1973
- Minera Escondida Copper Mine Project, Chile, 1989
- CETAC RIE, Iraq, 2003
- San Francisco–Oakland Bay Bridge, 2013
- Gordie Howe International Bridge, United States and Canada, 2018
- Los Angeles International Airport Automated People Mover, Los Angeles, 2019
- CTA Red and Purple Line Modernization Program, Chicago, 2019

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4 Survey Methods

Dudek architectural historian Nicole Frank, MSHP, conducted a pedestrian survey of the project study area on February 2, 2021. The survey entailed walking the property and documenting the buildings with notes and photographs, specifically noting character-defining features, spatial relationships, and observed alterations. All field notes, photographs, and records related to the current study are on file at Dudek's Encinitas, California, office.

Chapter 5 of this report, Significance Evaluation, provides a detailed physical description of the Highgrove Steam Plant and the associated significance evaluation for the property under all applicable national and state designation criteria and integrity requirements.

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5 Significance Evaluation

Although only the southern section of the Highgrove Steam Plant (project footprint) is proposed for development with an approximately 200 MW BESS, the project study area includes the entire plant complex, which was recorded and evaluated as one resource. The Highgrove Steam Plant was constructed between 1951 and 1955, making it more than 50 years old. In order to determine whether the proposed project has the potential to impact historical resources under CEQA, the Highgrove Steam Plant was evaluated as a whole in consideration of CRHR designation criteria and integrity requirements. A detailed physical description of the Highgrove Steam Plant is also provided below. A complete set of State of California Department of Parks and Recreation Series 523 forms (DPR forms) is provided in Appendix B of this report.

Highgrove Steam Plant

Property Description

The proposed project site is located on a 9.86-acre parcel (APN 1167-151-77) on the site of the abandoned Cage Park (a landscaped feature of the larger Highgrove Steam Plant). Historically, the plant occupied a much larger property, which is defined for the purposes of this study as Highgrove Steam Plant (Figure 3, Highgrove Steam Plant Site Map) and includes the following APNs:

- APNs 1167-151-77, 1167-151-40, and 1167-151-41, Cage Park
- APNs 1167-151-76 and 1167-151-64, Highgrove Steam Plant
- APN 1167-151-68, Empty Lot

The Highgrove Steam Plant property includes nine components, comprising six buildings, three structures, and three areas of foundations. Surrounding the property is a chain-link fence with an additional chain-link fence in the center dividing the property in two. Cage Park can be accessed from a gate along the southern boundary of the project site off West Main Street, and the Highgrove Steam Plant is accessed on the east from Taylor Street via a paved driveway. Open grass spaces are located to the south and north of the Highgrove Steam Plant. At the southern end of the property is a series of concrete-lined canals running northeast to southwest, terminating at the southeastern corner of the project area. Multiple overgrown paths of circulation meander throughout the Cage Park parcel, and a dried-up lake filled with overgrown trees is in the northwest portion of APN 1167-151-77. Multiple metal light posts are located at the southern end of the park property. Figure 3 identifies the location of the various features of the plant property and their functions.

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SOURCE: Riverside County 2019; San Bernardino County 2020; Open Street Map 2019

DUDEK

0 150 300 Feet

FIGURE 3

Highgrove Steam Plant Site Map

Condor Energy Storage Project

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Feature 1, Gate

Feature 1, Gate, constructed circa 1955, is an arched metal pipe entry gate with the words "Cage Park" rising approximately 20 feet in height. The letters and decorative scrollwork are also constructed out of metal. The gate was originally supported by two square brick posts, the leftmost of which has been partially removed and has been replaced with a metal pole. Spanning the length of the gate are two chain-link entry gates (Exhibit 7).

Exhibit 7. Feature 1, Gate – view to north (Dudek photo file no. DSC01728)

Feature 2, Barbeque

Feature 2, Barbeque, constructed circa 1955, is rectangular in plan and is constructed of concrete masonry units. The top of the structure displays slabs of colored concrete with two open grilling stations. The Barbeque is located on a rectangular concrete foundation (Exhibit 8).

Exhibit 8. Feature 2, Barbeque – view to southwest (Dudek photo file no. DSC01712)

Feature 3, Restroom

Feature 3, Restroom, constructed circa 1955, displays as one story and rectangular in plan, with exterior walls constructed of concrete masonry units and a flat roof sheathed in rolled composition roofing. The roof's overhanging eaves display exposed wood rafter tails. Fenestration includes two metal entry doors and two openings without windows (Exhibit 9).

Exhibit 9. Feature 3, Restroom – north and east elevations, view to southwest (Dudek photo file no. DSC01704)

Feature 4, Storage Building

Feature 4, Storage Building, constructed circa 1955, displays as rectangular in plan and one and one-half stories in height. The building's exterior walls and side gable roof are sheathed in corrugated metal. The main (south) elevation displays a pair of corrugated metal sliding double doors. Fenestration includes corrugated metal sliding double doors, a corrugated metal entry door, and a metal entry door with vents (Exhibit 10).

Exhibit 10. Feature 4, Storage Building – south and east elevations, view to southwest (Dudek photo file no. DSC01935)

Feature 5, Well Number 7

Feature 5, Well Number 7, constructed circa 2014, displays as rectangular in plan and one story in height. The building's exterior walls are clad in concrete masonry units, with a front gable roof sheathed in composition shingles. The roof overhang has exposed rafter tails over the east and west elevations. The main (south) elevation displays two metal vented entry doors. Fenestration includes double metal vented doors with transom windows (Exhibit 11).

Exhibit 11. Feature 5, Well Number 7 – east and south elevations, view to west (Dudek photo file no. DSC01943)

Feature 6, Storage Shed

Feature 6, Storage Shed, constructed circa 1955 by Butler Metal Buildings, is one story in height and rectangular in plan. The building's exterior walls and side gable roof are sheathed in metal paneling. Fenestration includes double metal paneled entry doors (Exhibit 12).

Exhibit 12. Feature 6, Storage Shed – east and south elevations, view to northwest (Dudek photo file no. DSC01898)

Feature 7, Transmission Lines

Feature 7, Transmission Lines, constructed circa 1951, consists of a series of metal electric transformers and transmission lines located on the western end of the property. The structures range in height from approximately 50 to 100 feet (Exhibit 13).

Exhibit 13. Feature 7, Transmission Lines – view to north (Dudek photo file no. DSC01829)

Feature 8, Steam Plant

Feature 8, Steam Plant, constructed circa 1951, displays as a rectangular raised walkway running north to south with two rectangular two-story wings. The raised walkway is supporting by a series of metal columns. The building's exterior walls are clad in stucco, with a flat roof sheathed in rolled composition roofing. The northern end of the building displays a concrete ramp. Fenestration includes half-glass entry doors, double metal entry doors, awning windows, and fixed windows (Exhibit 14).

Exhibit 14. Feature 8, Steam Plant – view to northwest (Dudek photo file no. DSC01919)

Feature 9, Office

Feature 9, Office, constructed circa 1951 is Mid-Century Modern in style, irregular in plan, and a combination of one story and one and one-half stories in height. The building's exterior walls are clad in brick with a flat roof sheathed in rolled composition roofing, which displays a moderate overhang. The main (south) elevation displays as two sections. The left section projects approximately 16 feet from the building and displays a rectangular brick decorative element outlined with concrete. The right section displays a flat roof entry overhang supported by a brick and squared supports, a full glass entry door, and rows of fixed windows. Fenestration on the rest of building includes half-glass entry doors, casement windows, garage entry doors, and fixed windows with security bars. To the south of the building is a concrete parking lot (Exhibit 15).

Exhibit 15. Feature 9, Office – south and east elevations, view to northwest (Dudek photo file no. DSC01992)

Building Foundations

The property displays three areas of concrete and gravel-covered foundations located at the southern and northern ends of the plant (see Figure 3). The buildings were demolished between 1995 and 2010 (Exhibits 16 and 17).

Exhibit 16. Concrete Foundation – view to southeast (Dudek photo file no. DSC01684)

Exhibit 17. Gravel-Covered Foundations – view to south (Dudek photo file no. DSC01916)

Identified Alterations to the Highgrove Steam Plant

The following alterations were identified during the pedestrian survey and archival research:

- Circa 2002. Demolition of three storage tanks at northern end of property.
- Circa 2005. Demolition of an auxiliary building at the southern end of property.
- Circa 2010. Demolition of four buildings at southern end of property.
- Circa 2012. Removal of portions of the steam plant.
- 2013. Replacement of an auxiliary building at southeast corner of property.
- Unknown date. Subdivision of original lot into six smaller lots.

CRHR Statement of Significance

In consideration of the Highgrove Steam Plant's lack of significant associations and compromised integrity, it is recommended not eligible for listing in the CRHR under all criteria, based on the following significance evaluation.

CRHR Criterion 1: Associated with events that have made a significant contribution to the broad patterns of our history.

Archival research indicates that the development of the property began in 1951 when the California Electric Power Company (also known as Calectric) purchased the 35-acre site, which was previously developed as a small residence and agricultural land. A master generating unit was constructed on the site first, with two more units completed in 1952 and third and fourth units planned for later that year. The Highgrove Steam Plant represented an investment of $20 million, and with the construction of the third and fourth units, the plant was able to increase the amount of power it produced by 140,000 kilowatts per hour. The new power capacity was expected to exceed that of any other electric generating unit in the Calectric system, which included eight hydroelectric facilities in the High Sierra and from the Hoover Dam. As planned, the plant's fourth unit began construction in 1954 and was finished in November 1955. The $5,393,000 project was part of Calectric's continuing program to meet and anticipate expansion within its service area. The demands for power included industrial, military, agricultural, and domestic users in California and Nevada.

Steam power generation played an important part in California's energy production throughout the twentieth century. Despite the early dominance of hydroelectricity during the 1920s through 1940s, multiple events during the late 1920s and early 1930s gradually reversed that trend. The rapid growth in Southern California during and after World War II led to an increase in the demand for power generation and the boom in steam power plant construction throughout the 1950s. In the 1950s, Calectric was the leading force in new steam power plant construction in California, opening several new plants, including Redondo No. 2 (1952), Etiwanda (1953), El Segundo (1955), Alamitos (1956), and Huntington Beach (1958), in the greater Los Angeles area alone. In California at large, Pacific Gas & Electric Company, a competing electric company, also updated and expanded several existing plants in the 1950s, including their Kern plant (1948–1950), Contra Costa (1951–1953), Moss Landing (1950–1952), Morro Bay (1955), Hunters Point (addition 1958), Humboldt Bay (1956–1958), and Pittsburg (1959–1960).

The construction of the Highgrove Steam Plant began in 1951 and ended in 1955, during a period of rapid growth in Southern California and Calectric's period of expansion as the leading force in new steam power plant construction. The Highgrove Steam Plant represented one of the area's early investments to meet the growing demand for power in California and Nevada. Despite being an early example of the expansion of steam power plants in Southern California and representing the historic trend of utility expansion, due to subsequent demolitions and subdivisions the property can no longer convey its original 1951–1955 period of development. Starting in the 2000s, multiple buildings and structures on the site were demolished, leaving only a portion of the property's original plan and design intact. The buildings that were removed included the three circular storage tanks at the northern end of the property, multiple portions of the plant's core structure, and four large buildings at the southern end of the site. The demolished buildings and structures were key elements to identify the plant as a 1950s steam power plant and were essential in identifying it to Calectric's period of 1950s expansion throughout California.

Additionally, Cage Park was closed for use by the early 2000s, resulting in the drying up of the park's lake, overgrowth of the paths, demolition of utility buildings, and neglect of the buildings left on the site. Throughout the park's history, multiple events were held on the site, including the annual Eastern Division Picnic for current and retired employees, the Highgrove Picnic, the annual Norwegian Independence Day picnic held by the Sons of Norway, and local high school class reunions. Despite the park's being a center for social activity in Highgrove and for employees of Calectric, changes to the park's appearance since the 2000s have eliminated the park's ability to be associated with these events.

In summation, due to a lack of integrity the Highgrove Steam Plant cannot be associated with events that made a significant contribution to the broad patterns of our history. Despite being indicative of the 1950s period of utility expansion in Southern California by Calectric, the leading force in new steam power plant construction, demolitions and subdivisions have eliminated the property's ability to be associated with that period. Additionally, Cage Park can no longer be associated with the social events held on the site due to large-scale changes from its initial development in the 1950s. Therefore, the property does not appear eligible under CRHR Criterion 1.

CRHR Criterion 2: Associated with the lives of significant persons in our past.

To be found eligible under Criterion 2, the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. The Highgrove Steam Plant had associations with Calectric president Albert Cage, who was one of the primary driving forces behind the plant's construction and its expansion in the early 1950s. Despite this association, archival research failed to identify the plant as being the best representative property associated with Cage's productive life. The park was named Cage Park, likely after Albert Cage, though there is no indication that Cage had any long-term association with the park or the plant; rather, it was one of multiple projects he worked on during his 11-year-long career at Calectric. Under Cage's leadership, the company expanded its operation in many parts of San Bernardino and Riverside Counties. Due to a lack of identified significant associations with important persons in history, the Highgrove Steam Plant does not appear eligible under CRHR Criterion 2.

CRHR Criterion 3: Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The Highgrove Steam Plant does not embody distinctive characteristics of a type, period, or method of construction or represent the work of a master, and it does not possess high artistic values. The majority of the remaining

buildings and structures on the site are ubiquitous and prefabricated industrial buildings that are considered utilitarian and do not represent a particular style of architecture. These are relatively common buildings that can be found at various power plants throughout the country. Feature 9, Office, displays several character-defining features of the Mid-Century Modern style, including low, boxy, horizontal proportions; mass-produced materials; flat roof; lack of exterior decoration; simple windows and doors; and being asymmetrical in plan. Despite possessing multiple characteristics of the Mid-Century Modern style, there is no indication that this building is distinctive; on the contrary, it lacks distinction from the many buildings constructed in the 1950s in the Mid-Century Modern style. Additionally, archival research failed to reveal the designer or architect of the building. Due to the ubiquitous style for the period of construction, it is unlikely to be the work of a master and does not possess high artistic value.

The Highgrove Steam Plant was designed and constructed by Fluor, which operates as the United States' largest engineering and construction company, with offices in 25 countries. Comparing the Highgrove Steam Plant to Fluor's more notable commissions, including the Buddha Cooling tower (1921), Trans-Alaska Pipeline (1973), Minera Escondida Copper Mine project (1989), and the San Francisco–Oakland Bay Bridge (2013), the small steam plant does not rise to the level of significance of the company's other works. The Highgrove Steam Plant was one of many plants designed and built by Fluor in the oil and gas field, and within the firm's body of work does not rise to a notable level.

The Highgrove Steam Plant, upon its construction between 1951 and 1955, embodied distinctive characteristics of a steam power plant with an attached recreational park for employees. The plant's design was intended to add resistance to earthquakes, increase operating efficiency, and consequently reduce construction costs. The only enclosed spaces were the operator's control and switchgear room; the rest of the plant's components were outside. The park, known as Cage Park, included a small lake and held multiple community events, and was frequently used by Calectric employees. Despite originally possessing distinctive characteristics as a completely outdoor steam plant with an attached park, which at the time of its construction was a unique and innovative design, the Highgrove Steam Plant can no longer convey those characteristics. Starting in the 2000s, multiple buildings and structures on the site were demolished, leaving only a portion of the property's original plan and design intact. Additionally, Cage Park was closed for use by the early 2000s. Since then, the lake has dried up and become overgrown, as have most of the original paths. Through demolitions, subdivisions, and the closure of the park, the Highgrove Steam Plant's original setting as a steam plant with an associated park can no longer be conveyed.

For all of the reasons described, the Highgrove Steam Plant does not appear eligible under CRHR Criterion 3.

CRHR Criterion 4: Have yielded, or may be likely to yield, information important in history or prehistory.

There is no evidence to indicate that the Highgrove Steam Plant is likely to yield any additional information important to prehistory or history beyond what is already known. The plant is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the Highgrove Steam Plant does not appear eligible under CRHR Criterion 4.

Integrity Discussion

In addition to meeting one or more of the above criteria, an eligible resource must retain integrity, which is expressed in seven aspects: location, design, setting, materials, workmanship, feeling, and association. All properties change over the course of time. Consequently, it is not necessary for a property to retain all of its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its

historic identity. In order to retain historic integrity "a property will always possess several, and usually most, of the aspects" (Andrus and Shrimpton 1990). The following sections discuss the integrity of the Highgrove Steam Plant.

Location: The subject property retains integrity of location since the plant's construction between 1951 and 1955. The location of the buildings never shifted nor were they relocated; they maintain the physical location where the historic property was constructed between 1951 and 1955.

Design: The subject property does not retain integrity of design. The essential elements of plan, structure, and style have remained largely intact over time. Despite this, several of the conscious decisions made during the original conception and planning of the property as a site with one steam power plant and a connected park have been altered due to multiple subdivisions affecting the essential element of space. Additionally, the demolition of certain buildings has also made it hard to determine the site's original organization of space.

Setting: The subject property does not retain integrity of setting. Upon its completion between 1951 and 1955, the steam power plant displayed as one large utility property with an attached park to the south. Due to multiple subdivisions in the 2000s, the character of the property no longer reads as one cohesive property; rather, it appears as three smaller properties including the plant, the park, and the open lot to the north. Additionally, throughout the 2000s multiple buildings and structures were demolished, which further impacted the property's ability to be identified as a 1950s steam power plant. The relationship between buildings and other features, including open space, can no longer be recognized to its 1950s period of development.

Materials: The subject property does not retain integrity of materials. Since the plant's construction in the 1950s, the physical elements dating from that period of construction have been partially retained. The extant buildings on the site have undergone minimal alterations and display key exterior materials dating from the period of construction, including exterior materials, windows, and doors. Despite this, throughout the 2000s multiple buildings and structures were demolished, affecting the configuration of the property and eliminating original materials. Therefore, the subject property does not retain integrity of materials.

Workmanship: The subject property does not retain integrity of workmanship. Similar to integrity of materials, the physical evidence of skill required to construct the 1950s buildings and structures has been partially retained in the remaining buildings. However, due to a number of demolitions on the property since the 1950s the subject property does not retain integrity of workmanship.

Feeling: The subject property does not retain integrity of feeling. The property is no longer able to express itself as a working steam power plant constructed in the early 1950s. Due to the ubiquitous and utilitarian nature of the majority of the site's buildings and structures, the site is unable to be dated to a certain period of time and therefore cannot express a historic sense of a particular time. Furthermore, changes to the setting over time and subdivision of the original parcels also contribute to the property's inability to convey integrity of feeling.

Association: Finally, the subject property does not retain integrity of association. Due to a lack of integrity the plant cannot be associated with events that made a significant contribution to the broad patterns of our history. Despite being indicative of the 1950s period of utility expansion in Southern California by Calectric, the leading force in new steam power plant construction, demolitions and subdivisions have eliminated the property's ability to be associated with that period.

In summary, the Highgrove Steam Plant lacks integrity of design, setting, materials, workmanship, feeling, and association.

Summary of Evaluation Findings

The Highgrove Steam Plant is not eligible under any CRHR designation criteria at the individual level due to a lack of the requisite integrity necessary to convey significant historical associations and a lack of architectural merit.

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6 Findings and Conclusions

One built environment resource more than 45 years old was identified within the project study area: the Highgrove Steam Plant (1951–1955). The plant was recorded and evaluated for historical significance in consideration of all CRHR designation criteria. As a result of the evaluation the Highgrove Steam Plant is recommended not eligible due to a lack of the requisite integrity necessary to convey significant historical associations and a lack of architectural merit. As such, the Highgrove Steam Plant is not considered a historical resource under CEQA. Therefore, no historical resources were identified within the study area as a result of the current study. As a result, Dudek recommends a finding of less than significant impact to historical resources under CEQA.

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7 References Cited

Andrus, P.W., and R.H. Shrimpton. 1990. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Bulletin No. 15. Accessed October 2020. https://www.nps.gov/subjects/nationalregister/publications.htm.

Bancroft, H.H. 1885. *History of California, Volume III: 1825-1840*. A.L. Bancroft & Co., San Francisco.

Brown, J. Jr., and J. Boyd. 1922. *History of San Bernardino and Riverside Counties*. Volume 1. Chicago, Illinois: The Western Historical Association. Accessed January 16, 2020. https://archive.org/download/historyofsanbern01brow/historyofsanbern01brow.pdf

Cleland, R.G. 2005. *The Cattle on a Thousand Hills: Southern California, 1850–80*, second ed., sixth printing. The Huntington Library, San Marino, California.

Dallas, S.F. 1955. *The Hide and Tallow Trade in Alta California 1822–1848*. PhD dissertation; Indiana University, Bloomington.

De Atley, R.K. 2011. "Grand Terrace: Inland Area's Back-to-Future City." *The Press-Enterprise* (Riverside, California). December 5, 2011.

DS (Desert Sun). 1954. "Calectric Starts Fourth Unit at Highgrove Plant." Newspapers.com: *The Desert Sun* (Palm Springs, California), p. 7, July 22, 1954.

EI (Edison International). 2000. "SCE, Thermo Ecotek Reach Accord That Will Add Much-Needed Power to California Grid. August 31, 2000. https://newsroom.edison.com/releases/sce-thermo-ecotek-reach-accord-that-will-add-much-needed-power-to-california-grid.

Ellis, H.A. 1974. "Residents Briefed on Grand Terrace Future." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California).

FCCP (Friends of California Citrus Park). 2021. "The Gage Canal." Accessed January 27, 2021. https://www.californiacitruspark.com/gage-canal/.

Fluor (Fluor Corporation). 1954. "Annual Report 1954." Accessed January 28, 2021. https://investor.fluor.com/static-files/9f1af7b7-c4ac-4ac2-8303-ec08c4fd4721

Fluor. 2021. "History." Accessed February 4, 2021. https://www.fluor.com/about-fluor/corporate-information/history.

Gebhard, D., and R. Winter. 2003. *An Architectural Guidebook to Los Angeles*. Layton, Utah: Gibbs Smith Publishing.

GE (General Electric). 2021. "Combined Cycle Power Plant: How it Works." Accessed February 1, 2021. https://www.ge.com/power/resources/knowledge-base/combined-cycle-power-plant-how-it-works.

Google Maps. 2021. Satellite view of 21660 Main Street, Grand Terrace, California.

Gumprecht, B. 1999. *The Los Angeles River: Its Life, Death, and Possible Rebirth*. Baltimore: Johns Hopkins University Press.

Herbert, R., and A. Walters. 2006. "California Energy Commission (CEC) Cultural Resources Compliance for Demolition of the South Bay Power Plant, Chula Vista, San Diego County, California." Technical Memorandum. Accessed January 28, 2021. https://ww2.energy.ca.gov/sitingcases/southbay/documents/applicants/afc/SBRP%20AFC%20Volume%201/Section%208.3%20-%20Cultural%20Resources.pdf.

LADWP (Los Angeles Department of Water and Power). 2011. *Implementation Plan for the Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.* Prepared by LADWP, MBC Environmental Inc., and Tenera LLC. Submitted to the State Water Resources Control Board.

LAT (Los Angeles Times). 1952. "Plans Being Prepared for Power Plant Unit." Newspapers.com: *The Los Angeles Times* (Los Angeles, California), p. 158, October 26, 1952.

McAlester, V.S. 2013. *A Field Guide to American Houses: The Definitive Guide to Identifying and Understanding America's Domestic Architecture*. New York: Alfred A. Knopf.

Masters, N. 2015. "When San Bernardino Was a Mormon Colony." KCET. August 17, 2015. https://www.kcet.org/shows/lost-la/when-san-bernardino-was-a-mormon-colony.

Morgan, W. 2004. *The Abrams Guide to American House Styles*. New York: Harry N Abrams Inc.

Myers, W.A. 1986. *Iron Men and Copper Wires: A Centennial History of the Southern California Edison Company*. Glendale, California: Trans-Anglo Books.

NETR. 2021. "Historic Aerials Online." Historic Aerial Photographs of 21660 Main Street, Grand Terrace, California, dating from 1938, 1948, 1959, 1966, 1967, 1968, 1978, 1980, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed January 26, 2021. https://www.historicaerials.com/viewer.

Park, S.C. 1993. "Mothballing Historic Buildings." National Park Service Preservation Brief 31. September 1993. https://www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm.

Nyberg, M. 2014. "Thermal Efficiency of Gas-Fired Generation in California: 2014 Update." California Energy Commission Staff Paper CEC-200-2014-005. Supply Analysis Office, Energy Assessments Division, California Energy Commission. September 2014. http://www.energy.ca.gov/2014publications/CEC-200-2014-005/CEC-200-2014-005.pdf.

O'Neil, S. 2002. "The Acjachemen in the Franciscan Mission System: Demographic Collapse and Social Change." Master's thesis; California State University, Fullerton.

RDF (Redlands Daily Facts). 1952. "Welcome to Highgrove." Newspapers.com: *Redlands Daily Facts* (Redlands, California). p. 2, September 4, 1952.

RDF. 1971a. "Edison Company Sets Date for Division Picnic." Newspapers.com: *Redlands Daily Facts* (Redlands, California), p. 5, August 28, 1971.

RDF. 1971b. "A Light Picnic." Newspapers.com: *Redlands Daily Facts* (Redlands, California), p. 10, September 15, 1971.

SBCS (San Bernardino County Sun). 1952a. "Open House Set at New Calectric Plant." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 19, September 4, 1952.

SBCS. 1952b. "Welcome to Highgrove." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 5, September 10, 1952.

SBCS. 1953. "Calectric Pays $1,461,916 for Equipment." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 24, July 30, 1953.

SBCS. 1954. "Power Firm Starts 4th Generating Unit." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p 14, July 16, 1954.

SBCS. 1957. "Albert Cage Retires." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 40, July 5, 1957.

SBCS. 1965. "5-Square-Mile Area Included in Move Plan." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 25, May 20, 1965.

SBCS. 1979. "Sons of Norway." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 38, May 13, 1979.

SBCS. 1982. "Sheriff's Contract on G.T. Agenda." California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California), p. 16, March 24, 1982.

SBCS. 1993. "Class of '88." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 11, July 11, 1993.

SBS (San Bernardino Sun). 1906. "Choice Land for Sale!" California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California). p. 9, November 24, 1906.

SCEPN (Southern California Edison Photographs and Negatives). 2021. San Marino, California: Huntington Digital Library. https://hdl.huntington.org/digital/collection/p16003coll2.

SCER (Southern California Edison Records). 2009. "OAC: Southern California Edison Records, 1848–1989." The Huntington Library. http://www.huntington.org.

Steele, I.C. 1950. "Steam Power Gains on Hydro in California." *Civil Engineering* (January): 17–21.

Stern, G. 1984. "Council Seeks to Cage Another Park or Two." California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California), p. 29, July 6, 1984.

Tang, B.T., and M. Hogan. 2019. *Historical/Archaeological Resources Survey Report for the Fontana Block III Project, City of Fontana, San Bernardino County, California*. Prepared by CRM Tech for the City of Fontana Planning Division. April 2019.

UCSB (University of California, Santa Barbra). 2021. Historic Aerial Photographs of 21660 Main Street, Grand Terrace, California, dating from 1931, 1953, 1963, and 2004. Map & Imagery Laboratory (MIL) UCSB Library, Electronic Resource. Accessed January 26, 2021. http://mil.library.ucsb.edu/ap_indexes/FrameFinder.

Wall, S. 2009. "Power Plant Proposal Rejected." *The Press-Enterprise* (Riverside, California), April 7, 2009.

Waugh, J.C. 2003. *On the Brink of Civil War: The Compromise of 1850 and How It Changed the Course of American History*. Wilmington, Delaware: Scholarly Resources Inc.

Williams, J.C. 1997. *Energy and the Making of Modern California*. Akron: University of Akron Press.

Williams, J.C. 1998. *Energy and the Making of Modern California*. Akron: University of Akron Press.

Appendix A

Preparers' Qualifications

Nicole Frank, MSHP

Architectural Historian

Nicole Frank is an architectural historian with 3 years' professional experience as an architectural historian conducting historic research, writing landmark designations, performing conditions assessments and working hands-on in building restoration projects throughout the United States. Ms. Frank also has governmental experience with the City of San Francisco's Planning Department and the City of Chicago's Landmark Designations Department. She meets the Secretary of the Interior's Professional Qualification Standards for Architectural History.

Education

The School of the Art Institute of Chicago, MS
Historic Preservation, 2018

The College of Charleston, BA, Historic Preservation and Art History, 2016

Dudek Project Experience

Historical Resources Evaluation Report for the 740-790 East Green Street Mixed-Use Project, Pasadena, California (In Progress).
Dudek was retained by the City of Pasadena to complete a historical significance evaluation report for five commercial buildings located in the City of Pasadena, California (AINs 5734-025-014, 024, 026, 029, 027). The study included a pedestrian survey of the proposed project area, building development and archival research, development of an appropriate historic context for the property, and recordation and evaluation of the property for historical significance and integrity in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and local eligibility requirements. Ms. Frank acting as architectural historian updated the Pasadena historic context, conducted archival research, and wrote the significance evaluations for the five buildings over 45 years old.

Cultural Resources Technical Report for 8850 Sunset Boulevard Project, West Hollywood, California (In Progress).
Dudek was retained by the City of West Hollywood (City) to complete a Cultural Resources Technical Report for the 8850 Sunset Boulevard Project (Project). The proposed project consists of the demolition of existing buildings and the construction and operation of a new mixed-use hotel and residential building on a property along the south side of Sunset Boulevard, extending the full city block between Larrabee Street and San Vicente Boulevard, in the City of West Hollywood (project site). Acting as architectural historian Ms. Frank assisted in the completion of the technical report as the primary writer.

As Needed Historic Research Consulting Services, City of Coronado, Coronado, California (In Progress).
Acting as architectural historian, Ms. Frank was the primary writer of the historical resource evaluation reports for 936 J Avenue, 310 2nd Street, 718 B Avenue, 1027-1029 Orange Avenue, 735 Margarita Avenue, 519 Ocean Boulevard, and 1901 Monterey Avenue. Each evaluation involved creation of an occupancy timeline, supplemental research on occupants, architect/builder, and property, building development research, a pedestrian survey of the project area, a description of the surveyed resource, and completion of a historical significance evaluation report in consideration of designation criteria and integrity requirements.

City of San Diego Public Utility Department, Historical Context Report for the Dulzura Conduit, Upper Otay Dam, Murray Dam, Sutherland Dam, and Miramar Dam. City of San Diego, San Diego County, California (In Progress).

Ms. Frank served as architectural historian and author of the cultural resources report for the City of San Diego Public Utility Department. Preparation of the historical context statement involved archival research, historic context development, engineering feature development descriptions, and historical significance evaluations. Ms. Frank evaluated five resources including the Dulzura Conduit, Upper Otay Dam, Murray Dam, Sutherland Dam, and Miramar Dam.

Cultural Resources Report for the Palmetto Avenue Warehouse Project, City of Rialto, San Bernardino County, California, 2019. Dudek was retained by Patriot Development Partners to conduct a cultural resources inventory in support of the proposed Palmetto Avenue Warehouse Project (proposed Project). The Project proposes to demolish buildings on six (6) parcels in the City of Rialto, and construct an industrial/warehouse building on an approximately 4.24-acre property located at the northeast corner of Palmetto Avenue and Baseline Road. Ms. Frank acted as evaluator for three of the six properties, which were 45 years or older for historical significance.

Historical Resources Impact Assessment for Maintenance on the Morena Dam Spillway, City of San Diego, California, 2019. Ms. Frank acted as the primary author for an impacts assessment of proposed project activities including maintenance to the Morena Dam, which is considered an historical resource under CEQA and an historic property under Section 106 of the NHPA.

Historical Resources Evaluation Report for 14545 Lanark Street Project, Panorama City, California, 2019. Dudek was retained by Clifford Beers Housing, Inc. to complete a historical significance evaluation report for a property located at 14545 Lanark Street in the City of Los Angeles, California (APN: 2210-011-900). Ms. Frank served as architectural historian and authored the historical resources evaluation report for the subject property, a Public Social Services Department building constructed in 1967.

Historical Resources Technical Report for Jacumba Valley Ranch Solar Energy Park, Jacumba, California. 2019. Dudek was retained by BayWa to complete a historical resources technical report for a project that proposes to develop a solar energy project consisting of up to 90 megawatts (MW) of alternating current (ac) and a 20 MW energy storage facility that can supply electricity to indirectly reduce the need to emit greenhouse gases (GHGs). Acting as architectural historian, Ms. Frank authored a cultural resources technical report evaluating a complex of twenty dairy buildings, the Mountain Meadow Dairy and Creamery's Sunshine Ranch Complex for historical significance.

Vista E Reservoir Replacement and Pump Station Project, Vista Irrigation District, Vista, California. 2019. Dudek was retained by the Vista Irrigation District (VID) to complete a cultural resources study for a project that proposes to replace the existing oval shaped E Reservoir with a new reservoir and construct a new pump station on the existing E Reservoir site located on Edgehill Road in the County of San Diego. Acting as architectural historian, Ms. Frank authored a cultural resources technical report evaluating a 1929 reservoir in Vista, California for replacement. Ms. Frank also conducted a site survey of the property to be used in her technical report.

California State University, San Francisco Master Plan Update EIR, San Francisco, California. 2019. Acting as architectural historian, Ms. Frank participated in a survey of CSU San Francisco's Phycology and Ethnic Studies Building and conducted archival research in order to prepare an appropriate historic context for San Francisco, CSU San Francisco and the Phycology and Ethnic Studies Building. Ms. Frank conducted research on 18 buildings located on the SFSU campus, and wrote historic contexts, descriptions and lists of alterations for each.

Pacific Grand Project, Honolulu, Hawai'i County, Hawai'i, 2019. Ms. Frank acted as architectural historian, co-authoring of the reconnaissance level survey form for the Pacific Grand in Honolulu, constructed in 1968. Ms. Frank's report included building development descriptions and historical significance evaluations. The project proposed to modify an existing telecommunication equipment tower atop one of the condominium building.

City of Gilroy Historic Resource Inventory Update. Gilroy, California (In Progress). Ms. Frank participated in a City-wide architectural survey of over 3,400 buildings in Gilroy, California. Acting as surveyor, Ms. Frank utilized Dudek's architectural survey application on an iPad and recorded the features, alterations and photographs of historic-era buildings throughout the city.

1605 Industrial Avenue Warehouse Project. Cultural Resources Technical Report. San José, California. 2018. Acting as architectural historian, Ms. Frank co-authored the cultural resources technical report for the 1605 Industrial Avenue Warehouse project for the construction of an approximately 186,000-square foot industrial/warehouse building on an approximately 10.96-gross-acre property located in the northern part of the City. Preparation of the historical context statement involved archival research, building descriptions, historic context development, and historical significance evaluations.

Caltrans, Keller Road/I-215 Interchange Project, Murrieta and Menifee California, 2018. Ms. Frank acted as architectural historian, co-authoring historic resource report for the Keller Road/I-215 Interchange project for Caltrans. Preparation of the historic resource report included a site visit, archival research, historic context development of Murrieta and Menifee, building feature descriptions of six historic-era resources, and historical significance evaluations. The project proposed to construct a new full interchange and auxiliary lanes at I-215 and Keller Road in Riverside County, California.

Historic Resource Assessment for 955 Hancock Avenue, West Hollywood, CA. 2018. Ms. Frank acted as architectural historian and sole author of the historic resource report for the City of West Hollywood. Preparation of the historic resources report involved archival research, historic context development, building feature descriptions, and historical significance evaluation for a single-family craftsman residence.

California State University, Fresno, New Student Union, Fresno, California. 2018. As architectural historian, Ms. Frank authored the description of the Amphitheatre on the CSU Fresno campus for the historic resource evaluation report. Ms. Frank also prepared DPRs for the two buildings.

330 Chinquapin Avenue Project, Carlsbad, CA. 2018. Ms. Frank served as architectural historian and co-author of the cultural resources report for the 330 Chinquapin Avenue Project. Ms. Frank contributed a building development description, archival research, historical context development, and a historical significance evaluation for the residence.

California State University, Chico, Cultural Resources Report for the College Park Demolition Project, Chico, CA, 2018. As architectural historian, Ms. Frank co-authored cultural resources report for the California State University, Chico, writing ten building feature descriptions. The project proposed to demolish ten-detached single-family residences on land owned by the University.

Jefferson La Mesa Project, La Mesa, CA. 2018. Ms. Frank served as architectural historian and co-author of the historical resources evaluation report for the Jefferson La Mesa Project. Ms. Frank contributed archival research and historical context development for three automotive buildings. The project proposed to demolish three industrial automotive buildings in order to redevelop the property.

Relevant Previous Experience

Edwardian Flats Historic Context Statement, San Francisco Planning Department, San Francisco, California During the summer of 2018 was the sole writer and researcher to complete the Edwardian Flat typology context statement for the City of San Francisco.

- 80 page context statement to aid with citywide survey efforts

Cornice Restoration Project, Restoric LLC, Chicago. Illinois Served as field technician in residential cornice

restoration, project approximately 6 weeks long.

- Est. date of building construction 1920

Draft National Register Nomination, The School of the Art Institute of Chicago, Chicago, Illinois Acted as sole researcher and writer for draft NRHP nomination of the Jacques Building on Michigan Ave in Chicago, IL.

Recent Past Cook County Survey Data Clean Up, Landmarks Illinois, Chicago, IL Served as architectural historian. Conducted archival research, documented demolished buildings within survey, and generated a list of missing survey information.

- 3,756 properties in 98 municipalities individually reviewed
- 131 buildings identified as demolished since their survey date
- 25 missing architects and builders added to database

Paint and Finishes Analysis, Frances Willard House Museum and Archive, Evanston, Illinois Served as conservator. Worked with a team to determine original paint colors and finishes that correlate with room's period of significance and co-authored report of findings.

Historic American Building Survey, The School of the Art Institute of Chicago, Illinois Served as teachers assistant and illustrator of measured drawings for several sites including All Saints Episcopal Church, the Havlicek Monument, the Fountain of the Great Lakes, and the Chicago Loop Synagogue.

Publications

Frank, Nicole. 2018. "Mid-Century Glass Block: The Colored Patterned and Textured Era." Graduate Thesis. September 2018.

Presentations

"Mid-Century Glass Block: The Colored Patterned and Textured Era." 2018. Presented at the Association for Preservation Technology (APT) Annual Conference. Buffalo, New York

"Mid-Century Glass Block." 2018. Presented at the APT Western Great Lakes Chapter and DOCOMOMO US/Chicago 2018 Symposium: Preservation Challenges of Modernist Structures. Chicago, Illinois

Samantha Murray, MA

Historic Built Environment Lead / Senior Architectural Historian

Samantha Murray is a senior architectural historian with 14 years' professional experience in in all elements of cultural resources management, including project management, intensive-level field investigations, architectural history studies, and historical significance evaluations in consideration of the California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), and local-level evaluation criteria. Ms. Murray has conducted hundreds of historical resource evaluations and developed detailed historic context statements for a multitude of property types and architectural styles, including private residential, commercial, industrial, educational, medical, ranching, mining, airport, and cemetery properties, as well as a variety of engineering structures and objects. She has also provided expertise on numerous projects requiring conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Education

California State University, Los Angeles
MA, Anthropology, 2013

California State University, Northridge
BA, Anthropology, 2003

Professional Affiliations

Society of Architectural Historians

National Trust for Historic Preservation

Registered Professional Archaeologist

Ms. Murray meets the Secretary of the Interior's Professional Qualification Standards for both Architectural History and Archaeology. She is experienced managing multidisciplinary projects in the lines of transportation, transmission and generation, federal land management, land development, state and local government, and the private sector. She has experience preparing environmental compliance documentation in support of projects that fall under the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA).

Project Experience

Coronado Citywide Historic Resources Inventory and Historic Context Statement, City of Coronado, California (ongoing). Dudek is currently in the process of preparing a historic context statement and historic resources inventory (HRI) survey for all properties at least 50 years or older within city limits. Following current professional methodology standards and procedures developed by the California Office of Historic Preservation and the National Park Service (NPS), Dudek will: (1) develop a detailed historic context statement for the City that identifies and discusses the important themes, patterns of development, property types, and architectural styles prevalent throughout the city; and (2) conduct a reconnaissance-level survey of all properties within city limits that are at least 50 years old to identify individual properties and groupings of properties (i.e., historic districts) with potential for historical significance under City Criterion C (properties that possess distinctive characteristics of an architectural style; are valuable for the study of a type, period, or method of construction; and have not been substantially altered). To date, Dudek has conducted a public kick-off meeting, conducted local stakeholder outreach meetings, submitted a draft historic context statement to the City for review, and began the citywide survey component of the project. Role: project manager, principal architectural historian, co-author of historic context statement, public outreach, and presented at all public hearings.

City of Coronado As-Needed Historic Research Consultant, City of Coronado, California (ongoing). Dudek is currently working with the City of Coronado Community Development Department to provide historic preservation services on an as-needed basis. Services scoped under the current contract include historic resources surveys; archival research; preparation of evaluation reports in consideration of NRHP, CRHR, and City of Coronado designation criteria; attendance at Historic Resource Commission and City Council hearings; and reviewing projects for conformance with the Secretary of the Interior's Standards for Rehabilitation. Since January 2019, Dudek has completed nearly 16 Work Orders for the City. Role: project manager, principal architectural historian, and QA/QC of all work products.

California State University Chico Master Plan EIR, City of Chico, Butte County, California (2020). The California State University Chico Master Plan is intended to update the most recent master planning document for CSU Chico from 2005, by planning for student enrollment, faculty and staff expansions, update campus facilities, emphasize open spaces, landscapes, and walkability, and promote student life experience. Additionally the new master plan will provide for the CSU Chico College of Agriculture to provide leadership, basic and applied research opportunities, and a positive work environment for employees and students. The cultural resources study included a records search of the proposed project site plus a 0.5-mile radius; a pedestrian survey of the project site; archival and building development research for buildings located within the project site; evaluation of buildings for the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historical Landmark (CHL), and local eligibility criteria and integrity requirements; and an assessment of impacts to historical resources in compliance with CEQA and PRC Sections 5024 and 5024.5 for state-owned resources. Ms. Murray provided QA/QC of the final cultural report.

Gilroy Citywide Historic Resource Inventory, City of Gilroy, Santa Clara County, California (2020). Dudek is currently bringing to completion a citywide historic context statement and historic resources inventory update of its outdated 1986 historic resource inventory. While the final approval hearings are pending for Summer 2020, Dudek has already hosted a public kickoff meeting/outreach session that was well received by the community, successfully completed reconnaissance-level survey of over 3,000 properties on time and within budget, and completed a draft citywide historic context statement. Dudek is also preparing a Public Guide to Preservation that provides an overview of the City of Gilroy's existing policies; what it means to live in a designated property/a district-contributor; answers to commonly asked questions concerning restrictions on alterations, and clarification of common misconceptions about property owner requirements. Role: Project Manager, Principal Architectural Historian, co-author of the historic context statement, public outreach, and presented at all public hearings.

Various projects throughout Los Angeles, Los Angeles Department of Water and Power (LADWP), Locations throughout Los Angeles County and the City of Los Angeles, California (2016-present). As part of Dudek's on-call services contract with LADWP, Dudek has performed numerous historic significance evaluations of major water and power infrastructure, maintenance buildings, and offices. Projects range in scale from single structure evaluations to large-scale linear trunk line corridors involving assessment of indirect impacts to dozens of built environment resources.

Brandywine Townhomes Storm Drain Outlet to Carbon Canyon Creek Project, City of Placentia, Orange County, California (2020). Dudek was retained by Brandywine Homes and the U.S. Army Corps of Engineers to complete a cultural resources assessment report for the Carbon Canyon Creek Channel, a flood control channel which extends through Brea, Yorba Linda, and Placentia before outletting at Miller Basin. The proposed project included the construction of a reinforced concrete pipe storm drain to serve a proposed residential development at 1049 E. Golden Avenue and outlet into the channel. Preparation of the report involved field survey, archival research, historic context development, descriptions of the channel structure, and a historical significance evaluation of the Carbon Canyon Creek Channel. Dudek recommended that the channel was ineligible for listing in the NRHP, CRHR, or as a locally significant resource but may be eligible as part of a larger historic district associated with Orange County Flood Control

District flood control infrastructure, when such a district is formally identified or evaluated. Role: task manager, principal architectural historian, coordination with Army Corps, co-author of technical report, and completed QA/QC of all work products.

Olympic Well Field Restoration and Arcadia Water Treatment Plant Expansion Project, City of Santa Monica, Los Angeles County, California (2020). The project proposed to demolish several underutilized buildings and structures as part of an overarching multi-component project to add new wells to the Olympic Well Field, construct a new 16-inch pipeline connecting the Olympic Well Field to a new Olympic Advanced Water Treatment Facility, and expand the Arcadia water Treatment Plant to handle additional flows. Dudek prepared a cultural resources technical report that included site recordation, extensive archival research, historic context development, building and structure development descriptions for 25 buildings and structures at the Arcadia Water Treatment Plant and a well along Olympic Boulevard, historical significance evaluations, and DPR forms for each building and structure of the project. Role: principal architectural historian; co-author; QA/QC of final document.

Adaptive Reuse Historical Resources Impacts Assessment for the Transportation Vessels Manufacturing Facility Project, Port of Los Angeles, California (2020). Dudek prepared this report is to assess the historical resources impacts of the project evaluated within the Final Initial Study and Mitigated Negative Declaration Berth 240 Transportation Vessels Manufacturing Project dated February 2018 (LAHD 2018). The report includes the results of a site visit; review of the Proposed Revised Project description and associated improvement renderings for conformance of the Secretary of the Interior's Standards for Rehabilitation; and a detailed impacts assessment in consideration of historical resources under CEQA and LAHD's Built Environment Historic, Architectural, and Cultural Resource Policy. As a result, the adaptive reuse of five contributing buildings within the Bethlehem Shipyard Historic District were found to be in conformance with all 10 Standards for Rehabilitation and LAHD's adaptive reuse policies and with implementation of the required Mitigation and Lease Measures provided below, impacts to historical resources will be considered less than significant. Role: principal architectural historian; primary author.

Campus-wide Historic Context Statement for California State University Long Beach, City of Long Beach, Los Angeles County, California (2019). Dudek was retained by the California State University, Long Beach (CSULB) Office of Physical Planning and Sustainability to prepare a campus-wide historic context statement in order to better understand the important historical themes and potentially significant historic built environment resources that exist on campus. This study includes completion of extensive background and archival research on the history of campus development conducted at relevant local data repositories, as well as correspondence and interviews with architects from the campus's potential period of significance; and completion of a detailed historic context statement for CSULB that examines campus development and building design, landscape design, and the architects and landscape architects that have contributed to the campus over time. Ms. Murray provided QA/QC of the final work products, organized survey and research efforts, and facilitated outreach with key stakeholders.

Historic Resource Evaluation Report for the Housing Expansion Phase I – Parkside North Housing Project, California State University Long Beach (2019). Dudek evaluated the Housing and Residential Life (HRL) building in support of the Parkside North Housing Project. The report included conducting a CHRIS record search, reviewing permits, archival research, historical context development, developing building and structure descriptions, and a historical significance evaluation for the HRL office building. The project proposed to demolish the HRL building, and replace it with a new student housing building, adding 476 student dormitory beds to the CSU Long Beach campus. While the existing HRL building proposed for demolition was not yet 50 years old, it was designed by local master architect Edward Killingsworth and required consideration as a potential historical resource under CEQA. Dudek determined that the HRL building was not eligible under all applicable designation criteria due to a lack of significant associations and compromised integrity. Ms. Murray provided QA/QC of the final built environment report.

San Francisco State University Master Plan EIR (2018-2019). Dudek was retained by San Francisco State University (SFSU) Capital Planning, Design, and Construction to conduct a historic built environment study for the proposed SFSU Master Plan Update (project) environmental impact report (EIR). Only buildings more than 45 years of age and proposed for renovation or demolition were included in this historic built environment study for the proposed project. The historic built environment resources study includes the following components: (1) a CHRIS records search covering the proposed project site plus a 0.5-mile radius; (2) a pedestrian survey of the project site for built environment resource; (3) archival and building development research for buildings located within the project site; (4) the evaluation of buildings for the NRHP; CRHR, CHL, and local eligibility criteria and integrity requirements; and (5) consideration of impacts to historical resources in compliance with the CEQA and PRC Sections 5024 and 5024.5 for state-owned resources.. Ms. Murray provided QA/QC of the final technical report.

Department of General Services Historical Resource Evaluation for the Pomona Armory at 600 South Park Avenue, City of Pomona, Los Angeles County, California (2017). Dudek was retained by the State of California Department of General Services to mitigate potential adverse effects to the Pomona Armory (600 South Park Avenue), a state-owned historical resource proposed to be transferred from State-ownership to a local agency or private owner. Ms. Murray prepared a detailed significance evaluation for the property in the consideration NRHP, CRHR, CHL, and City of Pomona designation criteria and integrity requirements, and prepared a single historic landmark application for the property. The Pomona Park Armory was locally designated after unanimous approval by the Historic Resources Commission and City Council. SHPO concurred with the evaluation findings and agreed that adverse effects had been adequately mitigated with no comments.

Azusa Intermodal Parking Facility Project, Azusa, Los Angeles County, California (2012). Ms. Murray served as field director, assistant project manager, and primary report author for the intensive-level cultural resources survey and cultural resources technical report, which included evaluation of several built environment resources adjacent to an existing NRHP district. The City of Azusa proposed to construct an approximately 39-foot high, four-story parking structure, bus bays for passenger loading/unloading for layovers, and electric charging stations for patrons of the future Gold Line Foothill Extension Azusa Station. Client: Terry Hayes Associates.

Other Relevant Project Experience

San Gabriel Trench Grade Separation Project (Phases I, II, and III); Cities of San Gabriel, Alhambra, and Rosemead, Los Angeles County, California (2008–2010, 2011-2014). Prior to joining Dudek, Ms. Murray served as Archaeologist, Architectural Historian, and Osteologist throughout various stages of the project. The project consisted of conducting a cultural resources assessment for a proposed grade separation located within the cities of San Gabriel, Alhambra, and Rosemead. The proposed project would lower a 2.2 mile section of Union Pacific Railroad tracks in the immediate vicinity of the historic Mission San Gabriel Arcángel. Ms. Murray was involved in both the archaeological and architectural history components of this project. This includes the archaeological and architectural history field surveys, archaeological testing of the site and completion of over 100 DPR forms for the evaluation of built environment resources. She also served as the on-site human osteologist. Client: Terry A. Hayes Associates, LLC. Agency: Caltrans.

Appendix B

DPR Forms

State of California ♁ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 29 ***Resource Name or #:** (Assigned by recorder) Highgrove Steam Plant
P1. Other Identifier:

***P2. Location:** □ **Not for Publication** ■ **Unrestricted**

***a. County** San Bernardino **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** San Bernardino South, CA **Date** 1967 (1981 ed.) **T** 2S; **R** 4W; □ **of Sec** S6; San Bernardino **B.M.**

c. Address 2799 Taylor Street City Grand Terrace Zip 92313

d. UTM: (Give more than one for large and/or linear resources) Zone 11S , 469330 mE/ 3764666 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

Latitude:34°01'19.9"N, Longitude: 117°19'55.9"W; APNs: 1167-151-77, 1167-151-40, 1167-151-41, 1167-151-64, 1167-151-68, and 1167-151-76

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The proposed project site is located on a 9.87-acre parcel (APN 1167-151-77) on the site of the abandoned Cage Park (a landscaped feature of the larger Highgrove Steam Plant). Historically, the steam plant occupied a much larger property that is defined for the purposes of this study as Highgrove Steam Plant and includes the following APNs:(**See Continuation Sheet)**

***P3b. Resource Attributes:** (List attributes and codes) HP9. Public utility building; HP11. Engineering structure

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P4. Resources Present:** ■ Building ■ Structure □ Object □ Site □ District □ Element of District □ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) View to northwest, February 2, 2021, DSC01919

***P6. Date Constructed/Age and Source:** ■ Historic □ Prehistoric □ Both 1951-1955 (Historic Newspapers)

***P7. Owner and Address:** Southern California Edison Co. 14799 Chestnut St., Westminster, CA 92683

***P8. Recorded by:** (Name, affiliation, and address) Nicole Frank, MSHP, Dudek, 605 Third Street, Encinitas, CA 92024

***P9. Date Recorded:** 2/2/2021

***P10. Survey Type:** (Describe) Pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

Historic Resource Evaluation Report for the Condor Energy Storage Project, 21660 Main Street, Grand Terrace, California. 2021. Dudek.

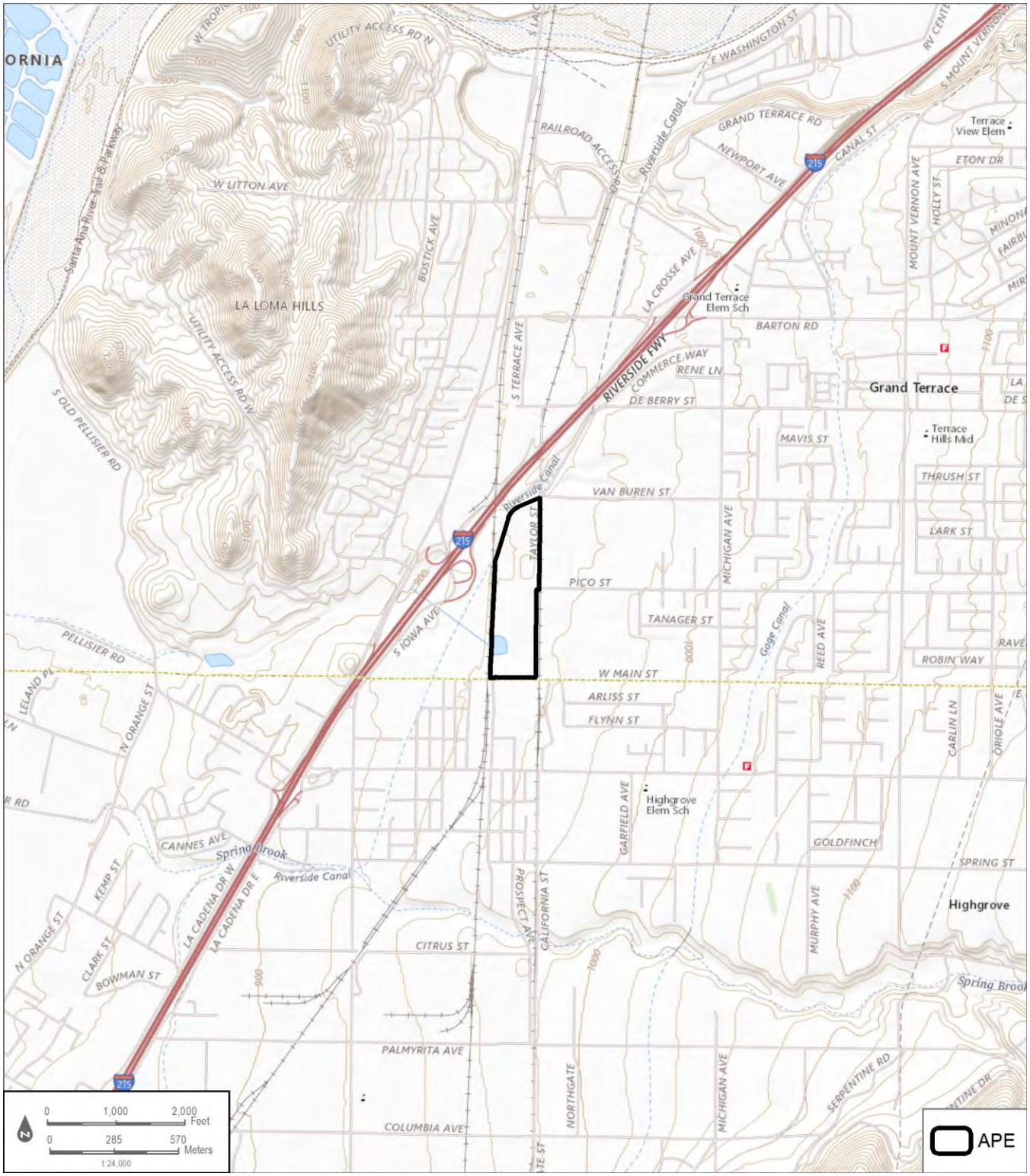
***Attachments:** □NONE ■Location Map ■Continuation Sheet ■Building, Structure, and Object Record
□Archaeological Record □District Record □Linear Feature Record □Milling Station Record □Rock Art Record
□Artifact Record □Photograph Record □ Other (List):

State of California ◆ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 29 ***Resource Name or #** (Assigned by recorder) Highgrove Steam Plant
***Map Name:** South San Bernardino, CA ***Scale:** 1:24,000 ***Date of map:** 1967 (1981 ed.)



BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Highgrove Steam Plant ***NRHP Status Code** 6Z
Page 3 **of** 29

B1. Historic Name: Highgrove Steam Power Plant
B2. Common Name: Highgrove Steam Plant
B3. Original Use: Steam power plant B4. Present Use: Vacant
***B5. Architectural Style:** Mid-Century Modern
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Constructed between 1951 and 1955. Circa 2002. Demolition of three storage tanks at northern end of property. Circa 2005. Demolition of an auxiliary building at the southern end of property. Circa 2010. Demolition of four buildings at southern end of property. Circa 2012. Removal of portions of the steam plant. 2013. Replacement of an auxiliary building at southeast corner of property. Unknown date. Subdivision of original lot into six smaller lots.

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: Engineers: Fluor Corporation b. Builder: Fluor Corporation
***B10. Significance: Theme** N/A **Area** N/A
Period of Significance N/A **Property Type** N/A **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

- APNs 1167-151-77, 1167-151-40, and 1167-151-41, Abandoned Cage Park
- APNs 1167-151-76 and 1167-151-64, Highgrove Steam Plant
- APN 1167-151-68, Empty Lot

See Continuation Sheet.

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:**

See Continuation Sheet.

B13. Remarks:

***B14. Evaluator:** Nicole Frank, MSHP
***Date of Evaluation:** February 12, 2021

(This space reserved for official comments.)

***P3a. Description (continued):**

The Highgrove Steam Plant property includes nine components, comprising six buildings, three structures, and three areas of foundations. Surrounding the property is a chain-link fence with an additional chain-link fence in the center dividing the property in two. Cage Park can be accessed from a gate along the southern boundary of the project site off West Main Street, and the Highgrove Steam Plant is accessed on the east from Taylor Street via a paved driveway. Open grass spaces are located to the south and north of the Highgrove Steam Plant. At the southern end of the property is a series of concrete-lined canals running northeast to southwest, terminating at the southeastern corner of the project area. Multiple overgrown paths of circulation meander throughout the Cage Park parcel, and a dried-up lake filled with overgrown trees is in the northwest portion of APN 1167-151-77. Multiple metal light posts are located at the southern end of the park property.

Feature 1, Gate
Feature 1, Gate, constructed circa 1955, is an arched metal pipe entry gate with the words "Cage Park" rising approximately 20 feet in height. The letters and decorative scrollwork are also constructed out of metal. The gate was originally supported by two square brick posts, the leftmost of which has been partially removed and has been replaced with a metal pole. Spanning the length of the gate are two chain-link entry gates (Exhibit 1).

Feature 2, Barbeque
Feature 2, Barbeque, constructed circa 1955, is rectangular in plan and is constructed of concrete masonry units. The top of the structure displays slabs of colored concrete with two open grilling stations. The Barbeque is located on a rectangular concrete foundation (Exhibit 2).

Feature 3, Restroom
Feature 3, Restroom, constructed circa 1955, displays as one story and rectangular in plan, with exterior walls constructed of concrete masonry units and a flat roof sheathed in rolled composition roofing. The roof's overhanging eaves display exposed wood rafter tails. Fenestration includes two metal entry doors and two openings without windows (Exhibit 3).

Feature 4, Storage Building
Feature 4, Storage Building, constructed circa 1955, displays as rectangular in plan and one and one-half stories in height. The building's exterior walls and side gable roof are sheathed in corrugated metal. The main (south) elevation displays a pair of corrugated metal sliding double doors. Fenestration includes corrugated metal sliding double doors, a corrugated metal entry door, and a metal entry door with vents (Exhibit 4).

Feature 5, Well Number 7
Feature 5, Well Number 7, constructed circa 2014, displays as rectangular in plan and one story in height. The building's exterior walls are clad in concrete masonry units, with a front gable roof sheathed in composition shingles. The roof overhang has exposed rafter tails over the east and west elevations. The main (south) elevation displays two metal vented entry doors. Fenestration includes double metal vented doors with transom windows (Exhibit 5).

Feature 6, Storage Shed

Feature 6, Storage Shed, constructed circa 1955 by Butler Metal Buildings, is one story in height and rectangular in plan. The building's exterior walls and side gable roof are sheathed in metal paneling. Fenestration includes double metal paneled entry doors (Exhibit 6).

Feature 7, Transmission Lines

Feature 7, Transmission Lines, constructed circa 1951, consists of a series of metal electric transformers and transmission lines located on the western end of the property. The structures range in height from approximately 50 to 100 feet (Exhibit 7).

Feature 8, Steam Plant

Feature 8, Steam Plant, constructed circa 1951, displays as a rectangular raised walkway running north to south with two rectangular two-story wings. The raised walkway is supporting by a series of metal columns. The building's exterior walls are clad in stucco, with a flat roof sheathed in rolled composition roofing. The northern end of the building displays a concrete ramp. Fenestration includes half-glass entry doors, double metal entry doors, awning windows, and fixed windows (Exhibit 8).

Feature 9, Office

Feature 9, Office, constructed circa 1951 is Mid-Century Modern in style, irregular in plan, and a combination of one story and one and one-half stories in height. The building's exterior walls are clad in brick with a flat roof sheathed in rolled composition roofing, which displays a moderate overhang. The main (south) elevation displays as two sections. The left section projects approximately 16 feet from the building and displays a rectangular brick decorative element outlined with concrete. The right section displays a flat roof entry overhang supported by a brick and squared supports, a full glass entry door, and rows of fixed windows. Fenestration on the rest of building includes half-glass entry doors, casement windows, garage entry doors, and fixed windows with security bars. To the south of the building is a concrete parking lot (Exhibit 9).

Building Foundations

The property displays three areas of concrete and gravel-covered foundations located at the southern and northern ends of the plant. The buildings were demolished between 1995 and 2010 (Exhibits 10 and 11).

Identified Alterations to the Highgrove Steam Plant

The following alterations were identified during the pedestrian survey and archival research:

Circa 2002. Demolition of three storage tanks at northern end of property.
Circa 2005. Demolition of an auxiliary building at the southern end of property.
Circa 2010. Demolition of four buildings at southern end of property.
Circa 2012. Removal of portions of the steam plant.
2013. Replacement of an auxiliary building at southeast corner of property.
Unknown date. Subdivision of original lot into six smaller lots.

***B10. Significance (continued):**

Historical Period Overview

Post-Contact history for the State of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–

present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, signals the beginning of the American Period, when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers conducted sailing expeditions along the coast of Southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríguez Cabrillo stopped in 1542 at present-day San Diego Bay. With his crew, Cabrillo explored the shorelines of present-day Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabrillo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

More than 200 years passed before Spain began the colonization and inland exploration of Alta (upper) California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the king of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring Southern California, Franciscan friar Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823 (Bancroft 1885; Gumprecht 1999).

The Portolá expedition first reached the present-day boundaries of Los Angeles in August 1769, thereby becoming the first Europeans to visit the area. Father Crespi named "the campsite by the river Nuestra Señora la Reina de los Angeles de la Porciúncula" or "Our Lady the Queen of the Angeles of the Porciúncula." Two years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, the Mission San Gabriel Arcángel, on September 8, 1771 (O'Neil 2002). Mission San Fernando Rey de España was established nearly 30 years later, on September 8, 1797.

Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to convert the Native American population to Christianity and integrated communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; however, just three pueblos were established during the Spanish Period, only two of which were successful and grew into California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955; O'Neil 2002).

Extensive land grants were established in the interior during the Mexican period, in part to increase the population inland from the more settled coastal areas where the Spanish first concentrated their colonization efforts. However, no Ranchos were established that overlapped the project site. The Cities of Fontana and Rialto fell outside the extent of the Ranchos. The closest Ranchos were the 13,000-acre Cucamonga Rancho, awarded to Tiburcio Tapia in 1839, to the west; Rancho San Bernardino, awarded to José del Carmen Lugo, José María Lugo, Vicente Lugo, and Diego Sepulveda in 1842, to the east; and Rancho Jurupa, awarded to Juan Bandini in 1838, to the south (Bancroft 1885; Dallas 1955).

During the supremacy of the Ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of non-native inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities (Dallas 1955).

American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident *Californios* and Americans in the San Bernardino area. The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American period. California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the Rancho system, continued to dominate the Southern California economy through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the cattle boom of the 1850s, Rancho vaqueros drove large herds from Southern to Northern California to feed the region's burgeoning mining and commercial boom. The cattle boom ended for Southern California as neighboring states and territories drove herds to Northern California at reduced prices. Operation of the huge Ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005).

Historical Overview of Grand Terrace

As early as 1819, San Bernardino County had been settled by Europeans, after the Asistencia San Bernardino was established to serve Mission San Gabriel. Throughout the 1850s, Mormon settlers began arriving in the San Bernardino Valley and in 1851 colonists purchased Rancho San Bernardino from the Lugo family and built Fort San Bernardino. The County was established in 1853, created from portions of Los Angeles County, San Diego County, and Mariposa County. In 1854, the City of San Bernardino incorporated as the County seat and by 1856 San Bernardino had a population of nearly 3,000. Development in the area was further encouraged with the establishment of the Southern Pacific Railroad between Yuma, Arizona, and Los Angeles in 1877 and the expansion of the Atchison, Topeka and Santa Fe Railway with the addition of a line from Barstow to San Diego in 1885 and a line to Los Angeles in 1887. The Southern Pacific Railroad line passed through what would eventually become Grand Terrace, prompting land speculation in the area (Brown and Boyd 1922; Tang and Hogan 2019; Masters 2015).

In 1876, there were nine buildings reported in the Terrace–Colton area. Initially the

area to the south of San Bernardino was called "the Terrace," with the word "Grand" added around 1898 due to the beautiful views surrounding the City. The Grand Terrace–Highgrove area, also known as East Riverside, furthered its development with the construction of the Gage Canal between 1885 and 1889. The canal was financed by Matthew Gage, a Canadian jeweler. To fulfill a claim for 640 acres under the Desert Land Act of 1877, Gage had 3 years to bring water to the land. The canal Gage financed in fulfillment of the claim began 11.91 miles from the Santa Ana River and was later extended by another 8.22 miles through Grand Terrace. The canal doubled citrus production in the area and established Grand Terrace as a large producer of citrus (FCCP 2021).

In 1906, 300 acres of the Grand Terrace tract within the Highgrove District was for sale by local landowner M.L. Howell. The land was bounded on three sides by orange groves, with an abundance of water. A trolley line from Colton to Riverside passed through Grand Terrace and provided prospective land buyers access to the area (SBS 1906). Citrus groves dominated the agriculturally based economy until 1913, when a devastating freeze caused many to replace their citrus groves with hardier walnut trees and peaches as quick-profit crops. Despite the economic setback, Grand Terrace continued as an agricultural enclave between two growing cities, Riverside and San Bernardino. The community's social activities in the 1900s focused on the Farm Bureau Extension Service and the Woman's Club. There were no local churches, so residents traveled to surrounding communities for worship and other communal events. Residential development was primarily focused on the community's west side after the construction of the Barton Road offramp from Interstate 215 in the 1950s. This access allowed for the construction of both residential tracts and custom-built dwellings farther east abutting the City's eastern terminus, Blue Mountain (De Atley 2011).

Grand Terrace looked to preserve its local identity through the organization of the Grand Terrace Chamber of Commerce in 1962. One of the group's main concerns was pushing for cityhood, which led to the formation of a local governing body in 1976. This body, known as the Municipal Advisory Council, underwent negotiations and meetings with the County, resulting in a vote by residents to become a city. On November 30, 1978, the Charter City Council was created, and Grand Terrace became San Bernardino County's 16th City. By the 1970s, the agricultural and citrus industry was on the decline, with the majority of farmers unable to operate under adverse economic conditions, including financial hardship caused by having to replant more smog-resistant citrus tree varieties (Ellis 1974). Agricultural fields continued to be replaced with residential tracts and by 1980, the population had risen to 8,498. The City's manufacturing and industrial-zoned properties were concentrated on the western side near the Atchison, Topeka and Santa Fe Railway and Southern Pacific Railroad tracks. Grand Terrace's population continued to increase, with just over 12,000 people living in the 3.5-square-mile City by 2011. Despite losing the majority of the area's agricultural land, Grand Terrace was able remain a small town in the shadow of two larger urban neighbors (De Atley 2011).

Development History of the Project Site

The APE comprises the historic boundary of the Highgrove Steam Plant, which was constructed in 1951 when the California Electric Power Company (also known as Calectric) purchased the 35-acre site previously developed as a small residence and agricultural land (NETR 2021; SCER 2009). The plant was located between Riverside and San Bernardino, surrounded by orange groves and small ranches. A master generating unit was constructed on the site first with two more units completed in 1952 and third and fourth units planned for later that year. The Highgrove Steam Plant represented an investment of $20 million, and with the construction of the third and fourth units, the plant was able to increase the amount of power it produced by 140,000 kilowatts per hour. The new power capacity was expected

to exceed that of any other electric generating unit in the Calectric system, which included eight hydroelectric facilities in the High Sierra and from the Hoover Dam (LAT 1952).

Steam power generation played an important part in California's energy production throughout the twentieth century. Despite the early dominance of hydroelectricity during the 1920s through 1940s, multiple events during the late 1920s and early 1930s gradually reversed that trend. These events included an extended drought throughout California; a greater than ninefold increase in the fuel efficiency of steam power plants; and construction of several new natural gas pipelines to supply natural gas to Northern and Southern California (Williams 1998). The rapid growth in Southern California during and after World War II led to an increase in the demand for power generation. The general design criteria for steam power plants at the time included reducing transmission costs by constructing facilities close to load centers, ensuring proximity to fuel supplies and a water source, and choosing a site suitable for a good, solid foundation. Steam power plants were also designed to be expanded when market conditions dictated such was necessary (Steele 1950).

In the 1950s, Calectric was the leading force in new steam power plant construction in California, opening several new plants, including Redondo No. 2 (1952), Etiwanda (1953), El Segundo (1955), Alamitos (1956), and Huntington Beach (1958), in the greater Los Angeles area alone. In California at large, Pacific Gas & Electric Company, a competing electric company, also updated and expanded several existing plants in the 1950s, including their Kern plant (1948–1950), Contra Costa (1951–1953), Moss Landing (1950–1952), Morro Bay (1955), Hunters Point (addition 1958), Humboldt Bay (1956–1958), and Pittsburg (1959–1960) (Fluor 1954; Herbert and Walters 2006; Myers 1986; RDF 1952).

As a completely outdoor facility, the Highgrove Steam Plant represented a change in steam power plant design (Exhibit 1). This was done to add resistance to earthquakes, increase operating efficiency, and consequently reduce construction costs. All four of the Highgrove Steam Plant units were designed and constructed by the Fluor Corporation (Fluor), headquartered in Los Angeles. The only enclosed spaces were the operator's control and switchgear room, with the rest of the plant's components located outside. This attracted the interest of power production engineers across the United States and from several foreign countries. A total of 6,309 cubic yards of concrete went into the construction of the first two units. A total of 16.2 miles of pipe was used in the project and 3,074 valves were installed. Splashproof motors were used on all auxiliaries apart from the cooling tower fans, which were driven by totally enclosed, fan-cooled motors. To generate electricity, fuel was burned in a boiler to turn water into steam. The steam, under high pressure, would be directed against the blades or fins of a steam turbine, which caused the turbine shaft to turn. A magnet fastened to the shaft of the turbine then revolved inside a coil of wire known as the generator, and electricity was produced (SBCS 1952a; 1952b; 1954; LAT 1952).

In 1952, Calectric made a point of opening the facility to the public between September 10 and 12, with guided tours for viewing the facility between 10 a.m. and 4 p.m. Civic and state officials, engineering authorities, and industrial leaders were invited to join in observing the operations at the Highgrove Steam Plant, which at the time was called one of "the newest and most modern steam electric generating installations" (SBCS 1952a) (Exhibit 2). Calectric's then-president, Albert Cage, was one of the primary driving forces behind the Highgrove Steam Plant's construction and continued to work toward its expansion. Cage was a pioneer in the development of the Southern Sierras Power Co. and served as Calectric's president for 11 years until his retirement in 1957. Under Cage's leadership the company expanded its operation to many parts of San Bernardino and Riverside

Counties. It was under Cage's leadership that it was decided that the company's headquarters must be located within the community it serves. Cage also pioneered the installation of steam generator plants for Calectric, including the Highgrove Steam Plant (SBCS 1957).

In 1953, the company paid the General Electric Corporation $1,461,816.15, the biggest single check for equipment ever written by Calectric for the turbine-generator, switchgear, and other equipment manufactured by General Electric Corporation for the Highgrove Steam Plant's third unit (Exhibit 3) (SBCS 1953). Construction began as planned on the plant's fourth unit in 1954 and was finished in November 1955. The $5,393,000 project was part of Calectric's continuing program to meet and anticipate expansion within its service area. The demands for power included industrial, military, agricultural, and domestic users in California and Nevada. Completion of the new unit increased the Highgrove Steam Plant's total output to more than 140,000 kilowatts (DS 1954; SBCS 1952a).

In addition to the machinery and outbuildings for the generation of steam power, the Highgrove Steam Plant site also featured a park with a small lake at its southwest corner fronting Main Street (Exhibit 4). The park was named Cage Park and is assumed to have been named after the then-president of Calectric, Albert Cage. Cage Park was privately owned by Calectric; members of the public had to reserve use of it through an employee. Events held at the park included the annual Eastern Division Picnic for current and retired employees; the Highgrove Picnic; the annual Norwegian Independence Day picnic held by the Sons of Norway, Soldalen Lodge No. 67; and local high school class reunions (RDF 1971a, 1971b; SBCS 1979, 1993). In 1982, the Grand Terrace Parks and Recreation Committee recommended that the City purchase Cage Park to be used for the public after SCE expressed interest in selling the property. Two years later, the City Council directed then Community Services Director Randy Anstine to negotiate with SCE to purchase Cage Park (SBCS 1982; Stern 1984). The park continued to be used by the community as a site for fundraisers, concerts, and celebrations into the early 2000s.

In 1964, Calectric merged with SCE, which is based in Rosemead, California. Through this merger, SCE gained access to Calectric's 450,000 customers and 41,500-square-mile territory, including the Highgrove Steam Plant (SCER 2009). By 1965, the Grand Terrace Chamber of Commerce had authorized the proceedings toward an election on proposed incorporation. The proposed area of incorporation was 5 square miles, with the County line to the south and the Colton City limits to the north as boundaries. Included in the annexation was the Highgrove Steam Plant and Vista Substation facilities owned by SCE (SBCS 1965). SCE eventually became the largest electric utility in California and one of the largest investor-owned electric utilities in the United States, serving more than 13 million people in 15 counties of central, coastal, and southern California (SCER 2009).

Starting in the 1970s, a shift toward renewable energy resources began. Despite this, Southern California had more than 20 fossil-fuel-based steam power plants between San Francisco and San Diego. However, the power generated by aging plants (i.e., those built before the 1980s) had steadily decreased since 2001, with the slack being picked up by newer, more efficient combined-cycle power plants. Between 2001 and 2013, eight of these aging fuel-fired power plants were closed. During the same period, the number of combined-cycle power plants increased from 2 to 34. Combined-cycle power plants use gas and steam turbines together to produce up to 50% more electricity than a traditional simple-cycle plant. This is accomplished through using the waste heat from the gas turbine and rerouting it to a nearby steam turbine, which generates extra power. Many of the aging power plants underwent modernization projects in the 2000s to convert them from once-through cooling systems to combined-cycle systems or fast-start natural gas combustion turbines that use "dry cooling" technology (GE 2021; LADWP 2011; Nyberg 2014; Williams

1997).

The Highgrove Steam Plant continued to function as an SCE steam power plant until 1998, when SCE sold the plant to Thermo Ecotek, a division of Thermo Electron Corp. of Waltham, Massachusetts. This was done as part of California's restructuring of the electric utility industry. The $9.5 million agreement included the Highgrove and San Bernardino plants. The Highgrove Steam Plant was operated by Riverside Canal Power Company, a Thermo Ecotek subsidiary, and had the capacity to produce enough power to serve approximately 100,000 homes. In 2000, to help alleviate the California electric generation shortfall, SCE reached an agreement with Thermo Ecotek to allow the utility to lease and return the Highgrove Steam Plant to full operation after being placed on standby status in 1999 (EI 2000). In 2001, the AES Corporation (AES) purchased the power plant from Thermo Ecotek. AES had its headquarters in Arlington, Virginia, and was one of the world's leading power companies, operating in 15 countries. Soon afterward, the power plant was mothballed, which entails closing up a building or site temporarily to protect it from the weather and secure it from vandalism. In 2009, AES made plans to build and operate a 300 MW power plant on the site, but the project did not go through because it could not meet deadlines for moving the project forward (Wall 2009; NPS 1993).

By 2010, multiple buildings on the power plant site began to be removed, including the four buildings at the southern end of the property, and 2 years later the majority of the plant's equipment was removed (Exhibit 5). The lake at Cage Park was not maintained and by the mid-2000s had dried up and become overgrown with trees. The park's paths of circulation also became overgrown and access to the plant was restricted. Subdivisions during this period resulted in the large plant facility being divided into six separate parcels. The Highgrove Steam Plant and Cage Park were sectioned off from each other with fences, and both remained closed into the 2010s (Exhibit 6) (NETR 2021).

Architectural Style: Mid-Century Modern (1933-1965)

Mid-Century Modern style is reflective of International and Bauhaus styles popular in Europe in the early twentieth century. This style and its living designers (e.g., Mies Van der Rohe and Gropius) were disrupted by WWII and moved to the United States. During WWII, the United States established itself as a burgeoning manufacturing and industrial leader, with incredible demand for modern buildings to reflect modern products in the mid-twentieth century. As a result, many industrial buildings are often "decorated boxes"—plain buildings with applied ornament to suit the era and appear more modern, without detracting from the importance of the activity inside the building. Following WWII, the United States had a focus on forward thinking, which sparked architectural movements like Mid-Century Modern. Practitioners of the style were focused on the most cutting-edge materials and techniques. Architects throughout Southern California implemented the design aesthetic made famous by early Modernists like Richard Neutra and Frank Lloyd Wright, who created a variety of modern architectural forms throughout Southern California. Like other buildings of this era, Mid-Century Modern buildings had to be quickly assembled and use modern materials that could be mass-produced (McAlester 2013; Morgan 2004).

Key character-defining features of the Mid-century Modern style include (McAlester 2013; Morgan 2004; Gebhard and Winter 2003):

- Low, boxy, horizontal proportions
- Mass-produced materials
- Flat, smooth sheathing
- Flat roofed without coping at roof line; flat roofs hidden behind parapets
- Lack of exterior decoration or abstract geometrical motif

- Simple windows (metal or wood)
- Industrially plain doors
- Large window groupings
- Commonly asymmetrical
- Whites, buffs, and pale pastel colors

Engineer and Designer: Fluor Corporation (1912-Present)

In 1912, John Simon "Si" Fluor, a Swiss immigrant, founded the Fluor Construction Company (Fluor) in Santa Ana, California. The company began as a general contracting firm and quickly gained a reputation for both quality and innovation. By 1915, the company was hired by the Southern California Gas Company to build meter shops and an office building. Fluor continued to gain recognition and expanded its services in the 1920s into the oil and gas field, building plants and patenting technologies. The firm grew quickly and by 1930 had its first major project outside California. By 1947, Fluor had taken its services overseas with its expansion of Aramco facilities into Saudi Arabia. Fluor offices began opening around the world, including Canada, the Netherlands, England, and China. After diversifying into oil drilling and coal mining in the 1960s, a global recession in the oil and gas industry in the 1980s led to Fluor selling its oil operations and expanding its construction work into a broader range of services. In the 1990s new services, including equipment rentals, staffing, and nuclear waste cleanup projects, became a significant portion of Fluor's revenues. Some of the company's most notable projects include the Buddha Cooling Tower, a water-cooling tower named after the Buddhist shrine it resembles (1921), the Trans-Alaska Pipeline (1973), and construction of the Gordie Howe International Bridge connecting Detroit and Ontario (2018). The company continues to operate as the largest engineering and construction company in the Fortune 500 rankings, with offices in 25 countries (Fluor 2021).

Notable commissions and innovative designs of the Fluor Corporation (Fluor 2021):

- Buddha Cooling Tower, 1921
- Air-Cooled Muffler and Gas Cleaner, 1926
- Carter Oil Refinery, Montana, 1946
- Titan II Missile Complex, 1961
- Trans-Alaska Pipeline, Alaska, 1973
- Minera Escondida Copper Mine Project, Chile, 1989
- CETAC RIE, Iraq, 2003
- San Francisco–Oakland Bay Bridge, 2013
- Gordie Howe International Bridge, United States and Canada, 2018
- Los Angeles International Airport Automated People Mover, Los Angeles, 2019
- CTA Red and Purple Line Modernization Program, Chicago, 2019

NRHP/CRHR Statement of Significance

In consideration of the Highgrove Steam Plant's lack of significant associations and compromised integrity, it is recommended not eligible for listing in the NRHP and CRHR under all criteria, based on the following significance evaluation.

NRHP/CRHR Criterion A/1: associated with events that have made a significant contribution to the broad patterns of our history

Archival research indicates that the development of the property began in 1951 when the California Electric Power Company (also known as Calectric) purchased the 35-acre site, which was previously developed as a small residence and agricultural land. A

master generating unit was constructed on the site first, with two more units completed in 1952 and third and fourth units planned for later that year. The Highgrove Steam Plant represented an investment of $20 million, and with the construction of the third and fourth units, the plant was able to increase the amount of power it produced by 140,000 kilowatts per hour. The new power capacity was expected to exceed that of any other electric generating unit in the Calectric system, which included eight hydroelectric facilities in the High Sierra and from the Hoover Dam. As planned, the plant's fourth unit began construction in 1954 and was finished in November 1955. The $5,393,000 project was part of Calectric's continuing program to meet and anticipate expansion within its service area. The demands for power included industrial, military, agricultural, and domestic users in California and Nevada.

Steam power generation played an important part in California's energy production throughout the twentieth century. Despite the early dominance of hydroelectricity during the 1920s through 1940s, multiple events during the late 1920s and early 1930s gradually reversed that trend. The rapid growth in Southern California during and after World War II led to an increase in the demand for power generation and the boom in steam power plant construction throughout the 1950s. In the 1950s, Calectric was the leading force in new steam power plant construction in California, opening several new plants, including Redondo No. 2 (1952), Etiwanda (1953), El Segundo (1955), Alamitos (1956), and Huntington Beach (1958), in the greater Los Angeles area alone. In California at large, Pacific Gas & Electric Company, a competing electric company, also updated and expanded several existing plants in the 1950s, including their Kern plant (1948–1950), Contra Costa (1951–1953), Moss Landing (1950–1952), Morro Bay (1955), Hunters Point (addition 1958), Humboldt Bay (1956–1958), and Pittsburg (1959–1960).

The construction of the Highgrove Steam Plant began in 1951 and ended in 1955, during a period of rapid growth in Southern California and Calectric's period of expansion as the leading force in new steam power plant construction. The Highgrove Steam Plant represented one of the area's early investments to meet the growing demand for power in California and Nevada. Despite being an early example of the expansion of steam power plants in Southern California and representing the historic trend of utility expansion, due to subsequent demolitions and subdivisions the property can no longer convey its original 1951–1955 period of development. Starting in the 2000s, multiple buildings and structures on the site were demolished, leaving only a portion of the property's original plan and design intact. The buildings that were removed included the three circular storage tanks at the northern end of the property, multiple portions of the plant's core structure, and four large buildings at the southern end of the site. The demolished buildings and structures were key elements to identify the plant as a 1950s steam power plant and were essential in identifying it to Calectric's period of 1950s expansion throughout California.

Additionally, Cage Park was closed for use by the early 2000s, resulting in the drying up of the park's lake, overgrowth of the paths, demolition of utility buildings, and neglect of the buildings left on the site. Throughout the park's history, multiple events were held on the site, including the annual Eastern Division Picnic for current and retired employees, the Highgrove Picnic, the annual Norwegian Independence Day picnic held by the Sons of Norway, and local high school class reunions. Despite the park's being a center for social activity in Highgrove and for employees of Calectric, changes to the park's appearance since the 2000s have eliminated the park's ability to be associated with these events.

In summation, due to a lack of integrity the Highgrove Steam Plant cannot be associated

with events that made a significant contribution to the broad patterns of our history. Despite being indicative of the 1950s period of utility expansion in Southern California by Calectric, the leading force in new steam power plant construction, demolitions and subdivisions have eliminated the property's ability to be associated with that period. Additionally, Cage Park can no longer be associated with the social events held on the site due to large-scale changes from its initial development in the 1950s. Therefore, the property does not appear eligible under NRHP Criterion A or CRHR Criterion 1.

NRHP/CRHR Criterion B/2: associated with the lives of significant persons in our past.

To be found eligible under B/2 the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. The Highgrove Steam Plant had associations with Calectric president Albert Cage, who was one of the primary driving forces behind the plant's construction and its expansion in the early 1950s. Despite this association, archival research filed to identify the plant as being the best representative property associated with Cage's productive life. The park was named Cage Park, likely after Albert Cage, though there is no indication that Cage had any long-term association with the park or the plant rather it was one of multiple projects he worked on during his 11 year long career at Calectric. Under Cage's leadership, the company expanded its operation in many parts of San Bernardino and Riverside Counties. Due to a lack of identified significant associations with important persons in history, the Highgrove Steam Plant does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP/CRHR Criterion C/3: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

The Highgrove Steam Plant does not embody distinctive characteristics of a type, period, or method of construction or represent the work of a master, and it does not possess high artistic values. The majority of the remaining buildings and structures on the site are ubiquitous and prefabricated industrial buildings that are considered utilitarian and do not represent a particular style of architecture. These are relatively common buildings that can be found at various power plants throughout the country. Feature 9, Office, displays several character-defining features of the Mid-Century Modern style, including low, boxy, horizontal proportions; mass-produced materials; flat roof; lack of exterior decoration; simple windows and doors; and being asymmetrical in plan. Despite possessing multiple characteristics of the Mid-Century Modern style, there is no indication that this building is distinctive; on the contrary, it lacks distinction from the many buildings constructed in the 1950s in the Mid-Century Modern style. Additionally, archival research failed to reveal the designer or architect of the building. Due to the ubiquitous style for the period of construction, it is unlikely to be the work of a master and does not possess high artistic value.

The Highgrove Steam Plant was designed and constructed by Fluor, which operates as the United States' largest engineering and construction company, with offices in 25 countries. Comparing the Highgrove Steam Plant to Fluor's more notable commissions, including the Buddha Cooling tower (1921), Trans-Alaska Pipeline (1973), Minera Escondida Copper Mine project (1989), and the San Francisco–Oakland Bay Bridge (2013), the small steam plant does not rise to the level of significance of the company's other works. The Highgrove Steam Plant was one of many plants designed and built by Fluor in the oil and gas field, and within the firm's body of work does not rise to a notable level.

The Highgrove Steam Plant, upon its construction between 1951 and 1955, embodied distinctive characteristics of a steam power plant with an attached recreational park for employees. The plant's design was intended to add resistance to earthquakes, increase operating efficiency, and consequently reduce construction costs. The only enclosed spaces were the operator's control and switchgear room; the rest of the plant's components were outside. The park, known as Cage Park, included a small lake and held multiple community events, and was frequently used by Calectric employees. Despite originally possessing distinctive characteristics as a completely outdoor steam plant with an attached park, which at the time of its construction was a unique and innovative design, the Highgrove Steam Plant can no longer convey those characteristics. Starting in the 2000s, multiple buildings and structures on the site were demolished, leaving only a portion of the property's original plan and design intact. Additionally, Cage Park was closed for use by the early 2000s. Since then, the lake has dried up and become overgrown, as have most of the original paths. Through demolitions, subdivisions, and the closure of the park, the Highgrove Steam Plant's original setting as a steam plant with an associated park can no longer be conveyed.

For all of the reasons described, the Highgrove Steam Plant does not appear eligible under NRHP Criterion C or CRHR Criterion 3.

NRHP/CRHR Criterion D/4: have yielded, or may be likely to yield, information important in history or prehistory.

There is no evidence to indicate that the Highgrove Steam Plant is likely to yield any additional information important to prehistory or history beyond what is already known. The plant is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the Highgrove Steam Plant does not appear eligible under NRHP Criterion D or CRHR Criterion 4.

Integrity Discussion

In addition to meeting one or more of the above criteria, an eligible resource must retain integrity, which is expressed in seven aspects: location, design, setting, materials. workmanship, feeling, and association. All properties change over the course of time. Consequently, it is not necessary for a property to retain all of its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its historic identity. In order to retain historic integrity "a property will always possess several, and usually most, of the aspects" (Andrus and Shrimpton 2002). The following sections discuss the integrity of the Highgrove Steam Plant.

Location: The subject property retains integrity of location since the plant's construction between 1951 and 1955. The location of the buildings never shifted nor were they relocated; they maintain the physical location where the historic property was constructed between 1951 and 1955.

Design: The subject property does not retain integrity of design. The essential elements of plan, structure, and style have remained largely intact over time. Despite this, several of the conscious decisions made during the original conception and planning of the property as a site with one steam plant and a connected park have been altered due to multiple subdivisions affecting the essential element of space. Additionally, the demolition of certain buildings has also made it hard to determine the site's original organization of space.

Setting: The subject property does not retain integrity of setting. Upon its completion between 1951 and 1955 the steam power plant displayed as one large utility property with and attached park to the south. Due to multiple subdivisions in the 2000s, the character of the property no longer reads as one cohesive property rather as three smaller properties including the plant, the park, and the open lot to the north. Additionally, throughout the 2000s multiple buildings and structures were demolished, which further impacted the property's ability to be identified as a 1950s steam plant. The relationship between buildings and other features, including open space, can no longer be recognized to its 1950s period of development.

Materials: The subject property does not retain integrity of materials. Since the plant's construction in the 1950s, the physical elements dating from that period of construction have been partially retained. The extant buildings on the site have undergone minimal alterations and display key exterior materials dating from the period of construction including exterior materials, windows, and doors. Despite this, throughout the 2000s multiple buildings and structures were demolished, affecting the configuration of the property, and eliminating original materials. Therefore, the subject property does not retain integrity of materials.

Workmanship: The subject property does not retain integrity of workmanship. Similar to integrity of materials, the physical evidence of skill required to construct the 1950s buildings and structures have been partially retained in the remaining buildings. However, due to a number of demolitions on the property since the 1950s the subject property does not retain integrity of workmanship.

Feeling: The subject property does not retain integrity of feeling. The property is no longer able to express itself as a working steam plant constructed in the early-1950s. Due to the ubiquitous and utilitarian nature of the majority of the site's buildings and structures it is unable to be dated to a certain period of time and therefore cannot express a historic sense of a particular time. Furthermore, changes to the setting over time and subdivision of the original parcels also contribute to the property's inability to convey integrity of feeling.

Association: Finally, the subject property does not retain integrity of association. Due to a lack of integrity the plant cannot be associated with events that made a significant contribution to the broad patterns of our history. Despite being indicative to the 1950s period of utility expansion in Southern California by Calectric, the leading force in new steam plant construction, demolitions and subdivisions have eliminated the property's ability to be associated with that period. In summary, the Highgrove Steam Plant lacks integrity of design, setting, materials, workmanship, feeling, and association.

Summary of Evaluation Findings

The Highgrove Steam Plant is not eligible under any NRHP or CRHR designation criteria at the individual level due to a lack of requisite integrity necessary to convey significant historical associations and architectural merit.

***B12. References:**

Andrus, P.W., and R.H. Shrimpton. 1990. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Bulletin No. 15. Accessed October 2020. https://www.nps.gov/subjects/nationalregister/publications.htm.

Bancroft, H.H. 1885. *History of California, Volume III: 1825-1840*. A.L. Bancroft & Co., San Francisco.

Brown, J. Jr., and J. Boyd. 1922. *History of San Bernardino and Riverside Counties*. Volume 1. Chicago, Illinois: The Western Historical Association. Accessed January 16, 2020. https://archive.org/download/historyofsanbern01brow/historyofsanbern01brow.pdf

Cleland, R.G. 2005. *The Cattle on a Thousand Hills: Southern California, 1850–80*, second ed., sixth printing. The Huntington Library, San Marino, California.

Dallas, S.F. 1955. *The Hide and Tallow Trade in Alta California 1822–1848*. PhD dissertation; Indiana University, Bloomington.

De Atley, R.K. 2011. "Grand Terrace: Inland Area's Back-to-Future City." *The Press-Enterprise* (Riverside, California). December 5, 2011.

DS (Desert Sun). 1954. "Calectric Starts Fourth Unit at Highgrove Plant." Newspapers.com: *The Desert Sun* (Palm Springs, California), p. 7, July 22, 1954.

EI (Edison International). 2000. "SCE, Thermo Ecotek Reach Accord That Will Add Much-Needed Power to California Grid. August 31, 2000. https://newsroom.edison.com/releases/sce-thermo-ecotek-reach-accord-that-will-add-much-needed-power-to-california-grid.

Ellis, H.A. 1974. "Residents Briefed on Grand Terrace Future." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California).

FCCP (Friends of California Citrus Park). 2021. "The Gage Canal." Accessed January 27, 2021. https://www.californiacitruspark.com/gage-canal/.

Fluor (Fluor Corporation). 1954. "Annual Report 1954." Accessed January 28, 2021. https://investor.fluor.com/static-files/9f1af7b7-c4ac-4ac2-8303-ec08c4fd4721

Fluor. 2021. "History." Accessed February 4, 2021. https://www.fluor.com/about-fluor/corporate-information/history.

Gebhard, D., and R. Winter. 2003. *An Architectural Guidebook to Los Angeles*. Layton, Utah: Gibbs Smith Publishing.

GE (General Electric). 2021. "Combined Cycle Power Plant: How it Works." Accessed February 1, 2021. https://www.ge.com/power/resources/knowledge-base/combined-cycle-power-plant-how-it-works.

Google Maps. 2021. Satellite view of 21660 Main Street, Grand Terrace, California.

Gumprecht, B. 1999. *The Los Angeles River: Its Life, Death, and Possible Rebirth*. Baltimore: Johns Hopkins University Press.

Herbert, R., and A. Walters. 2006. "California Energy Commission (CEC) Cultural Resources Compliance for Demolition of the South Bay Power Plant, Chula Vista, San Diego County, California." Technical Memorandum. Accessed January 28, 2021. https://ww2.energy.ca.gov/sitingcases/southbay/

documents/applicants/afc/SBRP%20AFC%20Volume%201/Section%208.3%20-%20Cultural%20Resources.pdf.

LADWP (Los Angeles Department of Water and Power). 2011. *Implementation Plan for the Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.* Prepared by LADWP, MBC Environmental Inc., and Tenera LLC. Submitted to the State Water Resources Control Board.

LAT (Los Angeles Times). 1952. "Plans Being Prepared for Power Plant Unit." Newspapers.com: *The Los Angeles Times* (Los Angeles, California), p. 158, October 26, 1952.

McAlester, V.S. 2013. *A Field Guide to American Houses: The Definitive Guide to Identifying and Understanding America's Domestic Architecture*. New York: Alfred A. Knopf.

Masters, N. 2015. "When San Bernardino Was a Mormon Colony." KCET. August 17, 2015. https://www.kcet.org/shows/lost-la/when-san-bernardino-was-a-mormon-colony.

Morgan, W. 2004. *The Abrams Guide to American House Styles*. New York: Harry N Abrams Inc.

Myers, W.A. 1986. *Iron Men and Copper Wires: A Centennial History of the Southern California Edison Company*. Glendale, California: Trans-Anglo Books.

NETR. 2021. "Historic Aerials Online." Historic Aerial Photographs of 21660 Main Street, Grand Terrace, California, dating from 1938, 1948, 1959, 1966, 1967, 1968, 1978, 1980, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed January 26, 2021. https://www.historicaerials.com/viewer.

NPS. 1993. "Mothballing Historic Buildings." Preservation Brief 31. Prepared by S.C. Park. September 1993. https://www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm.

Nyberg, M. 2014. "Thermal Efficiency of Gas-Fired Generation in California: 2014 Update." California Energy Commission Staff Paper CEC-200-2014-005. Supply Analysis Office, Energy Assessments Division, California Energy Commission. September 2014. http://www.energy.ca.gov/2014publications/CEC-200-2014-005/CEC-200-2014-005.pdf.

O'Neil, S. 2002. "The Acjachemen in the Franciscan Mission System: Demographic Collapse and Social Change." Master's thesis; California State University, Fullerton.

RDF (Redlands Daily Facts). 1952. Welcome to Highgrove." Newspapers.com: *Redlands Daily Facts* (Redlands, California). p. 2, September 4, 1952.

RDF. 1971a. "Edison Company Sets Date for Division Picnic." Newspapers.com: *Redlands Daily Facts* (Redlands, California), p. 5, August 28, 1971.

RDF. 1971b. "A Light Picnic." Newspapers.com: *Redlands Daily Facts* (Redlands, California), p. 10, September 15, 1971.

SBCS (San Bernardino County Sun). 1952a. "Open House Set at New Calectric Plant." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 19, September 4, 1952.

SBCS. 1952b. "Welcome to Highgrove." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 5, September 10, 1952.

SBCS. 1953. Calectric Pays $1,461,916 for Equipment." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 24, July 30, 1953.

SBCS. 1954. "Power Firm Starts 4th Generating Unit." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p 14, July 16, 1954.

SBCS. 1957. "Albert Cage Retires." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 40, July 5, 1957.

SBCS. 1965. "5-Square-Mile Area Included in Move Plan." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 25, May 20, 1965.

SBCS. 1979. "Sons of Norway." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 38, May 13, 1979.

SBCS. 1982. "Sheriff's Contract on G.T. Agenda." California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California), p. 16, March 24, 1982.

SBCS. 1993. "Class of '88." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 11, July 11, 1993.

SBS (San Bernardino Sun). 1906. "Choice Land for Sale!" California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California). p. 9, November 24, 1906.

SCEPN (Southern California Edison Photographs and Negatives). 2021. San Marino, California: Huntington Digital Library. https://hdl.huntington.org/digital/collection/p16003coll2.

SCER (Southern California Edison Records). 2009. "OAC: Southern California Edison Records, 1848–1989." The Huntington Library. http://www.huntington.org.

Steele, I.C. 1950. "Steam Power Gains on Hydro in California." *Civil Engineering* (January): 17–21.

Stern, G. 1984. "Council Seeks to Cage Another Park or Two." California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California), p. 29, July 6, 1984.

Tang, B.T., and M. Hogan. 2019. *Historical/Archaeological Resources Survey Report for the Fontana Block III Project, City of Fontana, San Bernardino County, California*. Prepared by CRM Tech for the City of Fontana Planning Division. April 2019.

UCSB (University of California, Santa Barbra). 2021. Historic Aerial Photographs of 21660 Main Street, Grand Terrace, California, dating from 1931, 1953, 1963, and 2004. Map & Imagery Laboratory (MIL) UCSB Library, Electronic Resource. Accessed January 26, 2021. http://mil.library.ucsb.edu/ap_indexes/FrameFinder.

Wall, S. 2009. "Power Plant Proposal Rejected." *The Press-Enterprise* (Riverside, California), April 7, 2009.

Waugh, J.C. 2003. *On the Brink of Civil War: The Compromise of 1850 and How It Changed the Course of American History*. Wilmington, Delaware: Scholarly Resources Inc.

Williams, J.C. 1997. *Energy and the Making of Modern California*. Akron: University of Akron Press.

Williams, J.C. 1998. *Energy and the Making of Modern California*. Akron: University of Akron Press.

Exhibit 1. Feature 1, Gate, view to north, DSC01728

Exhibit 2. Feature 2, Barbeque, view to southwest, DSC01712

Exhibit 3. Feature 3, Restroom, North and east elevations, view to southwest, DSC01704

Exhibit 4. Feature 4, Storage Building, South and east elevations, view to southwest, DSC01935

Exhibit 5. Feature 5, Well Number 7, East and south elevations, view to west, DSC01943

Exhibit 6. Feature 6, Storage Shed, East and south elevations, view to northwest, DSC01898

Exhibit 7. Feature 7, Transmission Lines, view to north, DSC01829

Exhibit 8. Feature 8, Steam Plant, view to northwest, DSC01919

Exhibit 9. Feature 9, Office, South and east elevations, view to northwest, DSC01992

Exhibit 10. Concrete foundation, View to southeast, DSC01684

Exhibit 11. Gravel covered foundations, View to south, DSC01916

Exhibit 12. The Highgrove Steam Plant – circa 1960 (11-00414)

Exhibit 13. Advertisement for the Highgrove Steam Plant's Open House – September 10, 1952

Exhibit 14. Albert Cage (right), Calectric President, paying the General Electric Corporation representatives for Highgrove Equipment – July 30, 1953

Exhibit 15. Drawing of the Highgrove Steam Electric Generating Plant – May 27, 1954

Exhibit 16. 1963 aerial photo of the Highgrove Steam Plant site (left), compared to the current site (right)

Exhibit 17. Highgrove Steam Plant site, circa 1960 (left), compared to the current site (right) (Dudek photo file no. DSC01961)

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38 NORTH MARENGO AVENUE
PASADENA, CALIFORNIA 91101
T 626.204.9800 F 626.204.9834

MEMORANDUM

To:	Condor Energy Storage, LLC
From:	Linda Kry, BA, RA – Dudek Heather McDaniel McDevitt, MA, RPA – Dudek
Subject:	Condor Energy Storage Project, Archaeological Resources Memorandum
Date:	February 12, 2021
Attachment(s):	A: Figures B: Confidential SCCIC Records Search Results (to be provided upon receipt from SCCIC)

This memorandum documents the results of a Phase I archaeological resources study conducted by Dudek for the proposed Condor Energy Storage Project (project), located in the City of Grand Terrace, San Bernardino County, California. The purpose of this study is to identify all archaeological resources within the proposed project's area of potential effect (APE) and to determine whether the project would result in a significant impact per the California Environmental Quality Act (CEQA) significance criteria relating to cultural resources.

This report includes the results of background research, historic aerial photograph review, and a pedestrian survey; results of the California Historical Resources Information System (CHRIS) records search requested from the South Central Coastal Information Center (SCCIC) are pending at this time. No Tribal consultation was initiated by Dudek for this project because it will be performed by the CEQA lead agency (the City of Grand Terrace [City]) as determined necessary.

Project Description and Location

The proposed project includes the development of an approximately 200-megawatt (MW) battery energy storage system (BESS). The proposed project will consist of lithium-ion energy batteries installed in racks, inverters, switchgear, and other associated equipment to directly or indirectly connect into the SCE Highgrove Substation located immediately adjacent to the northern property limits. Earthwork associated with the project includes grading activities to level the site at depths between 1 and 2 feet below ground surface, with a maximum cut of approximately 3.5 feet below ground surface at the south-central portion of the project APE, and trenching for the placement of underground electrical and communication lines to a depth of approximately 3 feet below the existing ground surface.

The project APE is on an approximately 10-acre parcel of land located at 21660 Main Street in the City of Grand Terrace, San Bernardino County, California, within the U.S. Geological Survey 7.5-minute San Bernardino South topographic quadrangle map (Attachment A, Figure 1). Specifically, the project APE includes Assessor's Parcel Number 116-715-177 and is bounded to the east by Taylor Street, to the south by Main Street, and to the west by the BNSF Railway (Attachment A, Figure 2). Land immediately to the north consists of the existing Highgrove Substation, where the facility will interconnect. Grand Terrace High School and the Brook Church are located east of Taylor Street. The project APE is approximately 0.35 miles from the nearest highway interchange (Interstate 215 [I-215]).

Area of Potential Effect

The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16[d]). For the purposes of the present study, the APE will include the approximately 10-acre parcel of land (Assessor's Parcel Number 116-715-177). The vertical extent of the APE for the project is defined as the depth of soils disturbed during project construction. The amount of disturbed soils varies according to the topography and construction needs but is anticipated to be roughly between 1 and 3.5 feet below ground surface for grading to level the site and trenching for the placement of underground electrical and communication lines.

Environmental Setting and Current Conditions

The project APE is primarily undeveloped, with existing structures to the south and adjacent development to the north, south, east, and west. A Southern California Edison (SCE) generation station lies to the north. The northeastern portion of the APE has been previously developed as a southerly extension of the SCE station, and the remainder of the site is undeveloped but shows evidence of previous disturbance. The APE was formally a recreational park known as Cage Park.

According to the U.S. Department of Agriculture Soil Conservation Service (USDA 2021), soils within this APE include two soils series types, Monserate and Saugus soils. Monserate series soils are a sandy loam with 2% to 9% slopes, characterized as fine-loamy, mixed, super active, thermic Typic Durixeralfs that formed in alluvium derived principally from granitic rocks. This soils series are found on nearly level to moderately steep, old, dissected terraces and fans at elevations of 700 to 2,500 feet above sea level. Monserate series soils comprise the majority of the project APE. Saugus series soils are a sandy loam with 30% to 50% slopes and are characterized as coarse–loamy, mixed, super active, nonacidic, thermic Typic Xerorthents. Saugus series soils are found on dissected terraces and foothills at elevations of 600 to 2,500 feet above sea level. This soil series comprises a small portion of the northwestern corner of the project APE.

California Environmental Quality Act

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code, Section 5020.1[j]). In 1992, the California Legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code, Section 5024.1[a]). A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following National Register of Historic Places (NRHP) criteria (California Public Resources Code, Section 5024.1[c]):

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

Resources less than 50 years old are not considered for listing in the CRHR but may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (see 14 CCR 4852[d][2]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys. The State Historic Preservation Officer maintains the CRHR.

Native American Historic Cultural Sites

The Native American Historic Resources Protection Act (California Public Resources Code, Section 5097, et seq.) addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission (NAHC) to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historical or cultural site that is listed or may be eligible for listing in the CRHR.

California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, requires all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate Tribes.

California Environmental Quality Act Statutes and Guidelines

As described further below, the following CEQA statutes and guidelines are relevant to the analysis of archaeological and historic resources:

1. California Public Resources Code, Section 21083.2(g): Defines “unique archaeological resource.”
2. California Public Resources Code, Section 21084.1, and CEQA Guidelines (14 CCR 15000 et seq.), Section 15064.5(a): Define historical resources. In addition, CEQA Guidelines, Section 15064.5(b), defines the phrase “substantial adverse change in the significance of an historical resource.” It also defines the circumstances when a project would materially impair the significance of a historical resource.

3. California Public Resources Code, Section 5097.98, and CEQA Guidelines, Section 15064.5(e): These set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated cemetery.
4. California Public Resources Code, Sections 21083.2(b) and (c), and CEQA Guidelines, Section 15126.4: These statutes and guidelines provide information regarding the mitigation framework for archaeological and historic resources, including options of preservation-in-place mitigation measures, and identify preservation in place as the preferred manner of mitigating impacts to significant archaeological sites.

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[b]). A "historical resource" is any site listed or eligible for listing in the CRHR. The CRHR listing criteria are intended to examine whether the resource in question (a) is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (b) is associated with the lives of persons important in our past; (c) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or (d) has yielded, or may be likely to yield, information important in pre-history or history.

The term "historical resource" also includes any site described in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code, Section 5024.1[q]).

CEQA also applies to "unique archaeological resources." California Public Resources Code, Section 21083.2(g), defines a "unique archaeological resource" as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In 2014, CEQA was amended to apply to "Tribal culture resources" as well, but the amendment did not provide a definition for such resources or identify how they were to be evaluated or mitigated (California Public Resources Code, Sections 21084.2 and 21084.3). Instead, California Public Resources Code, Section 21083.09, required that the Office of Planning and Research develop and adopt guidelines for analyzing Tribal cultural resources by July 1, 2016. As of the effective date of this report, however, those guidelines have not been finalized or adopted. Consequently, this report addresses only historic resources and unique archaeological resources.

All historical resources and unique archaeological resources—as defined by statute—are presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code, Section 21084.1; 14 CCR 15064.5[a]). A site or resource that does not meet the definition of "historical resource" or "unique

archaeological resource" is not considered significant under CEQA and need not be analyzed further (California Public Resources Code, Section 21083.2[a]; 14 CCR 15064.5[c][4]).

Under CEQA a significant cultural impact results from a "substantial adverse change in the significance of an historical resource [including a unique archaeological resource]" due to the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5[b][1]; California Public Resources Code, Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

CEQA Guidelines Section 15064.5(b)(2)

Pursuant to this section of the CEQA Guidelines, CEQA first evaluates whether a project site contains any "historical resources," then assesses whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

When a project significantly affects a unique archaeological resource, CEQA imposes special mitigation requirements; specifically (14 CCR 15064.5[b]):

> If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:
>
> 1. Planning construction to avoid archaeological sites.
> 2. Deeding archaeological sites into permanent conservation easements.
> 3. Capping or covering archaeological sites with a layer of soil before building on the sites.
> 4. Planning parks, greenspace, or other open space to incorporate archaeological sites.

California Public Resources Code, Section 21083.2(b)(1)–(4)

If these preservation-in-place options are not feasible, mitigation may be accomplished through data recovery (California Public Resources Code, Section 21083.2[d]; 14 CCR 15126.4[b][3][C]). California Public Resources Code Section 21083.2(d) states the following:

> Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report.

These same requirements are set forth in slightly greater detail in CEQA Guidelines, Section 15126.4(b)(3), as follows:

(A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

(B) Preservation in place may be accomplished by, but is not limited to, the following:

1. Planning construction to avoid archaeological sites.
2. Incorporation of sites within parks, greenspace, or other open space.
3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
4. Deeding the site into a permanent conservation easement.

(C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken.

Note that, when conducting data recovery, "if an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation." However, "data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historic resource, provided that determination is documented in the EIR [environmental impact report] and that the studies are deposited with the California Historical Resources Regional Information Center" (14 CCR 15126.4[b][3][D]).

California Health and Safety Code

CEQA Guidelines, Section 15064.5, assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code, Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code, Section 7050.5, requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (California Public Resources Code, Section 7050.5b). California Public Resources Code, Section 5097.98, also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (California Public Resources Code, Section 7050.5c). NAHC will notify the

most likely descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of NAHC's notification of the MLD. The MLD may recommend means of treating or disposing of the human remains and items associated with Native Americans with appropriate dignity.

Background Research

SCCIC Records Search

On January 18, 2021, Dudek requested a CHRIS records search from the SCCIC for the project APE and a 1-mile (5,280-foot) records search area. The purpose of this search is to review the SCCIC's database for mapped prehistoric, historical, and built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Due to COVID-19, the SCCIC is backlogged and therefore experiencing turnaround delays. However, based on the General Plan for the City, a number of sites within the City have been recorded as containing cultural resources but there are no known areas of the City that have been previously identified as places of historical, cultural, or archaeological significance that should be identified as significant and preserved as open space (City of Grand Terrace 2010). As such, the full analysis of any previous studies or previously identified cultural resources within the project APE is required to determine whether any archaeological resources occur or have the potential to occur within the project APE. Upon receipt of the SCCIC records search results, Dudek will integrate the data and update this report as appropriate.

Review of Historical Topographic Maps and Aerial Photographs

Dudek consulted historical maps and aerial photographs to understand development of the project APE and surrounding properties. Topographic maps are available for the years 1896, 1898, 1901, 1905, 1909, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1959, 1963, 1965, 1969, 1974, 1981, 2012, 2015, and 2018 (NETR 2021a). Historical aerials are available for the years 1938, 1948, 1959, 1966, 1967, 1968, 1977, 1978, 1980, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016 (NETR 2021b).

The first U.S. Geological Survey topographic map dates to 1896 and shows the project APE as undeveloped, with the Temecula/San Bernardino/San Diego Railroad Line to the west, the Riverside Motor Railroad Line to the east, and Main Street to the south. The subsequent topographic maps show no significant change to the project APE or surrounding areas until 1943. The 1943 topographic map depicts the Riverside Motor Railroad Line labeled as the Southern Pacific Railway and the Temecula/San Bernardino/San Diego Railroad Line labeled as the Union Pacific Railway. It should be noted that the topographic map from 1946 mirrors the maps from pre-1943 and does not reflect the changes seen in 1943. The topographic map from 1955 shows two rectangular structures in the northeastern corner, and a body of water that represents an artificial lake in the northwestern corner of the project APE. The topographic map from 1969 depicts a rectangular structure in the southeast corner of the project APE. The subsequent topographic maps show no significant change to the project APE until 2012. The 2012 topographic map does not depict any railway lines, instead showing Taylor Street serving as the project APE's eastern boundary. From this point on, no structures are depicted on the topographic maps. The topographic map from 2015 shows both railways as the eastern and western boundaries. The most recent topographic map from 2018 shows no significant change to the project APE or surrounding areas.

The first aerial photograph dates to 1938 and shows the project APE as undeveloped with a line of trees running diagonally from the northwest corner to the southeast corner, possibly following a creek. Main Street is depicted as the southern boundary, a railroad is on the western boundary, and Taylor Street runs along the eastern

boundary of the project APE. There is a row of larger trees along Main Street; the remainder of the project APE appears to be cleared of vegetation. The aerial from 1948 shows an increase in the size of the trees along Main Street. The 1959 aerial depicts two rectangular structures in the northeast quadrant of the proposed project APE. The photograph no longer depicts the large trees along Main Street; instead, there are two structures in the southeastern corner. The remainder of the project APE has various access roads and scattered trees throughout. The aerial from 1966 depicts vegetation along Main Street; the type of vegetation cannot be discerned due to the poor quality of the photo. The 1967 aerial depicts a series of large trees along the western and southern boundaries. There appears to be a lake in the northwestern corner, which would be consistent with the results of the topographic maps. The following aerial photographs show an increase in the size of trees throughout the project APE. The 2002 aerial photograph shows heavy vegetation coverage in the northwestern quadrant of the project APE, making it difficult to discern whether the artificial lake remains. It also no longer shows a line of trees along the southern boundary of the project APE. The aerial photograph from 2010 appears to no longer show the lake; however, due to the quality of the photos and the dense coverage of vegetation in the photo, it is difficult to determine an exact date when the lake was removed. The photo does not depict the two rectangular structures in the northeastern quadrant of the project APE. The remainder of the aerial photographs show no significant changes to the project APE.

Development History of the Project APE

A detailed development history of the project APE is discussed in the Historical Resources Evaluation Report prepared by Dudek for the proposed project (Dudek 2021). A summary of the development history is provided below to address the archaeological sensitivity of the project APE.

The subject property began development as the Highgrove Steam Plant in 1951 when the California Electric Power Company (also known as Calectric) purchased the 35-acre site, which was previously developed as a small residence and agricultural land (NETR 2021; SCER 2009). The plant was located between Riverside and San Bernardino and was surrounded by orange groves and small ranches. As a completely outdoor facility, the Highgrove Steam Plant represented a change in steam plant design. This was done to add resistance to earthquakes, increase operating efficiency, and subsequently reduce construction costs. The only enclosed spaces were the operator's control and switchgear room; the rest of the plant's components were outside. A total of 6,309 cubic yards of concrete went into the construction of the first two units. A total of 16.2 miles of pipe was used in the project and 3,074 valves were installed.

In the 1950s, Calectric was the leading force in new steam plant construction in California. Calectric's then-president, Albert Cage, was one of the primary driving forces behind the Highgrove Steam Plant's construction and continued to work toward its expansion. Cage was a pioneer in the development of the Southern Sierras Power Co. Cage took the leadership role in the decision that the company headquarters must be located in the community that provides its customers, and pioneered the installation of steam generator plants, including the Highgrove Steam Plant (SBCS 1957). In 1953, the company paid the General Electric Corporation (GE) for the turbine generator, switchgear, and other equipment manufactured by GE for the Highgrove Steam Plant's third unit. The plant's fourth unit began construction in 1954 and was set to be finished in November 1955.

In addition to the machinery and outbuildings for the generation of steam power, the Highgrove site also featured a park with a small lake at its southwest corner fronting Main Street. The park was named Cage Park, likely after the Calectric president. Cage Park was owned by Calectric; therefore, to use the park members of the public had

to reserve it through an employee. Numerous events were held at the park. The park continued to be used by the community as the site for fundraisers, concerts, and celebrations into the early 2000s.

In 1982, the Grand Terrace Parks and Recreation Committee recommended that the City purchase Cage Park to be used for the public after SCE expressed interest in selling the property. Two years later, the City Council directed then-Community Services Director Randy Anstine to negotiate with SCE to purchase Cage Park (SBCS 1993; Stern 1984). The Highgrove Steam Plant continued to function as a SCE steam power plant until 1998, when SCE sold the plant to Thermo Ecotek, a division of Thermo Electron Corp. of Waltham, Massachusetts. This was done as part of California's restructuring of the electric utility industry. The plant was operated by Riverside Canal Power Company, a Thermo Ecotek subsidiary.

In 2000, to help alleviate California's electric generation shortfall, SCE reached an agreement with Thermo Ecotek to allow the utility to lease and return the Highgrove Steam Plant to full operation. The plant had been placed on standby status in 1999 (EI 2000). In 2001, the AES Corporation purchased the power plant from Thermo Ecotek. Soon afterward, the power plant was mothballed, which entails closing up a building or site temporarily to protect it from the weather and secure it from vandalism. In 2009, the AES Corporation looked to build and operate a 300 MW power plant on the site, but the project did not go through because it could not meet deadlines for moving the project forward (Wall 2009; Park 1993).

By 2010, multiple buildings on the power plant site began to be removed, including the four buildings at the southern end of the property, and 2 years later the majority of the plant's equipment was removed. The lake at Cage Park was not maintained and by the mid-2000s had dried up and become overgrown with trees. The park's paths of circulation also became overgrown and access to the plant was restricted. Subdivisions during this period resulted in the large plant facility being divided into six separate parcels. The Highgrove Steam Plant and Cage Park were sectioned off from each other with fences. The Highgrove Steam Plant and Cage Park remained closed into the 2010s (NETR 2021b).

Native American Heritage Commission and Tribal Correspondence

Native American Heritage Commission Sacred Lands File

Communication with NAHC and any Native American representative and/or Tribal group has been deferred to the City's Tribal consultation preference.

Archaeological Resources Survey

Methods

Dudek conducted a pedestrian survey of the project APE on February 2, 2021, using standard archaeological procedures and techniques. All portions of the project APE with exposed ground surface were inspected. Other developed portions of the project APE were spot-checked. Survey transects were spaced at 15-meter (50-foot) intervals and oriented northwest–southeast across accessible areas of the project APE. Transects were not used in areas with limited to no accessibility, such as eroding dirt banks and/or steep terrain or areas covered in dense vegetation. Instead, a mixed approach (opportunistic survey) was utilized and areas were spot-checked where accessible. The goal of the survey was to identify and record any cultural resources within the project APE. The ground surface was examined for the presence of prehistoric artifacts (e.g., flakedstone tools, tool-making debris,

stone milling tools), historical artifacts (e.g., metal, glass, ceramics), sediment discolorations that might indicate the presence of a cultural midden, depressions, and other features that might indicate the former presence of structures or buildings (e.g., post holes, foundations).

If cultural materials are encountered, standard methods require that all data necessary to complete the appropriate State of California Department of Parks and Recreation 523 series forms be documented. Additionally, per California Office of Historic Preservation guidelines, any cultural material more than 45 years old is to be recorded as an archaeological site or isolate, as appropriate. Because no cultural resources were identified, no such documentation was required. All fieldwork was documented using field notes, an Apple Generation 7 iPhone (iPhone) equipped with Esri Collector and Avenza PDF Maps software with close-scale georeferenced field maps, and aerial photographs. Location-specific photographs were taken using the iPhone's 12-megapixel camera. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California, office. All field practices met the Secretary of the Interior's standards and guidelines for a cultural resources inventory.

Results

The survey focused on areas of exposed ground surfaces within the project APE. Careful attention was given to barren ground, including at the base of trees, within paths/trails, and any subsurface soils exposed by burrowing animals. Ground surface visibility within the project APE was variable and as such, in areas of dense ground coverage, surface scrapes were occasionally implemented, when necessary, to enhance detection of archaeological materials that may have been obscured on the surface. The project APE is located on approximately 10 acres of land composed of an abandoned park, known as Cage Park, and an open lot in the northeastern corner that is enclosed by a fence.

The open lot in the northeast section of the project APE, approximately 25% of the APE, consists of grasses and imported gravel fill. Ground surface visibility within this area of the project APE is poor (0%–20%). Evidence of previous grading and vegetation removal is present in the form of push piles along the southern and western boundaries of the open lot. The northwest section of the project APE, approximately 20% of the APE, consists of dense vegetation, large trees, and an artificial lake. The lake connects to a canal running diagonally to the southeast corner. Ground surface visibility within this section is poor (10%–20%) and was obscured by puddles of water primarily at the base of the trees. Other disturbances in this area include modern trash and debris scattered throughout, including the presence of homeless encampments. The southern half of the project APE, approximately 55% of the APE, consists of an open grass field with scattered trees throughout, a series of large trees along the western boundary, and two structures and a cinder-block barbeque along the southern boundary. Ground surface visibility throughout this section is poor to fair (20%–50%). Disturbances in this area include non-maintained structural remains (light fixtures, foundations, and old paths) as well as modern trash scattered throughout. No historical or prehistoric resources were observed during the course of this survey.

Soils are uniform throughout, consisting of light-brown to brown sandy loam that is moderately compacted with 10%–20% angular to subangular gravels. Soils observed were consistent with the U.S. Department of Agriculture's description of Monserate sandy loam and Saugus sandy loam (USDA 2021).

Summary and Management Considerations

The preliminary results of the archaeological resources assessment is based on a review of historical topographic maps and aerial photos, building permit records, and an intensive-level archaeological pedestrian survey of the project APE.

The project APE has been subjected to considerable and consistent ground disturbance from the 1950s to the 2010s through the development, decommissioning, and removal of facility structures/buildings associated with the Highgrove Steam Plant and ultimately the abandonment of both the plant and Cage Park. During Dudek's intensive-level archaeological pedestrian survey of the project APE, grasses, gravel, modern refuse, and water puddles obscured the surface visibility, and evidence of previous grading and vegetation removal was observed in the northeast section of the project APE. As a result of these factors, the survey results did not provide reliable evidence regarding the potential for archaeological resources to exist within the project APE. No archaeological resources were identified as a result of the survey conducted in connection with the current project and no effects to historic properties were identified. However, the results from the CHRIS records search from the SCCIC is required to complete the assessment to determine whether the project would have significant impacts under CEQA. Upon receipt of the CHRIS records search results from the SCCIC, Dudek will integrate the results and update the report as appropriate.

Analysis of Effects

The current undertaking proposes to develop an approximately 200 MW BESS on an approximately 10-acre parcel and would involve lithium-ion energy batteries installed in racks, inverters, switchgear, and other associated equipment to directly or indirectly connect into the SCE Highgrove Substation located immediately adjacent to the northern property limits. This work would entail grading to level the site and trenching for the installation of underground electrical and communication lines to a depth of between approximately 1 and 3.5 feet below the existing ground surface. Given that the pedestrian survey did not provide reliable evidence regarding the potential for archaeological resources, a review of SCCIC records is required to determine whether any previously recorded archaeological resources have been identified within the project APE and at what depths these resources are present. Depending on the records search results and further research, potential measures may include archaeological and/or Native American monitoring and further resource evaluation. Dudek may recommends measures relating to inadvertent discoveries as described in the following paragraphs.

Inadvertent Discovery of Archaeological Resources

All construction personnel and monitors who are not trained archaeologists shall be briefed regarding inadvertent discoveries prior to the start of construction activities. A presentation and handout or pamphlet shall be prepared to ensure proper identification and treatment of inadvertent discoveries. The purpose of this Workers' Environmental Awareness Program training is to provide specific details on the kinds of archaeological materials that may be identified during construction of the project and explain the importance of and legal basis for the protection of significant archaeological resources. Each worker shall also learn the proper procedures to follow in the event that cultural resources or human remains are uncovered during ground-disturbing activities. These procedures include curtailing or redirecting work and immediately contacting the site supervisor and the archaeological monitor.

A qualified archaeologist shall be retained and on call to respond and address any inadvertent discoveries identified during initial excavation in native soil. Initial excavation is defined as initial construction-related moving of sediments from their place of deposition. As it pertains to archaeological monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by project-related construction. A qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency) based on the observed potential for construction activities to encounter cultural deposits or material. The archaeological monitor shall be responsible for maintaining daily monitoring logs.

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop and a qualified archaeologist notified immediately to assess the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted.

If monitoring is ultimately required, an archaeological monitoring report shall be prepared within 60 days following completion of ground disturbance. This report shall document compliance with approved mitigation and all monitoring efforts and shall include an appendix with copies of all daily monitoring logs. The final report shall be submitted to the SCCIC.

Inadvertent Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the remains are determined to be Native American, the Coroner shall notify NAHC in Sacramento within 24 hours of the determination. In accordance with California Public Resources Code, Section 5097.98, NAHC must immediately notify those persons it believes to be the MLD of the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The MLD shall then determine, in consultation with the property owner, a plan for disposition of the human remains. If no descendants can be identified, NAHC shall select the representative responsible for the disposition of the remains. All arrangements pertaining to treatment and disposition Native American human remains shall be made in consultation between the MLD/Tribal representative and the landowner.

References Cited

City of Grand Terrace. 2010. *Grand Terrace General Plan.* Adopted April 27, 2010.

Dudek. 2021. *Condor Energy Storage Project, Historical Resources Evaluation Report*. Prepared for Condor Energy Storage, LLC. Pasadena, California: Dudek.

EI (Edison International). 2000. "SCE, Thermo Ecotek Reach Accord That Will Add Much-Needed Power to California Grid." August 31, 2000. https://newsroom.edison.com/releases/sce-thermo-ecotek-reach-accord-that-will-add-much-needed-power-to-california-grid.

NETR (Nationwide Environmental Title Research). 2021a. Historic Topographic Maps: 1896, 1898, 1901, 1905, 1913, 1926, 1929, 1938, 1943, 1946, 1955, 1963, 1969, 1974, 1981, 2012, 2015, and 2018. Electronic resource, https://www.historicaerials.com/viewer. Accessed January 2021.

NETR. 2021b. Historic Aerial Photographs: 1938, 1948, 1959, 1966, 1967, 1968, 1977, 1978, 1980, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. Electronic resource, https://www.historicaerials.com/viewer. Accessed June 2020.

Park, S.C. 1993. "Mothballing Historic Buildings." *National Park Service*, Preservation Brief 31. https://www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm.

SBCS (San Bernardino County Sun). 1957. "Albert Cage Retires." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, California), p. 40, July 5, 1957.

SBCS. 1993. "Class of '88." Newspapers.com: *The San Bernardino County Sun* (San Bernardino, CA), p. 11, July 11, 1993.

SCER (Southern California Edison Records). 2009. "OAC: Southern California Edison Records, 1848–1989." The Huntington Library. http://www.huntington.org.

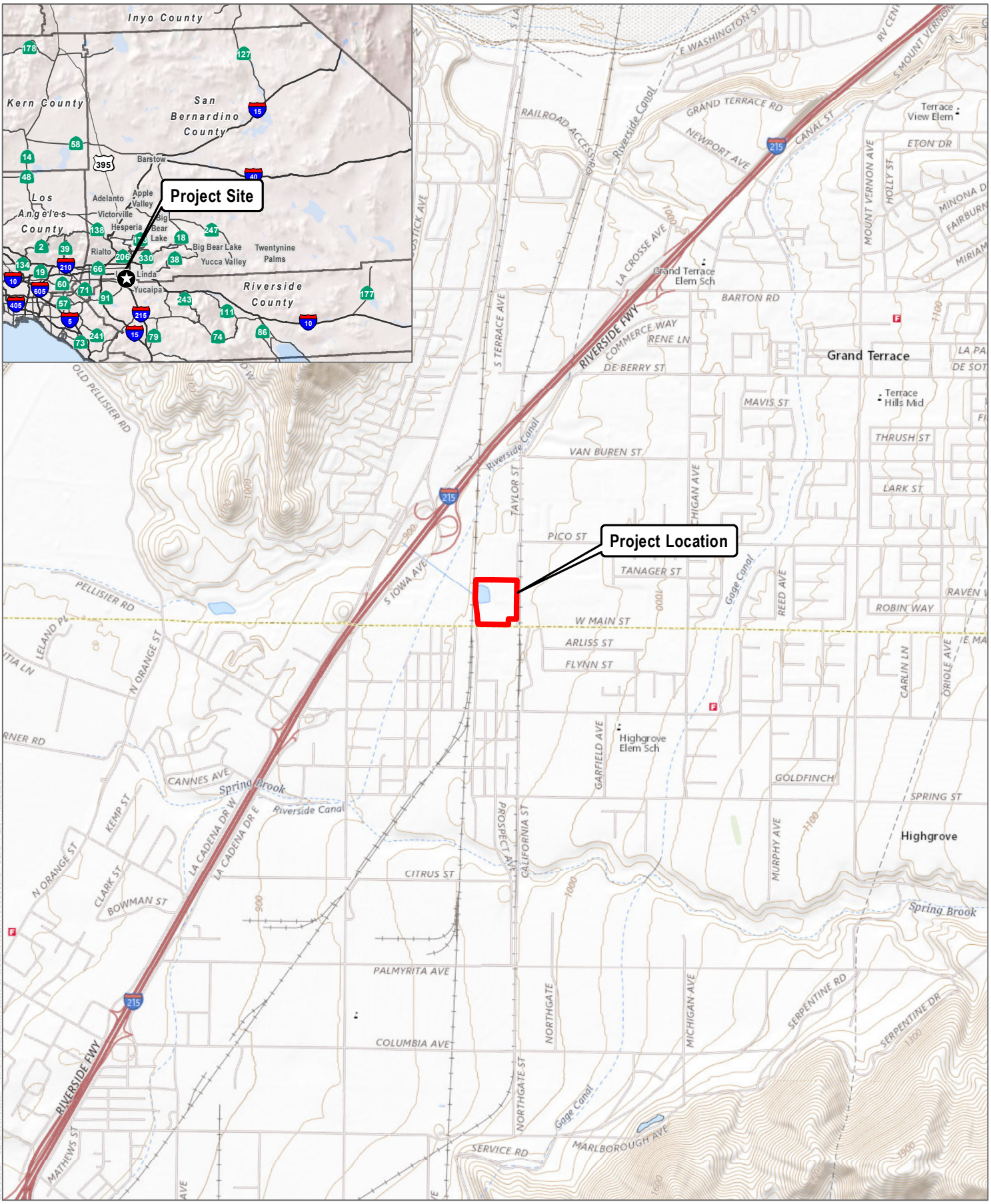
Stern, G. 1984. "Council Seeks to Cage Another Park or Two." California Digital Newspaper Collection: *The San Bernardino Sun* (San Bernardino, California), p. 29, July 6, 1984.

USDA (U.S. Department of Agriculture). 2021. Web Soil Survey. USDA, Natural Resources Conservation Service, Soil Survey Staff. Accessed February 2021. http://websoilsurvey.nrcs.usda.gov/.

Wall, S. 2009. "Power Plant Proposal Rejected." *The Press-Enterprise* (Riverside, California), April 7, 2009.

Attachment A

Figures



SOURCE: USGS 7.5-Minute Series San Bernardino South Quadrangle
Township 2S / Range 4W / Section 06

DUDEK

0 1,000 2,000 Feet
0 300 600 Meters
1:24,000

FIGURE 1

Project Location

Condor Energy Storage Project

SOURCE: Riverside County 2019; San Bernardino County 2020; Open Street Map 2019

DUDEK

0 100 200 Feet

Project APE Map

Condor Energy Storage Project

Attachment B (Confidential)

SCCIC Records Search Results

To be provided upon receipt from SCCIC

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Geological Desktop Assessment

Proposed Condor Battery Storage Project

21660 Main Street

Grand Terrace, California

Dudek & Associates

2280 Historic Decatur Road, Suite 200 | San Diego, California 92106

March 17, 2021 | Project No. 109135001

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

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Mr. David Hochart
Dudek & Associates
2280 Historic Decatur Road, Suite 200 | San Diego, California 92106

March 17, 2021 | Project No. 109135001

CERTIFIED ENGINEERING GEOLOGIST
NISSA M. MORTON
No. 2655
STATE OF CALIFORNIA

Nissa M. Morton, PG, CEG
Senior Project Geologist

Gregory T. Farrand, PG, CEG
Principal Engineering Geologist

NMM/GTF/gg

CERTIFIED ENGINEERING GEOLOGIST
GREGORY T. FARRAND
No. 1087
STATE OF CALIFORNIA

CONTENTS

FIGURES

1 INTRODUCTION

In accordance with your request, Ninyo & Moore has performed a geological desktop assessment for the proposed Condor Battery Storage Project at 21660 Main Street in Grand Terrace, California (Figure 1 - Site Location). Our evaluation is based on a review of published and non-published reports, aerial photographs, and in-house data and the assessment of the potential geologic hazards in the project area. The purpose of this assessment was to evaluate the potential for existing impacts related to geologic or soils conditions to affect the project site and adjoining areas, and to discuss measures that can be implemented to address and/or reduce the potential impacts with respect to the design and construction of the proposed project.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Reviewing readily available background materials, including geologic maps, aerial photographs, topographic data, and hazard maps.
- Compiling and analyzing of the findings from our background review.
- Preparation of this report presenting our findings, conclusions, and preliminary recommendations regarding potential geologic and soil impacts at the site. The findings were evaluated with respect to questions A through E listed in Section 6, “Geology and Soils” within Appendix G, “Environmental Checklist Form” of the “Guidelines for Implementation of the California Environmental Quality Act (CEQA).”

3 REGULATORY FRAMEWORK

Geologic resources and geotechnical hazards within the proposed project area are governed by the City of Grand Terrace, County of San Bernardino, and State of California. The site is also governed by the regulations of the California Code of Regulations (CCR), 2019 California Building Code (CBC).

The CBC is promulgated under CCR, Title 24, Parts 1 through 12 (also known as the California Building Standards Code), and is administered by the California Building Standards Commission (CBSC). The CBSC is responsible for administering California’s building codes.

4 SITE DESCRIPTION

The site of the proposed Condor Battery Storage Project is located at the northwest corner of the intersection of Main Street and Taylor Street in the city of Grand Terrace in San Bernardino County, California (Figure 1 - Site Location and Figure 2 - Aerial Site Plan). The approximately 10-acre site, identified as 21660 Main Street, is bounded by Main Street to the south, Taylor Street to the east, the Highgrove Substation electrical facility to the north, and the Burlington Northern Santa Fe (BNSF) railroad corridor to the west. The topography at the site is relatively level with a gentle gradient down to the northwest. Elevations range from approximately 940 feet above mean sea level (MSL) in the northwestern portion of the site to approximately 950 feet MSL at the southeastern portion of the site.

Based on a review of available aerial and site photographs, the site supports three structures in the southeast portion of the site, including a steel-frame building and two concrete-masonry-unit (CMU) buildings. A concrete-lined ditch extends northwest across the site and may be on the order of 1 to 3 feet in depth. Other portions of the site are generally covered with grass, shrubs, and trees.

According to our review of historical data, prior to site development, a northwest-trending drainage traversed the site from approximately the southeastern corner to the northwestern corner and has been filled-in. A small pond associated with this drainage is present in the northwest portion of the site in historic aerial photographs. Approximately sometime during the 1950's, site development included the construction of several small buildings in the southeastern portion of the site and three cooling towers in the northeastern portion of the site. The cooling towers served the energy facility north of the site until approximately 2010 when they were demolished.

5 PROJECT DESCRIPTION

We understand that the subject project consists of a proposed 200-megawatt battery energy storage system at the site. The proposed system will consist of lithium-ion energy batteries installed in racks, inverters, switchgear, and other associated equipment to directly or indirectly interconnect into the Southern California Edison (SCE) Highgrove Substation (point of interconnection) located immediately adjacent to the northern property limits. The batteries will be installed in containers or in battery packs, which will be designed for aesthetic compatibility with the surrounding area. The structures will have battery storage racks separated by aisles, with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. Batteries operate with direct current (DC) electricity that must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC will be located outside the structures, along with

transformers to step up the voltage. We understand that following construction, the proposed use will not emit pollutants to the air, will not require sanitary facilities, and will not require water except for limited maintenance activities.

6 GEOLOGIC AND SUBSURFACE CONDITIONS

Our findings regarding regional geologic setting, site geology, subsurface conditions, and groundwater conditions at the subject site are provided in the following sections.

6.1 Regional Geologic Setting

The site is situated in northern portion of the Perris Block subunit of the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California (Norris and Webb, 1990; Harden, 2004). The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the southern California batholith. The Perris Block lies between the Los Angeles Basin to the west and the San Jacinto Mountains to the east.

6.2 Site Geology

Regional geologic maps indicates that the project site is underlain by alluvial fan deposits derived from the nearby granitic Box Springs Mountains (Dibblee and Minch, 2003; Morton and Miller, 2006; Figure 4 - Geology). The following sections provide a generalized description of the geologic units anticipated at the project site.

6.2.1 Artificial Fill

Based on our review of historic topographic maps and aerial photographs, a northwestern-trending drainage traversed the site prior to development. We anticipate the thickness of the fill material may be up to approximately 20 feet with the deepest portions underlying the northwestern portion of the site. The fill is generally anticipated to consist of sand, silt, and gravel. No documentation of the composition, placement and compaction of the fill was readily available.

6.2.2 Alluvial Fan Deposits (Qf)

Quaternary-aged (late Holocene) alluvial fan deposits are mapped as underlying the project site and is anticipated to underlie the artificial fill material. The geologic map by Morton and Miller (2006) describes this unit as unconsolidated bouldery, cobbley, gravelly, sandy, or silty deposits.

6.2.3 Very Old Alluvial Fan Deposits (Qvof3)

Quaternary-aged (late Pleistocene) alluvial fan deposits are mapped as underlying much of the project site and is anticipated to underlie the artificial fill material and younger alluvial fan deposits. The geologic map by Morton and Miller (2006) describes this unit as reddish brown, well indurated, sand with gravel. Based on our review of nearby boring data (County of Riverside, 1999 and Delta, 2010), we anticipate these materials to be comprised of medium dense to very dense sand and silt.

6.3 Groundwater

Records for nearby groundwater monitoring wells as close as 1,000 feet to the west of the project site indicate that groundwater in the site vicinity is at depths of approximately 93 to 103 feet below the ground surface (County of Riverside, 1999; Delta, 2009). As mentioned previously, historic aerial photograph review indicates that a small pond has been present in the northwest portion of the site. Fluctuations in the groundwater level across the site and over time may occur due to seasonal precipitation, variations in topography or subsurface hydrogeologic conditions, or as a result of changes in nearby irrigation practices or groundwater pumping. In addition, seeps may be encountered at elevations above the observed groundwater levels due to perched groundwater conditions, leaking pipes, preferential drainage, or other factors not evident at the time of our assessment.

7 GEOLOGIC HAZARDS

In general, potential geologic hazards at the site include faulting and seismicity as they relate to seismic design of structures. These considerations and other geologic hazards such as liquefaction, landsliding, slope failure, and tsunamis, are discussed in the following sections.

7.1 Faulting and Seismicity

As shown on Figure 3 (Fault Locations), there are several active faults in the region. Therefore, like most of southern California, the project area is considered to be seismically active. The closest known active fault is the San Bernardino Valley segment of the San Jacinto Fault, which is capable

of generating an earthquake magnitude of 7.1 (United States Geologic Survey [USGS], 2020). The San Bernardino Valley segment of the San Jacinto Fault is located approximately 3½ miles northeast of the site.

7.2 Ground Rupture

Ground surface rupture due to active faulting is not considered likely in the project area due to the absence of known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

7.3 Liquefaction and Seismically Induced Settlement

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by a relatively shallow groundwater table are susceptible to liquefaction. The site is not located in an area designated by the County of San Bernardino General Plan (2010) as having known or suspected potential for liquefaction. Based on our review of nearby groundwater data (County of Riverside, 1999; Delta, 2009), groundwater in the project area is anticipated at depths on the order of 90 to 100 feet below the ground surface. As such, liquefaction is not anticipated to be a design consideration based on the absence of shallow groundwater. However, based on our review of historic aerial and topographic data, fill material and alluvial fan deposits that may be sandy and in a loose to medium dense condition may be present on site. Relatively dry soils (e.g. soils above the groundwater table) with low density or softer consistency tend to undergo a degree of compaction during a seismic event. Volumetric changes can occur in dry soils from earthquake shaking that induces significant shear strain in a soil mass. It is the responsibility of the geotechnical engineer of record to evaluate the potential for liquefaction and dynamic settlement and to provide appropriate design recommendations to address the potential hazards.

7.4 Landsliding and Slope Failure

Based on our review of published geologic literature and aerial photographs, the project site is located on relatively level terrain and no landslides or related features are known to underlie or be adjacent to the project site. Based on this information, the potential for landslides at the project site is considered low. Furthermore, global slope stability if not anticipated to be a design consideration at the site due to the relatively level ground surface across much of the project site.

7.5 Tsunamis

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. Based on the inland location and elevation of the project site, the potential for a tsunami to impact the site is not a design consideration.

7.6 Flood Hazards

Based on review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (2008) of the project area, the project site is not located within mapped floodways or flood zones. Based on review of the flood maps and the elevation of the site, the potential for significant flooding to impact the project is not considered a project constraint.

7.7 Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. Shrinking or swelling of foundation soils can lead to damage to slabs, foundations, and other engineered structures, including tilting and cracking. Expansive soils are classified as ranging from very low to very high according to expansion index criteria established by Table 18-1-B of the Uniform Building Code (ICBO, 1994). Based on our review of geologic maps and nearby boring data (County of Riverside, 1999 and Delta, 2010), we anticipate that much of the site soils consist of sand, silt, and gravel. As such, site soils are anticipated to have a low potential for expansion. It is the responsibility of the geotechnical engineer of record to evaluate the potential for expansive soils and to provide appropriate design recommendations to address the potential hazards.

7.8 Corrosive Soils

Caltrans (2019) amended (AASHTO, 2017) corrosion criteria defines corrosive soils as those possessing an electrical resistivity of 1,100 ohm-cm or less, a chloride content of 500 ppm or greater, a sulfate content of 0.15 percent (1,500 ppm) or greater, and/or a pH equal to or less than 5.5. Based on our review of nearby boring data (County of Riverside, 1999 and Delta, 2010) which indicates soils in the project area consist of silt and sand, and based on our experience, the potential for corrosive soils at the site is considered low to moderate. It is the responsibility of the geotechnical engineer of record to evaluate the potential for corrosive soils and to provide appropriate design recommendations to address the potential hazards.

7.9 Erosion

In general, erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by varying processes and may occur in the project area where bare soil is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, wind velocity, and general land use. Review of geologic maps and soil data indicates that surface soils are generally comprised of sand, silt, and gravel. Based on the gentle gradients across the project site, the potential for water erosion is low.

8 CONCLUSIONS

Based on our review of the referenced background data, it is our opinion that geologic and geotechnical considerations at the project site include the following:

- Site soils are anticipated to consist of artificial fill, alluvial fan deposits, and very old alluvial fan deposits. Geotechnical constraints related to soils at the project are:
    - *Soft Ground* – Areas with soft ground or loose soils may be found in the areas of the filled-in drainage and pond.
    - *Fill Soils* – Man-made fill soils placed without engineering observation and testing may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills in their present condition.
- Perched groundwater or seepage may be encountered on areas of the filled-in drainage and pond.
- The closest known major active fault is the San Bernardino Valley segment of the San Jacinto Fault, which is located approximately 3½ miles northeast of the project site. The probability of surface fault rupture at the site is considered to be low. Other geotechnical constraints related to faulting and seismic events at the project are the following:
    - *Ground Shaking* – The project has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
    - *Liquefaction* – Based on the anticipated depth to groundwater at the site, liquefaction is not a design consideration for the project. However, based on the possible presence of loose to medium dense soils, the site may be susceptible to dynamic compaction of dry soils.
- The potential for landsliding in the project area is considered low.
- The project area is not located within mapped flood zones or floodways and the potential for significant flooding is not a design consideration.

- Some soils at the project site may be expansive and/or corrosive.
- The conditions described above may increase the cost and duration of grading and construction of the project, but would not preclude development of the project.

9 RECOMMENDATIONS

Based on the geologic and geotechnical considerations at the project site presented in the previous sections, our general recommendations are presented below.

9.1 Soft Ground

Soils in areas with soft ground or loose soils in the project area may be subject to settlement. Recommendations to address this condition can typically include removal and/or replacement of soils as engineered compacted fill. The extent of soft soils and recommended removals should be evaluated by subsurface exploration and laboratory testing during a geotechnical evaluation of the site.

9.2 Groundwater/Seepage

Shoring and dewatering may be needed if construction is proposed in areas of perched groundwater or seepage.

9.3 Ground Shaking

Proposed structures should be designed appropriately to account for strong ground shaking in the event of an earthquake on a nearby fault.

9.4 Liquefaction and Dynamic Settlement

The site may be considered susceptible to dynamic settlement based on the possible presence of unconsolidated surficial soils. The following recommendations may be implemented during construction to address the potential for dynamic settlement: removal and replacement of soils susceptible to seismic settlement; densification of these soils; or utilization of special foundations (i.e. grade beams or mat foundations) to accommodate the expected effects of anticipated settlements. The extent of settlement induced by dynamic compaction and appropriate design and construction methods may be evaluated by subsurface exploration and laboratory testing during a geotechnical evaluation of the site.

9.5 Landsliding

Landslides have not been mapped on the site or reported in the available literature. Further, no landslides were observed on or adjacent to the site during our review of aerial photographs and topographic maps. The potential presence for landslides or deep-seated soil movement should be evaluated during a subsurface geotechnical evaluation of the site.

9.6 Expansive Soils

Expansive soils may lead to damage to foundations and engineered structures. If expansive soils exist on site, the following recommendations may be implemented during construction: the soils may be removed from sensitive areas and placed in deeper fill areas; the soils may be excavated and removed from the site; or the expansive soils may be treated (i.e., lime treatment) to reduce their potential for expansion. The extent of expansive soils and appropriate design and construction methods may be evaluated by subsurface exploration and laboratory testing during a geotechnical evaluation of the site.

9.7 Corrosive Soils

If corrosive soils exist on the site, a corrosion engineer may be needed to assist in the design of improvements in contact with the soil. The extent of corrosive soils and appropriate design and construction methods may be further evaluated by subsurface exploration and laboratory testing.

10 IMPACT ANALYSIS

Based upon the results of our geologic desktop assessment, our findings, conclusions, and recommendations regarding potential geological impacts to the project are summarized in the following sections.

10.1 Significance Thresholds

In evaluating the significance of potential environmental concerns in a particular study area, the criteria to consider, as they relate to geologic and soil conditions, are presented in the CEQA Guidelines. In accordance with the scope of work, the findings of this study were evaluated with respect to Questions A through E of Section 6 “Geology and Soils” with in Appendix G of the CEQA Guidelines (2019).

10.2 Project Impacts and Significance

Based on the above criteria and the results of the evaluation, the potential impact by geologic and soil conditions at the project have been identified, and are discussed below.

A. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of known fault?

The potential for ground surface rupture due to active faulting is considered low in the project area due to the absence of known active faults underlying the site (less than significant impact). However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

ii. Strong seismic ground shaking?

The project has a high potential for strong ground motions due to earthquakes on nearby active faults (less than significant impact with appropriate design and construction methods incorporated). Structural elements can then be designed by the project structural engineer to resist or accommodate anticipated ground motions and to conform to the current seismic design standards.

iii. Seismic related ground failure, including liquefaction?

The project site is not situated within a mapped liquefaction zone and groundwater is anticipated at depths greater than 90 feet. Accordingly, liquefaction is not anticipated to be a design concern for the project (less than significant impact). However, some site soils are anticipated to be generally sandy and in a loose to medium dense condition. Relatively dry soils with low density or softer consistency may be subject to dynamic settlement during a seismic event. Where dynamic compaction hazards are identified, appropriate engineering measures specified in a design-level geotechnical evaluation should be employed. Such measures may include removal and recompaction of the upper site soils, or use of engineered foundation design (i.e., grade beams or mat foundations) to accommodate the expected effects of anticipated settlements (less than significant with appropriate design and construction methods incorporated).

iv. Landslides?

Our review of geologic literature, aerial photos and topographic maps, does not indicate the presence of mapped landslides on the project site. Additionally, landslides were not mapped by others adjacent to the project site. Therefore, the potential impact of existing landslides is considered low (less than significant impact). Nevertheless, the potential presence for landslides and for deep-seated soil movement should be evaluated during a subsurface geotechnical evaluation of the site.

B. Would the project result in substantial soil erosion or the loss of topsoil?

If the site is developed in accordance with current building codes and industry standards, the potential for substantial soil erosion is considered to be low (less than significant impact). The potential for substantial loss of topsoil due to the proposed development is considered low due to previous use of the site.

C. Would the project be located on geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Based on our review of background data and our understanding of the project construction, site soils are not susceptible to on- or off-site landslides, lateral spreading, or liquefaction as a results of the project. As such, the project is not anticipated to have significant impacts to on-site or off-site landslides, lateral spreading, subsidence, or liquefaction. Potential soil settlement at the site as a result of proposed structures should be evaluated by a design-level geotechnical evaluation performed for the project. Where soil settlements are identified, appropriate engineering measures should be employed as recommended in a design-level geotechnical evaluation or by the project structural engineer (less than significant with appropriate design and construction methods incorporated).

D. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Based on our review of nearby boring data (County of Riverside, 1999 and Delta, 2010) and our experience, we anticipate that much of the site soils consist of sand, silt, and gravel. As such, site soils are anticipated to have a low potential for expansion. However, we consider this impact to be less than significant with appropriate design and construction methods incorporated.

E. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The soils on the project site are expected to be able to support adequately designed septic tanks or alternative waste water disposal systems, if necessary. We consider this impact to be less than significant with appropriate design and construction methods incorporated.

11 LIMITATIONS

The desktop geological assessment and analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not identified or described in this report may be encountered. Our preliminary conclusions and recommendations area based on a review of the reported conditions and the referenced background information. A geologic field reconnaissance of the site to observe site conditions was not performed as part of the preparation of this desktop geological assessment.

The purpose of this study was to evaluate geologic conditions within the project site and to provide a preliminary desktop geological assessment report to assist in the preparation of environmental impact documents for the project. A comprehensive geotechnical evaluation, including field reconnaissance, subsurface exploration and laboratory testing, should be performed prior to design and construction of structural improvements.

12 REFERENCES

American Concrete Institute, 2016, ACI Manual of Concrete Practice.

American Society of Civil Engineer (ASCE), 2016, Minimum Design Loads for Buildings and Other Structures, Standard 7-16.

American Society for Testing and Materials (ASTM), 2019, Annual Book of ASTM Standards, West Conshohocken, Pennsylvania.

California Building Standards Commission (CBSC), 2019, California Building Code: California Code of Regulations, Title 24, Part 2, Volumes 1 and 2, based on the 2018 International Building Code.

California Department of Water Resources Website, 2020, http://wdl.water.ca.gov: accessed in October.

California Department of Transportation (Caltrans), 2018, Standard Specifications: dated May.

California Department of Transportation (Caltrans), 2018, Corrosion Guidelines, Version 2.0, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion Technology Branch: dated November.

California Environmental Quality Act (CEQA), 2019, Statue and Guidelines, California Code of Regulations, http://www.califaep.org/images/ceqa/statute-guidelines/2019/2019-CEQA-book-final.pdf.

California Geological Survey (CGS), 1977, Special Studies Zones, San Bernardino South Quadrangle, Revised Official Map, Scale 1:24,000.

California Geological Survey (CGS), 2008, Guidelines for Evaluation and Mitigating Seismic Hazards in California, Special Publication 117A.

County of Riverside, 1999, Case Closure Summary, Underground Storage Tank Cleanup at Circle K, 1091 Center St., Riverside: dated May 4.

County of San Bernardino, 2010, Geologic Hazard Overlays, San Bernardino S, Sheet FH30 C, San Bernardino County Land Use Plan, General Plan, plot date March 9, Scale 1:14,400.

Delta, 2009, Second Quarter 2009 Groundwater Monitoring Report, Shell-Branded Service Station, 2718 Iowa Avenue, Colton, California: dated July 13.

Delta, 2010, Well Destruction Report, Shell-Branded Service Station, 2718 Iowa Avenue, Colton, California: dated July 21.

Dibblee, T.W. and Minch, J.A., 2003, Geologic Map of the Riverside East/south ½ of San Bernardino South quadrangles, San Bernardino and Riverside County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-109, Scale 1:24,000.

Geotracker website, 2020, www.geotracker.waterboards,ca.gov: accessed in October.

Google, 2020, Google Earth Pro, http://earth.google.com/.

Historic Aerials, 1938-2020, Aerial Photographs, http://www.historicaerials.com/: accessed in October.

Jennings, C.W. and Bryant, W.A., 2010, Fault Activity Map of California: California Geological Survey, Geologic Data Map 6, Scale 1:750,000.

Morton, D.M. and Miller, F.K., 2006, Geologic map of the San Bernardino and Santa Ana 30' X 60' Quadrangles, California: USGS Open File Report OF-2006-1217, Scale 1:100,000.

United States Federal Emergency Management Agency (FEMA), 2008, Flood Insurance Rate Map (FIRM), No.06071C8689H: date August 28.

United States Geological Survey, 1938, Colton, California (Topographic): Scale 1:31,680.

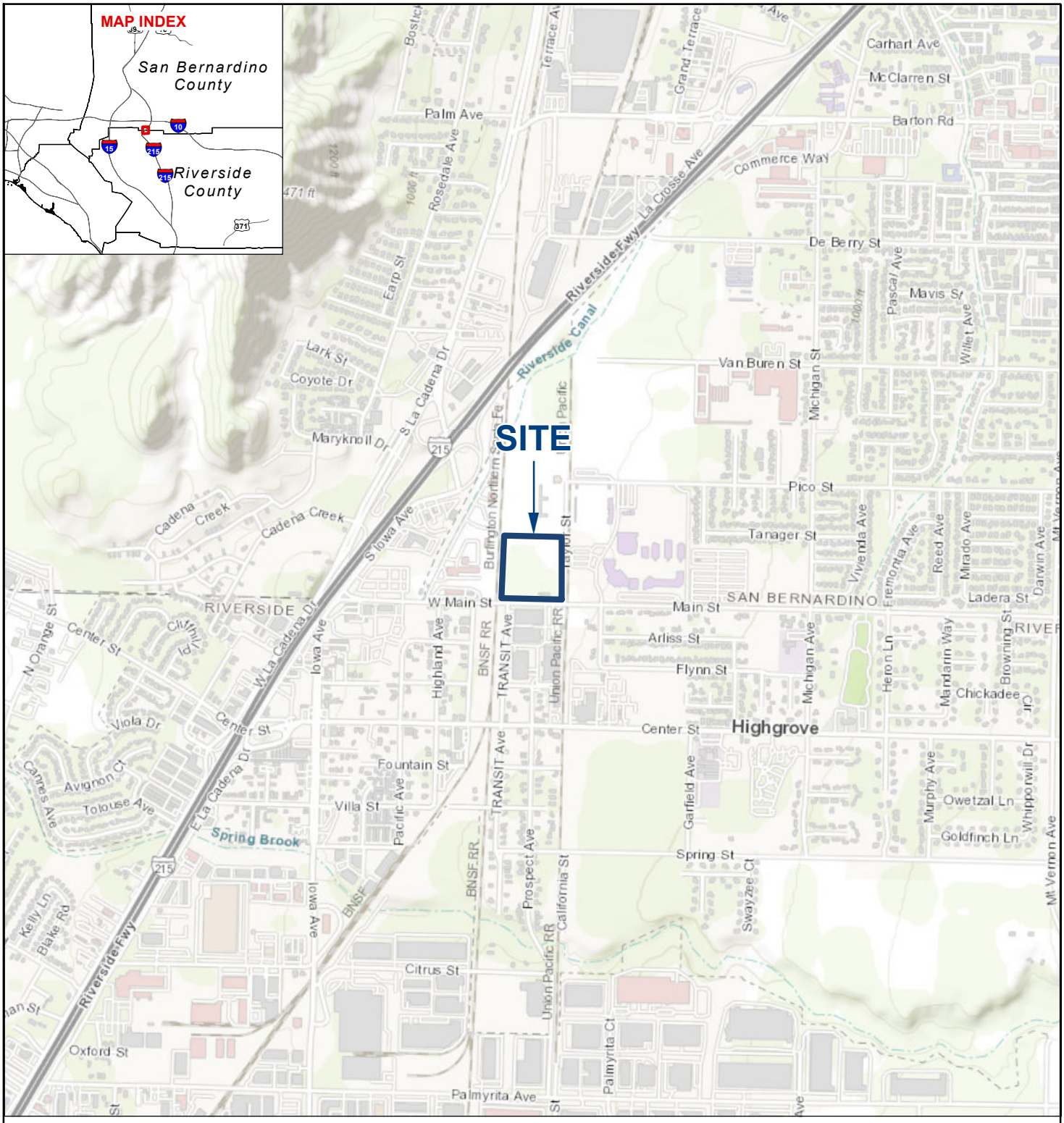
United States Geological Survey, 1943, Colton, California (Topographic): Scale 1:31,680.

United States Geological Survey, 1954, San Bernardino South, California, 7.5-Minute Series (Topographic): Scale 1:24,000.

United States Geological Survey, 2018, San Bernardino South, California, 7.5-Minute Series (Topographic): Scale 1:24,000.

United States Geological Survey (USGS), 2020, National Seismic Hazard Maps - Fault Parameters, World Wide Web, http://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm/.

FIGURES



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: ESRI WORLD TOPO, 2020

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FIGURE 1

SITE LOCATION

CONDOR BATTERY STORAGE PROJECT
GRAND TERRACE, CALIFORNIA

109135001 | 3/21

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LEGEND

SITE BOUNDARY

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE. | SOURCE: GOOGLE EARTH, 2020

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FIGURE 2

AERIAL SITE PLAN

CONDOR BATTERY STORAGE PROJECT
GRAND TERRACE, CALIFORNIA

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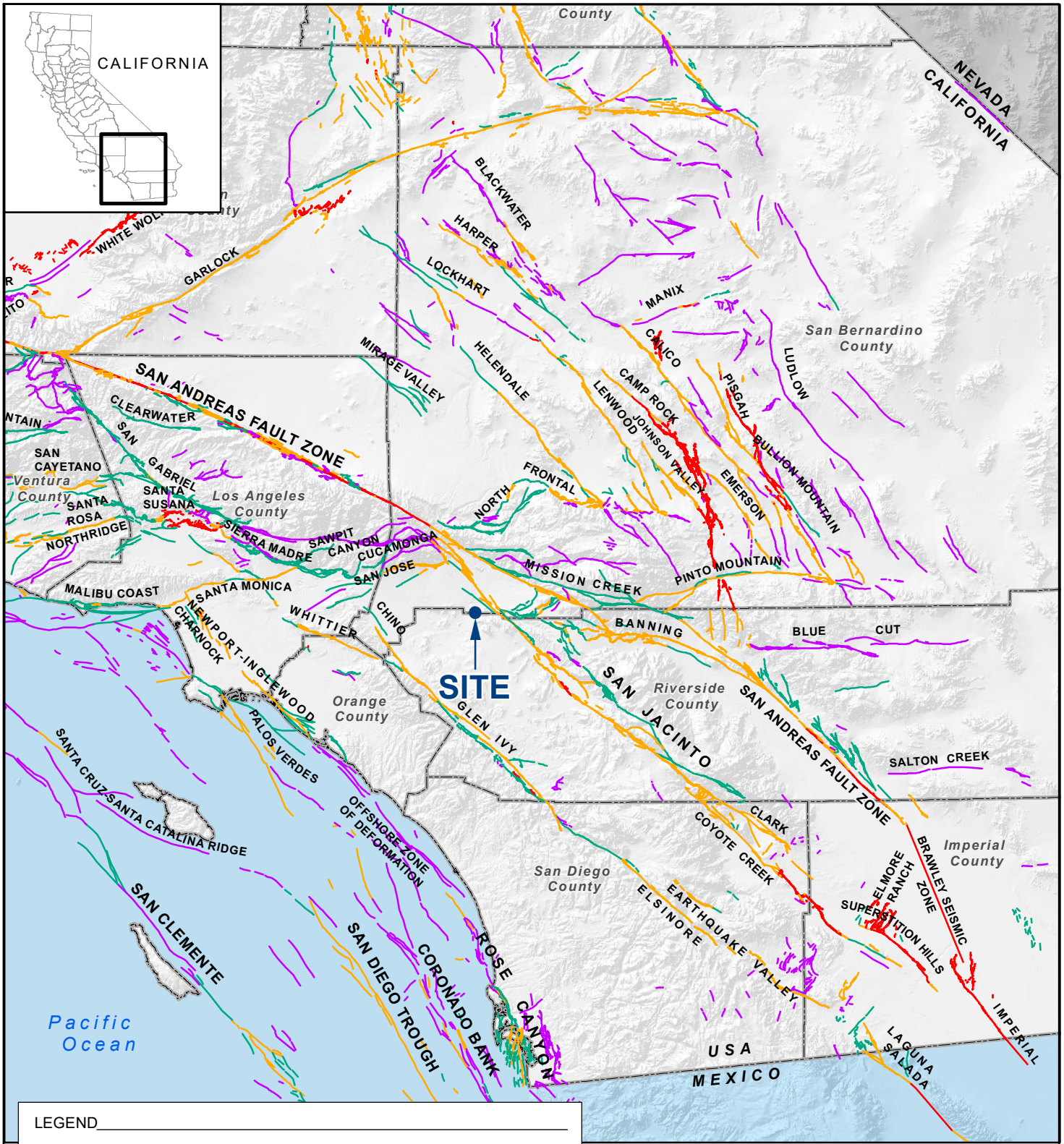

LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- STATE/COUNTY BOUNDARY

SOURCE: U.S. GEOLOGICAL SURVEY AND CALIFORNIA GEOLOGICAL SURVEY, 2006, QUATERNARY FAULT AND FOLD DATABASE FOR THE UNITED STATES.

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NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 3

FAULT LOCATIONS

CONDOR BATTERY STORAGE PROJECT
GRAND TERRACE, CALIFORNIA

109135001 | 3/21

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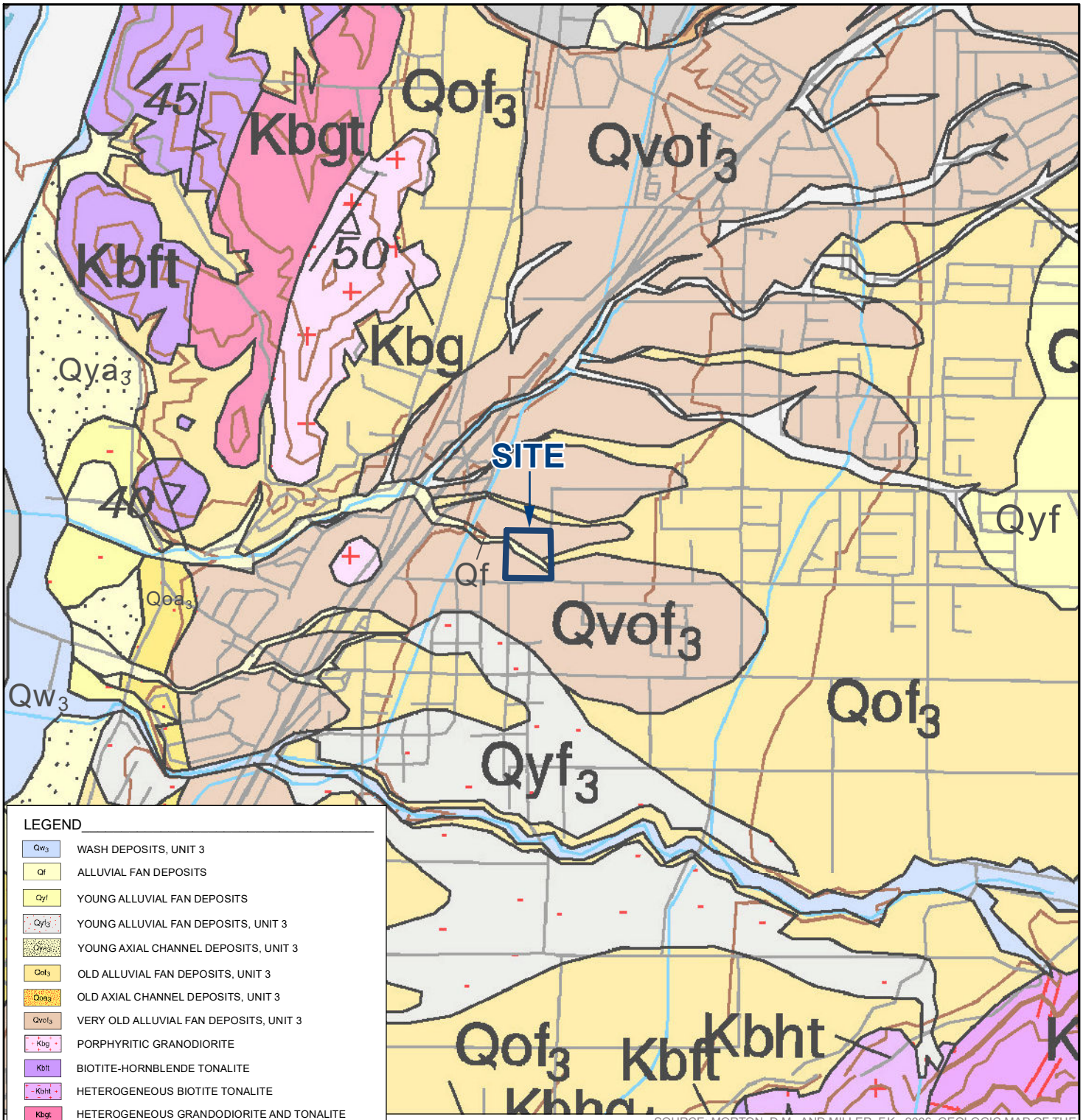

LEGEND

Qw_3	WASH DEPOSITS, UNIT 3
Qf	ALLUVIAL FAN DEPOSITS
Qyf	YOUNG ALLUVIAL FAN DEPOSITS
Qyf_3	YOUNG ALLUVIAL FAN DEPOSITS, UNIT 3
Qya_3	YOUNG AXIAL CHANNEL DEPOSITS, UNIT 3
Qof_3	OLD ALLUVIAL FAN DEPOSITS, UNIT 3
Qoa_3	OLD AXIAL CHANNEL DEPOSITS, UNIT 3
$Qvof_3$	VERY OLD ALLUVIAL FAN DEPOSITS, UNIT 3
Kbg	PORPHYRITIC GRANODIORITE
Kbft	BIOTITE-HORNBLENDE TONALITE
Kbht	HETEROGENEOUS BIOTITE TONALITE
Kbgt	HETEROGENEOUS GRANODIORITE AND TONALITE

70 U D — Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.

50 — Strike and dip of primary igneous foliation; Inclined

Vertical

SOURCE: MORTON, D.M., AND MILLER, F.K., 2006, GEOLOGIC MAP OF THE SAN BERNARDINO AND SANTA ANA 30' X 60' QUADRANGLES, CALIFORNIA

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 4

GEOLOGY

CONDOR BATTERY STORAGE PROJECT
GRAND TERRACE, CALIFORNIA

109135001 | 3/21

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5710 Ruffin Road | San Diego, California 92123 | p. 858.576.1000

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PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

21660 Main Street
Grand Terrace, Ca 92313

PREPARED FOR:

Falcon Energy Storage Holdings, LLC
c/o Tenaska, Inc.
14302 FNB Parkway
Omaha, NE 68154

Project Number: TNSK-20-9873

Date: October 29, 2020

Alta Environmental DBA NV5
3777 Long Beach Boulevard Annex Building
Long Beach CA 90807 United States of America
T 562 495 5777 F 562 495 5877
Toll-free (US only) 800 777-0605 www.altaenviron.com

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EXECUTIVE SUMMARY

Alta Environmental LP, DBA NV5 (NV5) has completed a Phase I Environmental Site Assessment (ESA) of the property located at 21660 Main Street in Grand Terrace, San Bernardino County, California (Site). The ESA was performed in conformance with the scope and limitations of ASTM E1527-13 standards. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. The assessment was performed to identify conditions indicative of releases and threatened releases of hazardous substances and petroleum products on, at, in, or adjacent to the Site. If identified, these issues are considered recognized environmental conditions (RECs).

Site and Vicinity Description

The Site is located at 21660 Main Street in Grand Terrace, San Bernardino County, California. The Site consists of a single parcel of land which totals approximately 9.8 acres in size. The Site can be identified by San Bernardino County Tax Assessor Parcel Numbers (APN): 1167-151-77.

The Site consists of a vacant lot surrounded by perimeter fencing. The western and southern portions of the Site were previously developed as a park known as Cage Park. A dry pond is present on the western portion of the Site and bisecting cement canal structures are present throughout the western and southern portions of the Site. A vacant bathroom and warehouse structure are located on the southeastern portion of the Site. A graded gravel lot is present on the northeastern portion of the Site. Small amounts of debris and trash were observed throughout the Site.

The Site is located within an area primarily comprised of commercial and residential use. Current uses of adjoining properties include: an active Southern California Edison (SCE) Substation and an inactive vacant powerplant to the north; Grand Terrace High School to the east, a shipping/receiving warehouse to the south, and railroad tracks to the west.

Site Use and History

The Site was previously developed for residential and agricultural use as early as 1931. In the early 1950's, the southern and western portions of the Site were developed as Cage Park. The northeastern portion of the Site was developed with several rows of cooling towers associated with the northern adjoining Highgrove Generating Station power plant. The power plant ceased operation in 2001.The cooling towers were removed from the Site sometime between 2006 and 2009. The Site has remained vacant since operation of the power plant ceased.

Data Gaps

The ASTM Standard defines a data gap as "a lack of or inability to obtain information required by the practice despite good faith efforts by the Environmental Professional to gather such information." A data gap is only significant if other information obtained during the ESA, or professional experience, raises reasonable concerns and affects the ability of the Environmental Professional to identify whether a given issue is a REC. The ASTM Standard requires that the ESA report identify and comment on significant data gaps. No data gaps were identified by NV5 during this assessment.

Vapor Encroachment Conditions (VEC)

A Tier 1 vapor encroachment screen (VES) for potential chemicals of concern (COC) was completed for the Site. The assessment was based on the ASTM published Standard Guide E 2600-15. The purpose of the VES was to evaluate the potential for a vapor encroachment condition (VEC), which is the presence or likely presence of COC vapors in subsurface soils at the Site caused by the release of vapors from contaminated soil or groundwater on or near the Site. The results of the VES did not identify evidence of a potential VEC in connection with the Site.

Conclusions and Recommendations

No evidence of a Controlled REC, or historic REC, in connection with the Site were identified during this assessment. The following evidence of a REC was identified:

- The eastern adjoining property, across Taylor Street, was previously developed with a plating facility (K&J Plating). A past release of metals, including chromium and hexavalent chromium, into soil and groundwater was identified at this property. This facility is currently being assessed and remediated under the oversight of the California Department of Toxic Substances Control (DTSC).

  According to the most recent groundwater monitoring report prepared for this facility in June 2020, groundwater is present at depths of 160 to 162 feet below ground surface and flows towards the southwest. Concentrations of several metals including hexavalent chromium and total chromium were detected in the monitoring wells located along the southern (along Main Street) and western (along Taylor Street) boundaries of the former K&J Plating facility.

  Based on available groundwater data and documented groundwater flow direction, this listing is considered to represent evidence of an REC in connection with the Site.

Environmental Issues of Note

- The northern adjoining property and portions of the Site were developed with a power plant (Highgrove Generating Station) beginning in the 1950's. The California Electric Company installed four cooling towers and auxiliary equipment on the Site in the early 1950's. Southern California Edison merged with California Electric Power Company and operated the power plant from 1964 through 2000. The facility transferred ownership two more times, however Southern California Edison retained full responsibility for all environmental liabilities associated with past facility operations and adjoining properties. The cooling towers were installed in the northeast corner of Site. Wastewater from the cooling towers was reportedly discharged into a small natural pond located at Cage Park to the west.

  According to information published in the Previously Phase I ESA report (Appendix F) and the State of California Envirostor website/database (Envirostor), Golder Associates installed a monitoring well (MW-1) between the cooling towers and Cage Park as part of groundwater sampling for total petroleum hydrocarbons (TRPH) and volatile organic compounds (VOC's) in 1998. No TRPH or VOC's were reportedly detected above Regional Water Quality Control Board (RWQCB) maximum screening levels for groundwater samples collected from this monitoring well. Groundwater monitoring data from this well was not identified on Envirostor or within the Previous Phase I ESA report.

  As part of closure activities, Terracon Environmental completed a RCRA Facility Investigation at the Highgrove Generating Station and Cage Park. As part of this investigation, shallow soil samples were collected from numerous locations throughout the northern adjoining property and the Site. Samples were analyzed for metals, volatile organic compounds, pH, polyaromatic hydrocarbons (PAHs), petroleum hydrocarbons, and polychlorinated biphenyl (PCBs). No evidence of a release of the chemical constituents listed above in excess of applicable regulatory health screening standards was identified. Elevated arsenic levels were detected throughout the northern adjoining property and the Site; however, further assessment determined the elevated concentrations to be naturally occurring background concentrations typical for soils in San Bernardino County.

  Based on the lack of evidence indicating that a release had occurred at the facility. A "no further action/remedy completed" letter was issued by DTSC on December 17th, 2013. Based on the

lack of evidence suggesting a release has occurred at the Site, the former Highgrove Generating Station is not considered to represent an REC.

- Previous environmental reports indicate that a groundwater monitoring well (MW-1) was previously located on the central portion of the Site. This well was not observed during the Site reconnaissance and the property owner is not aware of the well's location or current condition. No regulatory records for the abandonment of the monitoring well were identified during this assessment. If still present at the Site, the well should be properly abandoned in accordance with all applicable regulatory requirements.

Recommendations

No additional assessment is recommended at this time. However, NV5 recommends that the Client continue to monitor the progress of remediation and assessment activities at the eastern adjoining property. Please note that future assessment or remedial activities by the responsible party for the impacted groundwater at the eastern adjoining property may require access to the Site.

1 INTRODUCTION

Alta Environmental LP, DBA NV5 (NV5) has completed a Phase I Environmental Site Assessment (ESA) of the property located at 21660 Main Street in Grand Terrace, San Bernardino County, California (Site). The purpose of this assessment is to evaluate the environmental condition of the Site and to satisfy one of the requirements for qualification under the innocent landowner, contiguous property owner, or bona fide prospective purchaser defenses under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). ASTM Standard Practice E1527-13 and the United States Environmental Protection Agency (EPA) Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) constitute the "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in:

1. 42 U.S.C § 9601(35)(B), referenced in the ASTM Standard Practice E1527-13;
2. Sections 101(35)(B) (ii) and (iii) of CERCLA and referenced in the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312); and
3. 42 U.S.C. 9601(40) and 42 U.S.C. 9607(q).

This report was prepared exclusively for use by Falcon Energy Storage Holdings, LLC c/o Tenaska, Inc. (Client). This report may not be relied upon by any other person or entity without NV5's express written permission. The information, conclusions and recommendations described in this report apply to conditions existing at certain locations when services were performed and are intended only for the specific purposes, locations, time frames and project parameters indicated. NV5 cannot be responsible for the impact of any changes in environmental standards, practices, or regulations after performance of services.

1.1 Objectives

NV5's objective for this environmental assessment was to identify conditions indicative of releases and threatened releases of hazardous substances and petroleum products on, at, in, or to the Site. The assessment was conducted to meet the standards of ASTM Standard Practice E1527-13.

The conclusions and recommendations provided herein are based on the following:

1. Current and past Site uses and occupancies;
2. Current and past uses of hazardous substances;
3. Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances;
4. Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;
5. Engineering controls;
6. Institutional controls; and
7. Evaluation of properties adjoining or located nearby the Site that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the Site.

1.2 Services

NV5 performed the following services to assess the Site:

1. Reviewed historical sources of information;
2. Searched for recorded environmental clean-up liens;

3. Reviewed Federal, State, Tribal, and local government records;
4. Visually inspected the Site and the adjoining properties;
5. Evaluated any specialized knowledge or experience on the part of the purchaser; and
6. Determined commonly known or reasonably ascertainable information about the Site.

1.3 Assumptions

NV5 has assumed the following for the purposes of this assessment:

1. Information provided during any interview (written or oral) was accurate and correct;
2. Database information reviewed was accurate and correct;
3. Historical information reviewed was accurate and correct;
4. Information reviewed at any governmental agency was accurate and correct;
5. Groundwater flow and depth to groundwater, unless otherwise specified by on-site well data, or well data from adjacent sites are assumed based on contours depicted on the United States Geological Survey (USGS) Topographic Maps; and
6. The Site has been correctly and accurately identified by the Client, Client representatives, Site contact, Site owner, and/or Site representatives.

1.4 Limitations

This assessment is limited to the standards set forth in ASTM Standard Practice E1527-13. This assessment specifically excludes assessment of the following:

1. Asbestos and asbestos-containing building materials;
2. Biological agents;
3. Cultural and historic resources;
4. Ecological resources;
5. Endangered species;
6. Health and safety;
7. Indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment;
8. Industrial hygiene;
9. Lead-Based Paint;
10. Lead in Drinking Water;
11. Mold;
12. Radon;
13. Regulatory compliance; and
14. Wetlands.

Please note that considerations identified by ASTM as beyond the scope of a Phase I Environmental Site Assessment (ESA) may still affect business environmental risk at a given property. These environmental issues or conditions may warrant assessment based on the type of property transaction; however, they are considered non-scope issues under ASTM Standard Practice E1527-13 and not included in this assessment.

The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluation. The conclusions presented in this report are based solely on the services described herein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No subsurface exploratory drilling or sampling of any kind was conducted under the scope of this work. Unless specifically stated otherwise in the report, no chemical or physical analyses have been performed during the performance of this Phase I ESA.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This information is subject to the limitations of historical documentation, availability, and accuracy of pertinent records and the personal recollections of those persons contacted. As applicable, NV5 has relied in good faith upon representations and information furnished by individuals with respect to operations and existing property conditions, to the extent that they have not been contradicted by data obtained from other sources. Accordingly, NV5 accepts no responsibility for any deficiencies, omissions, misrepresentations, or fraudulent acts of persons interviewed.

Property conditions, as well as local, state, tribal, and federal regulations can change significantly over time. Therefore, the recommendations and conclusions presented in this study apply strictly to the environmental regulations and property conditions existing at the time the study was performed. Available information has been analyzed using currently accepted assessment techniques and it is believed that the inferences made are reasonably representative of the Site. NV5 makes no warranty, express or implied, except that the services have been performed in accordance with generally accepted environmental property assessment practices applicable at the time and location of the study.

This Phase I ESA is not, and should not be construed as, a warranty or guarantee about the presence or absence of hazardous substances or petroleum products that may affect the Site. The assessment is not intended to assure clear title to the Site in question. The sole purpose of investigation into Site title records is to ascertain a historical basis of prior land use and environmental liens. All findings, conclusions, and recommendations stated in this report are based upon facts, circumstances, and industry-accepted procedures for such services as they existed at the time this report was prepared (i.e., federal, state, and local laws, rules, regulations, market conditions, economic conditions, political climate, and other applicable matters). All findings, conclusions, and recommendations stated in this report are based on the data and information provided, and observations and conditions that existed on the date and time of the Site visit. Responses received from local, state, or federal agencies or other secondary sources of information after the issuance of this report may change certain facts, findings, conclusions, or circumstances to the report. A change in any fact, circumstance, or industry-accepted procedure upon which this report was based may adversely affect the findings, conclusions, and recommendations expressed in this report.

1.5 Terms

The following terms are used in this report:

- “Site” refers to the property within the approximate boundaries described in Section 2;
- “Adjoining property” refers to properties adjacent to the Site that share a common boundary with the Site; and
- “Site vicinity” refers to the area within an approximate 1-mile radius of the Site.
- “Recognized Environmental Conditions” (RECs) – The presence or likely presence of any *hazardous substances* or *petroleum products in, on, at or to the* Site: (*1*) due to release to the environment; (*2*) under conditions indicative of a *release* to the *environment*; or (*3*) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis conditions* are not *recognized environmental conditions*.
- “Controlled Recognized Environmental Condition” (CREC) – A recognized environmental condition resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria

established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *property use restrictions*, *activity and use limitations*, *institutional controls*, or *engineering controls*). A condition identified as a *controlled recognized environmental condition* does not imply that the *Environmental Professional* has evaluated or confirmed the adequacy, implementation, or continued effectiveness of the required control that has been, or is intended to be, implemented.

- "Historical Recognized Environmental Condition" (HREC) – A past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the Site and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the Site to any required controls (for example, Site use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).
- "Migrate/migration" – For the purposes of this practice, "migrate" and "migration" refer to the movement of *hazardous substances* or *petroleum products* in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface.
- "Hazardous Substances" – The term "hazardous substance" is used here in general accordance with its use as defined in the following regulations:

  -- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended; and

  -- Superfund Amendment and Reauthorization Act (SARA) of 1986, as amended.

The words "impact" or "impacted" are used to mean the effect or result of a release of a hazardous substance or petroleum product at the Site. Search distances for government agency lists were those designated by the ASTM Standard E 1527-13.

1.6 Environmental Professionals

This document has been prepared by an Environmental Professional as defined by the EPA, 40 CFR Part 312.10. All work performed for this assessment was performed by or under the direct supervision of an Environmental Professional.

2 SITE DESCRIPTION

Mr. Eric Fraske and Ms. Alondra Villanueva, of NV5, conducted a Site reconnaissance on October 7, 2020. The descriptions provided herein are based on information provided by the current Site representatives and on observations made during that visit. Representative Site photographs are included in Appendix A. Site Location and Site Layout maps depicting the areas and features described in the following sections are also provided in Figures 1 and 2.

2.1 Site Location and Use

2.1.1 Location and Description

The Site is located at 21660 Main Street in Grand Terrace, San Bernardino County, California. The Site consists of a single parcel of land which totals approximately 9.8 acres in size. The Site can be identified by San Bernardino County Tax Assessor Parcel Numbers (APN): 1167-151-77.

2.1.2 Development and Current Use

The Site consists of a vacant lot surrounded by perimeter fencing. The western and southern portions of the Site were previously developed as a park known as Cage Park. A dry pond is present on the western portion of the Site and bisecting cement canal structures are present throughout the western and southern portions of the Site. A vacant bathroom and warehouse structure are located on the southeastern portion of the Site. A graded gravel lot is present on the northeastern portion of the Site. Small amounts of debris and trash were observed throughout the Site.

2.2 Utility Service Providers

No active utility services were observed or reported at the Site.

2.3 Chemical and Petroleum Storage Areas

No chemical or petroleum storage areas were observed or reported during the Site reconnaissance.

2.3.1 Drums

No drums were observed or reported during the Site reconnaissance.

2.4 Storage Tanks

2.4.1 Aboveground Storage Tanks (ASTs)

No evidence of ASTs at the Site was observed or reported during the Site reconnaissance.

2.4.2 Underground Storage Tanks (USTs)

No evidence of USTs at the Site was observed or reported during the Site reconnaissance.

2.4.3 Septic Tanks

No septic tanks were observed or reported to be present at the Site during the Site reconnaissance.

2.5 Polychlorinated Biphenyls

No potential PCB-containing equipment was observed at the Site during the Site reconnaissance.

2.6 Floor Drains, Sumps, and Clarifiers

No evidence of floor drains, sumps or clarifiers were observed or reported at the Site during the reconnaissance.

2.7 Back-up Power Generation

No fixed back-up power generators were observed or reported to be on the Site.

2.8 Cooling Towers

No cooling towers were observed on the Site. However, the northeastern portion of the Site was previously developed with cooling towers associated with the former adjacent Highgrove Generating Station power plant.

2.9 Elevators, Lifts and Compactors

No elevators, lifts, or compactors were observed or reported to be on the Site.

2.10 Odors

No strong, pungent, or noxious odors indicative of a past release of hazardous substances or petroleum products were identified during the course of this assessment.

2.11 Pools of Liquid

No standing surface water or other pits, ponds, or lagoons potentially containing hazardous substances or petroleum products were identified within the Site. A dry pond is present on the western portion of the Site. Dry concrete bisecting canals were observed on the southern and western portions of the Site. No evidence of illicit dumping, spills, or releases of hazardous materials into the pond or canals was observed. Their presence on the Site is not considered to represent a REC.

2.12 Surface Staining

No surface staining indicative of a past release of hazardous substances or petroleum products was identified during the course of this assessment.

2.13 Stressed Vegetation

No significantly stressed vegetation or other indications of potential release of hazardous substances or petroleum products were observed during the Site reconnaissance.

2.14 Solid Waste

No evidence of illicit storage or dumping of solid wastes at the Site was observed during the Site reconnaissance. Small amounts of trash and debris were observed during the Site reconnaissance.

2.15 Adjacent Properties

The Site is located within an area of mixed commercial and residential use. The following land use in the near vicinity of the Site was observed:

Direction	Property Name	Property Address	Business Operation
North	Highgrove Generating Station	12700 Taylor St.	Former power plant facility
Northwest	SCE Substation	12700-12898 Taylor St.	Active electrical utility substation
West	BNSF Railroad	None	Railroad transit
East	Former K&J Plating Inc	21750 Main St.	Former plating facility
South	TM Cobb	960 W. Main Street	Warehouse

3 SITE SETTING

3.1 Topographic

The 2012 United States Geological Survey (USGS), [San Bernardino South] 7.5 Minute Topographic Quadrangle map of the Site and surrounding vicinity was reviewed. The elevation of the Site is

approximately 943 feet above mean sea level (msl). The Site and surrounding topography slope downward towards the west-northwest. A copy of the USGS 7.5 Minute Topographic Quadrangle Map is included in Appendix B.

3.2 Regional Geology and Hydrology

The following description of regional geology and hydrology was developed based on regional information presented on the EDR GeoCheck report (2020) and Regional Water Quality Control Board's online *Geotracker* database.

According to United States Department of Agriculture (USDA) soil data published in the EDR GeoCheck report, soils underlying the Site are classified as *Monserate* sandy loam. Soils of this type have slow infiltration rates and moderately fine textures.

NV5 reviewed groundwater data published on the *Geotracker* database for a former RCRA investigation site located at 21750 Main Street (eastern adjoining property across Taylor Street). Based on a review of historical groundwater monitoring data, the shallowest groundwater in the vicinity of the Site is expected to be present at depths of 158 feet below ground surface (bgs). Groundwater flow direction is reported to be towards the west-southwest.

3.3 Flood Plain

According to Federal Emergency Management Agency flood plain data presented in the site-specific Environmental Data Resources (EDR) Geocheck Report, the Site is not located within a 100-year or 500-year flood zone (EDR, 2020). The EDR Report is presented as Appendix B.

3.4 Wetlands

According to map data published on the United States Department of Fish and Wildlife (USFW) National Wetlands Inventory (https://www.fws.gov/wetlands/data/mapper.html), no wetlands are mapped on the Site; however, a freshwater pond is depicted on the northwestern portion of the Site. At the time of Site reconnaissance, the pond was observed to be dry. A screenshot is provided in Appendix C.

3.5 Water Bodies

As indicated above, a dry pond was observed on the northwestern portion of the Site.

3.6 Oil and Gas Wells

According to the State of California Geologic Energy Management Division (CalGem) online Well Finder application, no oil/gas wells were identified on the Site or adjoining properties (Appendix C).

4 USER-PROVIDED INFORMATION

Information obtained during the interview process is presented in the following sections.

4.1 Title Records

Title records were not provided by the Site user representative. However, the EDR Lien and AUL Search report presented copies of the deeds for the Site, as summarized on the following page.

APN	Title Vested In	Title Received From	Deed Dated
1167-151-77	APS Auto Parts	Riverside Canal Power Company	9/19/2014

The EDR Lien and AUL report is presented in Appendix D.

4.2 Clean-Up Liens

No knowledge of any clean-up liens against the Site was reported by those interviewed. Furthermore, the EDR Environmental Lien and AUL Search report did not identify any environmental liens for the Site (Appendix D).

4.3 Activities and Use Limitations

No knowledge of site-specific activities or use limitations recorded against the Site were reported by those interviewed. Furthermore, according to the EDR Lien and AUL Search report, no Activity and Use Limitations are identified for the Site (Appendix D).

4.4 Specialized Knowledge

No specialized knowledge identifying evidence of a recognized environmental condition was disclosed by those interviewed during this assessment.

4.5 Commonly Known Information

No commonly known information identifying evidence of a recognized environmental condition was disclosed by those interviewed during this assessment.

4.6 Previous Environmental Assessments

The client provided NV5 with a copy of a previous Phase I ESA prepared for the Site. The report is summarized below and presented in Appendix F.

***Phase I Environmental Site Assessment for Industrial Property 12700 Taylor Street, Grand Terrace, CA 92313*. Prepared for Lee and Associates. Prepared by DCI Environmental Services. Dated February 12, 2014.**

At the time of this assessment the Site was developed with present day improvements and vacant. A monitoring well “MW-1” was noted to be present on the central portion of the Site. No evidence of recognized environmental conditions was identified.

5 RECORDS REVIEW

5.1 Governmental Databases

NV5 contracted EDR to perform a radius search of governmental databases for this project. The distribution of listed sites with respect to the Site is tabulated and mapped in EDR's Radius Map Report, which can be found in Appendix B. The reader is referred to the table, which can be found near the front of EDR's report.

NV5 conducted a review of the above-referenced database reports and provides the following findings based on sites that have the potential to impact the Site, with respect to the inferred west-southwesterly

groundwater flow direction. Our findings are based on the assumption that a hazardous material released to the subsurface generally does not migrate laterally within unsaturated soil for a significant distance. Although a hazardous substance or petroleum product can migrate in groundwater in a generally down-gradient direction, there are limitations to this interpretation such as groundwater depth, soil lithology and other subsurface barriers.

5.1.1 Site Database Findings

EDR's report did not identify the Site address.

5.1.2 Adjoining Property Database Findings

EDR's report identified several of the adjoining properties, as summarized below

Facility Name & Address	**Former K& J Plating Inc. (Enterprise) 21750 Main St. Grand Terrace, CA**	**Eastern Adjoining Property**
Database(s) Listed: SEMS, RCRA-SQG, FINDS, ECHO, ENVIROSTOR, VCP, San Bern. Co. Permit		

This former facility is located to the east of the Site (across Taylor Street) and is currently a vacant concrete pad.

- According to the SEMS database, the property address was part of a State-Lead Cleanup program.
- According to the RCRA database, in 1997, the property address was reported to be a small quantity generator of ignitable and corrosive waste, as well as chromium and lead and other wastewater treatment sludges. In 2000, 1999,1996,1994, and 1986 the property address was reported to be a large quantity generator.
- According to the San Bernardino Co. Permit the property address has two inactive permits, from 2007, for Hazardous Waste Generator employees, and Hazmat Handler employees.
- The property address is listed as part of the Voluntary Cleanup Program (VCP) as of 2013.
- According to the Envirostor database "*K & J Plating, Inc. bought the facility from Riverside Plating. Riverside Plating conducted hard and regular anodizing operations, cadmium plating, zinc plating, chrome plating and black oxide processing on this property from approximately 1966 to 1973. K & J Plating continued the decorative chrome process, the cadmium plating process and the black oxide process until 1999 when all operations ceased.*

  In 1985 soil sampling was performed at the site and revealed elevated levels of heavy metals in soil. Then a 1990 groundwater investigation revealed elevated levels of chromium, cadmium, and zinc in groundwater. In 1993, a concrete clarifier and the contaminated soil surrounding the area were excavated, removed, and backfilled. Also, contaminated soil to the northwest and northeast of the wastewater treatment area was excavated, removed, disposed offsite, and backfilled. Under the Regional Water Quality Control Board (RWQCB) Santa Ana Region approximately 500 tons of contaminated soil was removed from the site in 1993. An additional 1.3 tons of contaminated soil were excavated in 1997. According to the field sampling report, dated 1997, by Advanced Environmental, Inc., elevated levels for nickel and total chromium were detected in the groundwater below the site. In November 2000, a 500-

Facility Name & Address	Former K& J Plating Inc. (Enterprise) 21750 Main St. Grand Terrace, CA	Eastern Adjoining Property

gallon steel underground storage tank (UST) was encountered at the site, tested and removed under the oversight of the San Bernardino County Fire Department. All soil tests taken around and below the UST resulted in non-detect concentrations for petroleum hydrocarbons and a full spectrum of volatile organic compounds (VOCs). An Advanced Environmental, Inc. letter, dated December 22, 2000, requested site closure for the underground storage tank portion of the Site.

On August 27, 1999 K/J Plating, Inc. signed a Corrective Action Consent Agreement with DTSC to conduct further facility investigation. On February 2, 2001, groundwater was tested again and revealed the presence of nickel that exceeded the Maximum Contaminant Level (MCL) for drinking water. Aromatic hydrocarbons and several chlorinated solvents were also found at low levels, but none exceeded the MCLs. K&N Engineering, Inc. entered into a Consultative Services Agreement with the Department of Toxic Substances Control (DTSC), to complete investigation and remediation of the property. Soil characterization, human health risk assessment (HHRA), and chemical transport modeling to assess potential future hexavalent chromium impacts to groundwater quality were completed in 2010. A HHRA determined the residual metal-impacted soil does not pose significant health risks to future on-site commercial or industrial receptors. The chemicals transport modeling report concluded that Site paving would eliminate downward migration of hexavalent chromium and other metals to groundwater by preventing water infiltration, and thus prevent groundwater quality degradation beneath the facility from the residual hexavalent chromium and other metals impacts. Based on the available groundwater data reviewed for well RN 7 between 2004 and 2009, chemical concentrations above the drinking water standards have not been detected in any of the groundwater samples. In 2011, DTSC circulated for public comment and subsequently approved a Removal Action Workplan that included construction of a concrete surface cover (cap) on the entire facility, operation and maintenance of the cap, groundwater monitoring, and restriction of future site redevelopment to commercial/industrial land uses. Construction of the cap and new groundwater monitoring system were completed in 2012. A Land Use Covenant (LUC) was filed with the San Bernardino County Assessor's Office in 2013."

According to the most recent groundwater monitoring report prepared for this facility in June 2020, groundwater is present at depths of 160 to 162 feet below ground surface and flows towards the southwest. Concentrations of several metals including hexavalent chromium and total chromium were detected in the monitoring wells located along the southern (along Main Street) and western (along Taylor Street) boundaries of the property.

Based on available groundwater data and documented groundwater flow direction, this listing is considered to represent evidence of an REC in connection with the Site.

Facility Name & Address	Former EPTC Powerplant/Riverside Canal Power/Highgrove Station 12700 Taylor St. Grand Terrace, CA	Northern Adjoining Properties
Database(s) Listed: CIWQS, RCRA NonGen/ NLR, WDS, HIST UST, ENF, HAZNET, San Bern. Co. Permit, CIWQS, CERS, HWTS		
These facilities are located on the northern adjoining property. The eastern portion of the property is		

Facility Name & Address	Former EPTC Powerplant/Riverside Canal Power/Highgrove Station 12700 Taylor St. Grand Terrace, CA	Northern Adjoining Properties

developed as a former power plant and the western portion of the property is developed with an active electrical substation. According to records posted on the Envirostor website, the former power plant, previously known as the Highgrove Generating Station, was constructed in the 1950's and operated until 2001. The Site was previously developed as the southern portion of this power plant and consisted of a park (Cage Park) and cooling towers.

- According to the CIWQS database, this property operated under a construction stormwater permit in 2000 and 2001.
- According to the RCRA database, this facility is a verified non-generator of hazardous waste.
- According to the WDS database, this facility is subject to stormwater discharge requirements for industrial facilities.
- According to the UST and HIST UST databases, thirteen storage tanks of various sizes containing "waste" or "product" were registered to the facility address.
- According to the ENF database, a notice of violation regarding stormwater compliance was issued to this facility in 2000.
- According to the HAZNET database the past and current occupants of this property have disposed of waste oil, asbestos containing wastes, mixed oil, PCB containing waste, and liquids containing mercury.
- The San Bernardino Co. Permit database identified this facility as being a registered AST facility and registered location where hazardous materials are stored.
- According to the CERS database, this facility was last inspected by the local environmental regulatory oversight agency (San Bernardino County Fire Department) in 2016. No violations were reported.
- According to the AST database, this facility is the registered location of ASTs with a total storage capacity of 8,338 gallons.

According to records published on the Envirostor database/website (Section 5.2) California Electric Power Company installed four cooling towers and auxiliary equipment on the Site in the early 1950's. Southern California Edison merged with California Electric Power Company and operated the power plant from 1964 through 2000. The facility transferred ownership two more times, however Southern California Edison retained full responsibility for all environmental liabilities associated with past facility operations and adjoining properties. The cooling towers were installed in the northeast corner of Site. Wastewater from the cooling towers was discharged into a small natural pond located at Cage Park to the west.

According to information published in the Previously Phase I ESA report (Appendix F) and Envirostor, Golder Associates installed a monitoring well (MW-1) between the cooling towers and Cage Park as part of groundwater sampling for TRPH and VOC's in 1998. No TRPH or VOC's were reportedly detected above RWQCB's maximum screening levels for groundwater samples collected from this monitoring well. Groundwater monitoring data from this well was not identified on Envirostor or within the Previous Phase I ESA report.

Terracon Environmental completed a RCRA Facility Investigation at the Highgrove Generating Station and Cage Park. As part of this investigation, shallow soil samples were collected from numerous locations throughout the northern adjoining property and the Site. Samples were analyzed for metals, volatile organic compounds, pH, PAHs, petroleum hydrocarbons, and PCBs. No evidence of a release

Facility Name & Address	**Former EPTC Powerplant/Riverside Canal Power/Highgrove Station 12700 Taylor St. Grand Terrace, CA**	**Northern Adjoining Properties**
of the chemical constituents listed above in excess of applicable regulatory health screening standards was identified. Elevated arsenic levels were detected throughout the northern adjoining property and the Site; however, further assessment determined the elevated concentrations to be naturally occurring background concentrations typical for soils in San Bernardino County. Based on the lack of evidence indicating that a release had occurred at the facility. A "no further action/remedy completed" letter was issued by DTSC on December 17th, 2013. Based on the lack of evidence suggesting a release has occurred at the Site, this listing is not considered to represent a REC.		

Facility Name & Address	**RN#7 Chlorination Station 21700 Main Street Grand Terrace, CA 92313**	**Southeastern Adjoining Property**
Database(s) Listed: San Bernardino County Permit		
This facility, an inactive groundwater production well, is located immediately southeast of the Site boundary. This facility is listed on the San Bernardino County Permit database with several inactive hazardous material permits. No spills, leaks, or releases are reported at this facility. Based on the lack of evidence suggesting a release of hazardous materials or petroleum products has occurred at this facility, this listing is not considered to represent a REC.		

Facility Name & Address	**TM Cobb 960 W Main St. Grand Terrace, CA**	**Southern Adjoining Property**
Database(s) Listed: HIST UST		
This facility is located south of the site (across Main Street). According to the HIST UST database, this facility is the registered location of a 10,000-gallon diesel UST, one 20,000-gallon diesel UST, and one 5,000-gallon gasoline UST. No spills, leaks, or releases are reported at this facility. Based on the lack of evidence suggesting a release of hazardous materials or petroleum products has occurred at this facility, separation distance, and downgradient position with respect to groundwater flow, this listing is not considered to represent a REC.		

5.1.3 General Vicinity Database Findings

EDR's report identified multiple off-Site facilities within applicable ASTM search radii. NV5 considered all of the listed sites unlikely to impact the Site, based upon factors including (but not limited to):

- The nature of the listing;
- The use of the site;

- When the site was listed and its current listed status;
- The developmental density of the setting;
- The distance between the listed sites and the Site as related to the distance that releases are likely to migrate based on local surface and subsurface drainage conditions;
- The presence of intervening drainage divides; and/or
- The inferred groundwater movement.

5.2 Regional Agency Offices

NV5 submitted information requests to the various county and regional agencies that may have records with regard to environmentally-oriented concerns affecting the Site, in accordance with ASTM E1527-13 requirements. Should significant records be identified at a later date, an addendum to this report will be issued. Documentation obtained from regulatory agency requests is presented in Appendix C.

Agency	Records Summary
California Division of Geologic Energy Management (CalGEM)	No oil or gas wells were identified on the Site or adjoining properties.
Regional Water Quality Control Board – GEOTRACKER	Site None Adjoining Property None
Department of Toxic Substances Control – ENVIROSTOR	Site No records were identified for the Site. Adjoining Properties (Discussed in Section 5.1.2) Northern Adjoining Property – Former Highgrove Generating Station https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=36340037 Eastern Adjoining Property – Former K&J Plating Facility https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001332
San Bernardino County Public Health and Environmental Services	No records for the Site address were identified.
San Bernardino County Fire Department	No records for the Site address were identified.
City of Grand Terrace – Building and Safety Department	No building permit records for the Site address were identified.

5.3 Historical Records

NV5 used USGS Topo maps, aerial photographs, fire insurance maps, and historical street directories to provide information about the history of the Site and its surroundings. The resources NV5 reviewed are tabulated below and presented in Appendix E.

Historical Resources		
Source Type	**Years Reviewed**	**Source**
USGS Topo Maps	1896, 1898, 1901, 1938, 1942, 1943, 1947, 1953, 1954, 1967, 1973, 1975,1980, and 2012	USGS/EDR
Aerial Photograph(s)	1931,1938, 1949, 1953, 1959, 1967, 1974, 19781985, 1989, 1995, 2006, 2009, 2012, and 2016	EDR
Fire Insurance (Sanborn) Maps	No Coverage Letter	EDR
Street Directories	1971, 1976, 1980, 1985, 1992, 1995, 2000, 2005, 2010, 2014, and 2017	EDR

5.4 Past Uses – Site

Our interpretation of past uses of the Site, based on the historical data sources listed above, are tabulated below. The Site address was not identified in the historical city directories reviewed during this assessment.

Date	Interpreted Property Use
1931 to 1949	Aerial photographs depict the Site to be developed with what appears to be a residential home and barn structure. The remaining portion of the Site is cultivated for agricultural use.
1953	An aerial photograph and Topo map depict the southern and western portion of the Site to be developed with the present-day Cage Park improvements. Two rows of cooling towers are depicted on the northeastern portion of the Site.
1959 to 2009	Aerial photographs and Topo maps depict the southern and western portions of the Site to be developed with the present-day Cage Park improvements. The northeastern portion of the Site is developed with four rows of cooling towers.
2012 to 2016	Aerial photographs depict the southern and western portions of the Site to be developed with the present-day Cage Park improvements. The northeastern portion of the Site is now a vacant graded gravel-covered lot.

5.5 Past Uses – Adjoining Properties

Our interpretation of past uses of the adjoining properties, based on the historical data sources listed above, are tabulated below.

Date	Description
Eastern Adjoining Property	
1931 to1949	Topo Maps and Aerial Photographs depict the property across Taylor Street to be cultivated for agricultural use.
1953 to 2006	Aerial photographs and Topo maps depict the property to be developed with a commercial/industrial building and a vacant field. Historical city directories identified the past tenant of the property as: **21750 Main Street** • Private Line K&N Engineering (2000) • K&J Plating (1995 and 1985) • K&N Plating (1992) • K&J Enterprises (1980 and 1976) • Riverside Plating (1971)
2009	An aerial photograph depicts the location of the commercial/industrial building to be a building pad with no structure. The remainder of the property is vacant.
2012	An aerial photograph depicts the location of the commercial/industrial building to be a building pad with no structure. The northern portion of the property is developed with a parking lot for the nearby school.
2016	An aerial photograph depicts the location of the commercial/industrial building to be the present-day concrete pad. The northern portion of the property is developed with a parking lot for the nearby school.
Northern Adjoining Property	
1931 to 1949	Topo Maps and Aerial Photographs depict the property to be cultivated for agricultural use.
1953	Aerial Photographs and Topo Maps depict the property to be under construction for the Highgrove Generating Station.
1959 to 2009	Topo Maps and Aerial Photographs depict the property to be developed with a power plant and electrical substation.

Date	Description
2012 to 2016	Topo Maps and Aerial photographs depict the present-day electrical substation and power plant building. Several of the structures and equipment have been removed from the power plant.
Western Adjoining Property	
1931 to 2016	Topo Maps and Aerial Photographs depict the property to be present day railroad.
Southern Adjoining Property	
1931 to 1974	Topo Maps and Aerial Photographs depict the property, across Main Street, to be agriculture fields.
1978 to 1985	Aerial Photographs and Topo Maps depict a small warehouse structure on the northern portion of the property.
1989	Aerial photographs depict the small warehouse structure to be demolished on the property. The property is vacant graded land.
1995 to 2016	Aerial photographs depict the property to be developed with the present-day warehouse structure.

5.6 Interviews

NV5 interviewed parties potentially having information about current and/or former conditions at the Site. The parties and their affiliation are tabulated on the following page.

Interviews		
Name	**Affiliation**	**Role**
Mr. Keith Latham	Tenaska Inc., Vice President	Client/User
Han Liu	Treeline Realty	Site Contact and Property Owner Representative

Mr. Latham arranged for Site access and completed the User Questionnaire.

Mr. Liu indicated that the property owner was not aware of any USTs, wells, vaults, clarifiers, septic tanks, or soil and/or groundwater contamination at the Site. Mr. Liu indicated that the Site has remained vacant during their ownership.

6 NON-SCOPE CONSIDERATIONS

Per the authorized scope of work, items beyond the scope of ASTM E-1527-13 were not addressed as part of this assessment.

7 VAPOR ENCROACHMENT SCREENING

ASTM E1527-13 requires the Environmental Professional to evaluate the potential for vapor encroachment of chemicals of concern (COC) onto the Site, and to determine if such vapor encroachment constitutes evidence of a REC on the Site. The E1527-13 Standard Practice does not specifically state the methods that must be used to screen for potential vapor encroachment issues.

However, ASTM has developed a separate Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions (ASTM E2600-15), which outlines an ASTM E1527-13-compliant methodology to conduct vapor encroachment screening that was used for this assessment as described below.

7.1 VES Methodology

The goal of conducting Vapor Encroachment Screening (VES) is to identify a vapor encroachment condition (VEC), which is defined as the presence or likely presence of chemicals of concern (COC) vapors in the vadose zone of the Site caused by the release of vapors from contaminated soil and/or groundwater either on or near the Site. If a VEC is identified, the Environmental Professional must determine whether the VEC represents evidence of a REC on the Site under the context of the Phase I ESA Standard Practice. It should be noted that the identification of a VEC on the Site does not necessarily indicate that a potential for migration of vapors into existing or proposed structures on the Site is likely. The Environmental Professional will identify the VEC as a REC where the potential for vapor migration into structures is considered likely, or where the contaminant concentrations in the soil, groundwater, or soil vapors on the Site are significant and likely to result in enforcement against on-site or off-site responsible parties.

The VES utilizes information regarding the potential presence of releases on or near the Site that were collected as a normal part of the Phase I ESA process, such as governmental database records, review of governmental files, historical data sources, etc. The VES Standard Guide requires the Environmental Professional to search for potential sites of concern within specific search radii. The area of concern search radius is 1,760 feet (1/3 mile) for non-petroleum-impacted sites and 528 feet (1/10 miles) for petroleum-impacted sites. The default search distances may be expanded or reduced in the upgradient, downgradient, or cross-gradient directions by the Environmental Professional based on experience in the local area and applying professional judgment to factors such as where a well-defined regional groundwater flow direction is identified, or whether other geologic features such as low permeability soils or hydrogeologic boundaries such as rivers or streams exist which would tend to limit the potential for migration of groundwater or vapors in a particular direction.

7.2 VES Search Results

NV5 identified several sites of potential concern within the VES search radii. However, based on our review of governmental database records, regulatory agency files, and historical resources referenced in Section 5.3, none of the sites of potential concern are considered to represent a VEC.

8 FINDINGS

Based on the Site reconnaissance, review of historical and available documents, and interviews, NV5 finds the following:

8.1 Current Site Activities

The Site is located at 21660 Main Street in Grand Terrace, San Bernardino County, California. The Site consists of a single parcel of land which totals approximately 9.8 acres in size. The Site can be identified by San Bernardino County Tax APN: 1167-151-77.

The Site consists of a vacant lot surrounded by perimeter fencing. The western and southern portions of the Site were previously developed as a park known as Cage Park. A dry pond is present on the western portion of the Site and bisecting cement canal structures are present throughout the western and southern portions of the Site. A vacant bathroom and warehouse structure are located on the southeastern portion of the Site. A graded gravel lot is present on the northeastern portion of the Site. Small amounts of debris and trash were observed throughout the Site.

8.2 Historical Site Activities

The Site was previously developed for residential and agricultural use as early as 1931. In the early 1950's, the southern and western portions of the Site were developed as Cage Park. The northeastern portion of the Site was developed with several rows of cooling towers associated with the northern adjoining Highgrove Generating Station power plant. The power plant ceased operation in 2001.The cooling towers were removed from the Site sometime between 2006 and 2009. The Site has remained vacant since operation of the power plant ceased.

8.3 Off-Site Activities

The Site is located within an area primarily comprised of commercial and residential use. Current uses of adjoining properties include: an active SCE Substation and an inactive vacant powerplant to the north; Grand Terrace High School to the east, a shipping/receiving warehouse to the south, and railroad tracks to the west.

8.4 Data-Gaps

The ASTM Standard defines a data gap as "a lack of or inability to obtain information required by the practice despite good faith efforts by the Environmental Professional to gather such information." A data gap is only significant if other information obtained during the ESA, or professional experience, raises reasonable concerns and affects the ability of the Environmental Professional to identify whether a given issue is a REC. The ASTM Standard requires that the ESA report identify and comment on significant data gaps. No data gaps were identified by NV5 during this assessment.

9 CONCLUSIONS AND RECOMMENDATIONS

NV5 completed a Phase I ESA of the property located at 21660 Main Street in Grand Terrace, San Bernardino County, California. The ESA was performed in conformance with the scope and limitations of ASTM E1527-13 standards. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. The assessment was performed to identify conditions indicative of releases and threatened releases of hazardous substances and petroleum products on, at, in, or to the Site.

Conclusions

No evidence of a Controlled REC, or historic REC, in connection with the Site were identified during this assessment. The following evidence of a REC was identified:

- The eastern adjoining property, across Taylor Street, was previously developed with a plating facility (K&J Plating). A past release of metals including chromium and hexavalent chromium into groundwater was identified at this property. This facility is currently being assessed and remediated under the oversight of the DTSC.

According to the most recent groundwater monitoring report prepared for this facility in June 2020, groundwater is present at depths of 160 to 162 feet below ground surface and flows towards the southwest. Concentrations of several metals including hexavalent chromium and total chromium were detected in the monitoring wells located along the southern (along Main Street) and western (along Taylor Street) boundaries of the former K&J Plating facility.

Based on available groundwater data and documented groundwater flow direction, this listing is considered to represent evidence of a REC in connection with the Site.

Environmental Issues of Note

- The northern adjoining property and portions of the Site were developed with a power plant (Highgrove Generating Station) beginning in the 1950's. The California Electric Company installed four cooling towers and auxiliary equipment on the Site in the early 1950's. Southern California Edison merged with California Electric Power Company and operated the power plant from 1964 through 2000. The facility transferred ownership two more times, however Southern California Edison retained full responsibility for all environmental liabilities associated with past facility operations and adjoining properties. The cooling towers were installed in the northeast corner of Site. Wastewater from the cooling towers was discharged into a small natural pond located at Cage Park to the west.

  According to information published in the Previously Phase I ESA report (Appendix F) and Envirostor, Golder Associates installed a monitoring well (MW-1) between the cooling towers and Cage Park as part of groundwater sampling for TRPH and VOC's in 1998. No TRPH or VOC's were detected above Regional Water Quality Control Board (RWQCB) maximum screening levels for groundwater samples collected from this monitoring well. Groundwater monitoring data from this well was not identified on Envirostor or within the Previous Phase I ESA report.

  As part of closure activities, Terracon Environmental completed a RCRA Facility Investigation at the Highgrove Generating Station and Cage Park. As part of this investigation, shallow soil samples were collected from numerous locations throughout the northern adjoining property and the Site. Samples were analyzed for metals, volatile organic compounds, pH, PAHs, petroleum hydrocarbons, and PCBs. No evidence of a release of the chemical constituents listed above in excess of applicable regulatory health screening standards was identified. Elevated arsenic levels were detected throughout the northern adjoining property and the Site; however, further assessment determined the elevated concentrations to be naturally occurring background concentrations typical for soils in San Bernardino County.

  Based on the lack of evidence indicating that a release had occurred at the facility. A "no further action/remedy completed" letter was issued by DTSC on December 17th, 2013. Based on the lack of evidence suggesting a release has occurred at the Site, the former Highgrove Generating Station is not considered to represent a REC.

- Previous environmental reports indicate that a groundwater monitoring well (MW-1) was previously located on the central portion of the Site. This well was not observed during the Site reconnaissance and the property owner is not aware of the well's location or current condition. No regulatory records for the abandonment of the monitoring well were identified during this assessment. If still present at the Site, the well should be properly abandoned in accordance with all applicable regulatory requirements.

Recommendations

No additional assessment is recommended at this time. However, NV5 recommends that the Client continue to monitor the progress of remediation and assessment activities at the eastern adjoining property. Please note that future assessment or remedial activities by the responsible party for the impacted groundwater at the eastern adjoining property may require access to the Site.

10 QUALIFICATIONS AND SIGNATURE

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

ERIC FRASKE, PE
SENIOR ENGINEER

BRYAN STONE, PE
SENIOR TECHNICAL REVIEWER
VICE PRESIDENT

Resume and other supporting documentation are maintained on file at NV5.

Figures

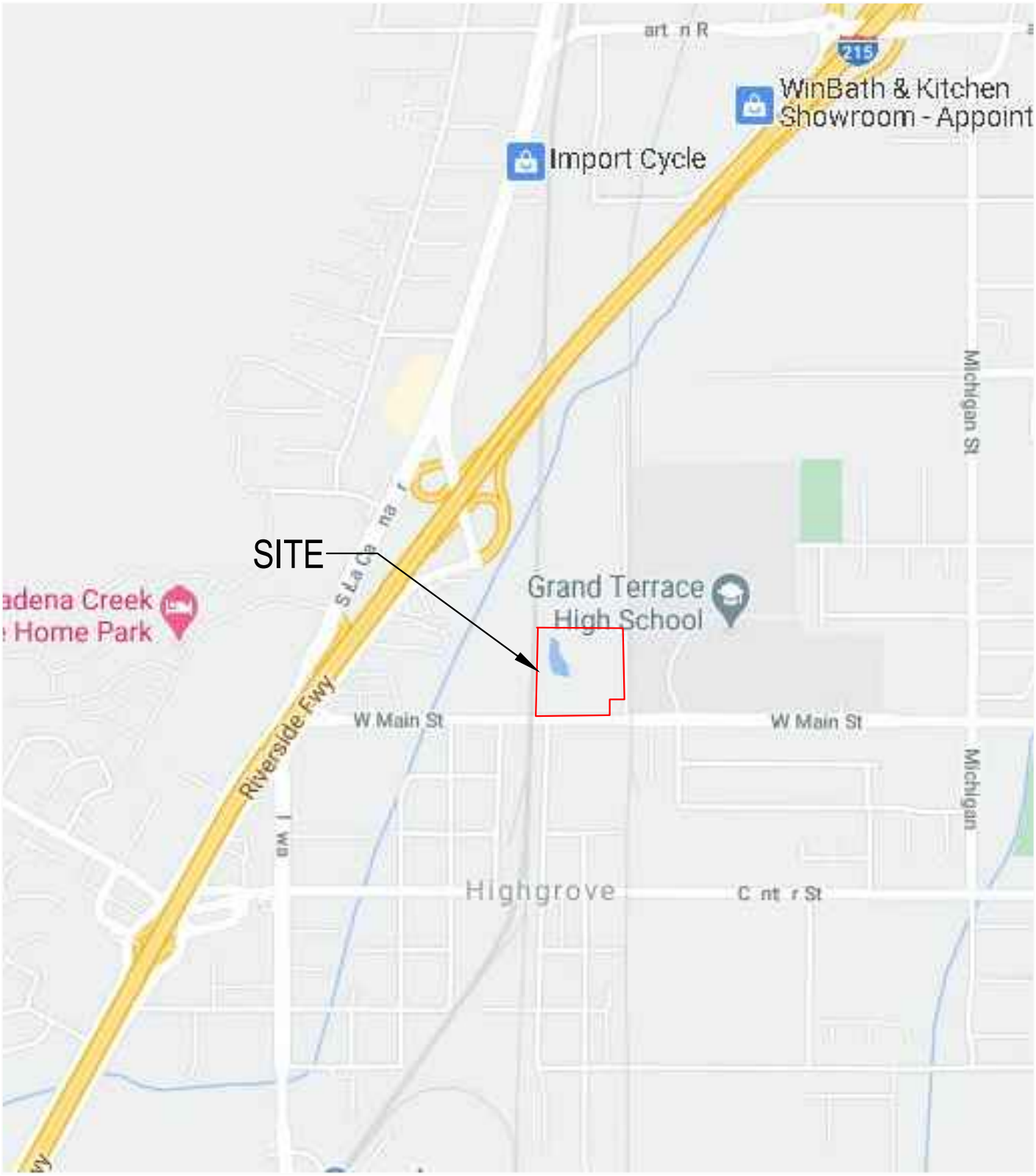

FIGURE 1: Site Location Map

CLIENT: Tenaska, Inc.	SITE LOCATION: 21660 Main Street Grand Terrace, California
PROJECT #: TNSK-20-9873	

NV5 ALTA ENVIRONMENTAL
3777 Long Beach Blvd., Annex Bldg.
Long Beach, CA 90807
(562) 495-5777 www.altaenviron.com

DRAWN: AV	APPROVED: EF	NORTH
SCALE: None	DATE: October 2020	

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Approximate Site Boundary

Monitoring Well

Pad Mounted Transformer

RN Well No.7 Riverside Highland Water Co.

FIGURE 2: Site Vicinity Map

CLIENT: Tenaska, Inc.	DRAWN: AV	APPROVED: EF
	SCALE: None	DATE: 10/8/2020
SITE LOCATION: 21660 Main Street Grand Terrace, California	PROJECT #: TNSK-20-9873	
	SOURCE: Google Earth Professional, 2018	

NORTH

NV5
ALTA ENVIRONMENTAL
3777 Long Beach Blvd. Annex Bldg. Long Beach, California 90807
P: (562) 495-5777 ◆ F: (562) 495-5877 ◆ www.altaenviron.com

W:\Clients T-Z\Tenaska (TNSK)\TNSK-20-9873 Grand Terrace Phase I ESA\CAD\FIGURES GRAND TERRACE.dwg

Appendix A

Representative Site Photographs

Photo 1: Site Entrance Facing Northeast

Photo 2: Site Facing Northeast from Main St.

Photo 3: Site Facing Southwest

Photo 4: Vacant Warehouse Structure on the Southeastern border of the Site

Photo 5: Site Facing West

Photo 6: Site Facing East

Photo 7: Gravel Graded Lot located in the Northeastern section of the Site

Photo 8: Site Facing North

Photo 9: Bisecting Canal Structures Facing West

Photo 10: Bathroom and Vacant Warehouse Structure facing Southeast

Photo 11: Site Facing West Toward Dry Pond

Photo 12: North Perimeter of Pond (Dry) on Northwest boundary of the Site

Photo 13: Northern Adjoining Property, Inactive Powerplant

Photo 14: Northwestern Adjoining Property, Active SCE Substation

Photo 15: East Adjoining property (Grand Terrace High School)

Photo 16: Additional Eastern Adjoining Property Former K&J Plating Inc.

Photo 17: Southern Adjoining Property (T.M. Cobb)

Photo 18: Western Adjoining Property (BNSF Railway)

Photo 19: RN Well No.7 Riverside Highland Water Co. Easterly Adjacent to Site Entrance

Appendix B

EDR Radius Report with GeoCheck

Cage Park
21660 Main Street
Grand Terrace, CA 92313

Inquiry Number: 6212139.2s
October 01, 2020

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

21660 MAIN STREET
GRAND TERRACE, CA 92313

COORDINATES

Latitude (North):	34.0204570 - 34° 1' 13.64''
Longitude (West):	117.3322810 - 117° 19' 56.21''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	469321.2
UTM Y (Meters):	3764279.5
Elevation:	943 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5620416 SAN BERNARDINO SOUTH, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
21660 MAIN STREET
GRAND TERRACE, CA 92313

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	RIVERSIDE CANAL POWE	12700 TAYLOR ST	UST	Higher	1 ft.
A2	HIGHGROVE STATION TA	12700 TAYLOR ST	CIWQS	Higher	1 ft.
A3	HIGHGROVE SUBSTATION	12700-12898 TAYLOR S	RCRA NonGen / NLR	Higher	1 ft.
A4	RIVERSIDE CANAL POWE	12700 TAYLOR ST	WDS	Higher	1 ft.
A5	RIVERSIDE CANAL POWE	12700 TAYLOR ST	RCRA NonGen / NLR	Higher	1 ft.
A6	HIGHGROVE SUBSTATION	12700 TAYLOR ST	HIST UST, ENF, HAZNET, San Bern. Co. Permit,...	Higher	1 ft.
A7	HIGHGROVE SUBSTATION	12700-12898 TAYLOR S	HAZNET, HWTS	Higher	1 ft.
A8	RIVERSIDE CANAL POWE	12700 TAYLOR ST	FINDS, ECHO	Higher	1 ft.
A9	SOUTHERN CALIFORNIA	12700 TAYLOR ST.	HAZNET, HWTS	Higher	1 ft.
A10	RIVERSIDE CANAL POWE	12700 TAYLOR ST	AST, San Bern. Co. Permit	Higher	1 ft.
A11		12700 TAYLOR ST.	ERNS	Higher	1 ft.
A12	RIVERSIDE CANAL POWE	12700 TAYLOR ST	HAZNET, HWTS	Higher	1 ft.
A13		12700 TAYLOR ST (FOR	CHMIRS	Higher	1 ft.
A14	AES HIGHGROVE LLC	12700 TAYLOR ST	FINDS, ECHO	Higher	1 ft.
A15	SCE-HIGHGROVE SWITCH	12700 TAYLOR ST	FINDS	Higher	1 ft.
A16	RIVERSIDE CANAL POWE	12700 TAYLOR ST	CERS	Higher	1 ft.
A17	HIGHGROVE SUBSTATION	12700 TAYLOR ST	SWEEPS UST, HIST UST, DRYCLEANERS, EMI, HAZNET,...	Higher	9, 0.002, NE
18	RN #7 CHLORINATION S	21700 MAIN ST	San Bern. Co. Permit	Higher	146, 0.028, SE
B19	EPTC-HIGHGROVE	12600 TAYLOR ST.	CORRACTS, RCRA-SQG	Higher	229, 0.043, NNE
B20	EPTC-HIGHGROVE	12600 TAYLOR ST	ENVIROSTOR, HWP, CERS	Higher	229, 0.043, NNE
21	TMCOBB COMPANY	960 MAIN STREET	HIST UST	Higher	289, 0.055, South
C22	PORTABLE	21506 MAIN ST	US MINES	Lower	337, 0.064, WNW
C23	HARRIS TRANSFER INC	21506 MAIN ST	RCRA NonGen / NLR	Lower	337, 0.064, WNW
C24	PRECISION FLEET REPA	21506 MAIN ST	RCRA-SQG, FINDS, ECHO	Lower	337, 0.064, WNW
C25	PRECISION FLEET REPA	21506 MAIN ST UNIT B	CERS HAZ WASTE, San Bern. Co. Permit, CERS	Lower	337, 0.064, WNW
C26	PRECISION FLEET REPA	21506 MAIN ST	HAZNET, San Bern. Co. Permit, HWTS	Lower	337, 0.064, WNW
C27	HARRIS TRANSFER INC	21506 MAIN ST	UST	Lower	337, 0.064, WNW
C28	PRECISION FLEET REPA	21506 MAIN ST	RCRA NonGen / NLR	Lower	337, 0.064, WNW
D29	K J PLATING INCORPOR	21750 MAIN ST.	SEMS, RCRA-SQG, FINDS, ECHO	Higher	415, 0.079, ESE
D30	K & J ENTERPRISES	21750 MAIN STREET	ENVIROSTOR, VCP, San Bern. Co. Permit	Higher	415, 0.079, ESE
E31	TRIANGLE MECHANICAL	17 COMMERCIAL AVE	HIST UST, HAZNET, HWTS	Lower	491, 0.093, SW
E32	TRIANGLE MECHANICAL	17 COMMERCIAL ST	HIST UST	Lower	491, 0.093, SW
E33	JT THORPE	17 COMMERCIAL AVE	RCRA NonGen / NLR	Lower	491, 0.093, SW
E34	CAT TRACKING INC	17 COMMERCIAL AVE	RCRA NonGen / NLR	Lower	491, 0.093, SW
D35	GRAND TERRACE HIGH S	21810 MAIN ST	CERS HAZ WASTE, HAZNET, San Bern. Co. Permit,...	Higher	559, 0.106, ESE
36	LUCKY FARMS INC	PICO & TAYLOR ST	San Bern. Co. Permit	Higher	564, 0.107, NNE
F37	SAFE WAY RECYCLING &	21516 MAIN ST STE B	RCRA NonGen / NLR	Lower	639, 0.121, WSW
F38	SAFE WAY RECYCLING &	21516 MAIN ST STE B	SWRCY, HWTS	Lower	639, 0.121, WSW
F39	MIKE THOMPSONS RV SU	21516 N MAIN ST #4	San Bern. Co. Permit	Lower	639, 0.121, WSW

MAPPED SITES SUMMARY

Target Property Address:
21660 MAIN STREET
GRAND TERRACE, CA 92313

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
G40	LRB MILLWORK & CASEW	2760 S IOWA AVE	RCRA NonGen / NLR	Lower	693, 0.131, WNW
F41	GULF NO. TRANSPORT I	21496 MAIN ST	UST, San Bern. Co. Permit	Lower	739, 0.140, WSW
G42	IOWA SHELL	2718 S IOWA AVE	UST	Lower	750, 0.142, WNW
H43	HAMPTON LUMBER SALES	21800 MAIN ST	San Bern. Co. Permit	Higher	761, 0.144, ESE
H44	GRAND TERRACE HIGH S	21810 MAIN STREET	RCRA-LQG	Higher	822, 0.156, ESE
H45	GRAND TERRACE HIGH S	21810 MAIN ST	RCRA NonGen / NLR	Higher	822, 0.156, ESE
H46	GRAND TERRACE HIGH S	21810 MAIN STREET	RCRA-LQG	Higher	822, 0.156, ESE
I47	IOWA SHELL	2718 IOWA AVE	LUST, CERS TANKS, San Bern. Co. Permit, CERS	Lower	979, 0.185, WNW
I48	IOWA SHELL	2718 IOWA AVE	UST	Lower	979, 0.185, WNW
I49	LUCKY OIL CO INC DBA	2718 IOWA	RCRA NonGen / NLR	Lower	979, 0.185, WNW
I50	SHELL STATION	2718 IOWA AVENUE	LUST, Cortese, CERS	Lower	979, 0.185, WNW
51	MEDITERRANEAN INC	12717 IOWA	SWEEPS UST, HIST UST	Lower	1057, 0.200, NW
52	INLAND TIMBER CO	21850 MAIN ST	UST, San Bern. Co. Permit	Higher	1065, 0.202, ESE
53	DIRECT TOWING, INC	21849 PICO ST	AST, San Bern. Co. Permit	Higher	1119, 0.212, ENE
J54	TOY TECH	983 CENTER ST	RCRA-SQG, CERS HAZ WASTE, FINDS, ECHO, HAZNET,...	Higher	1275, 0.241, South
J55	CENTER STREET SERVIC	983 CENTER ST	HIST UST	Higher	1275, 0.241, South
J56	HIGHGROVE MAINTENANC	1041 CENTER STREET	HIST UST	Higher	1309, 0.248, South
K57	LVW BROWN ESTATES, I	859 CENTER ST	LUST, HIST CORTESE	Higher	1349, 0.255, SSE
K58	L V W BROWN ESTATE I	859 CENTER STREET	LUST, CERS HAZ WASTE, HIST UST, CERS, HWTS	Higher	1349, 0.255, SSE
K59	CALIFORNIA CITRUS	859 CENTER STREET	LUST, LDS, Cortese, CERS	Higher	1349, 0.255, SSE
J60	LYNN PARCEL (FORMER	503 EAST PALMYRITA A	LUST, Cortese, CERS	Higher	1367, 0.259, South
61	CIRCLE K STORE #311	1091 CENTER ST	LUST, SWEEPS UST, HIST UST, CA FID UST, RCRA...	Lower	1451, 0.275, SSW
L62	WHITNEY MACHINERY, I	20 IOWA AVENUE	CPS-SLIC, CERS	Lower	1522, 0.288, WSW
L63	WHITNEY MACHINERY, I	20 IOWA AVENUE	CPS-SLIC, HIST UST	Lower	1522, 0.288, WSW
64	U HAUL OF SAN BERNAR	800 MAIN ST E	LUST, Cortese, HIST CORTESE, CERS	Higher	1954, 0.370, East
65	ROY BARNETT LANDSCAP	1253 W CHURCH ST	LUST, Cortese	Lower	1984, 0.376, WSW
66	HIGH SCHOOL NO. 3	MAIN STREET/TAYLOR S	ENVIROSTOR, SCH, DEED, CERS	Higher	2317, 0.439, East
M67	D AND K SERVICE	291	LUST, Cortese, HIST CORTESE, CERS	Lower	2454, 0.465, SW
M68	SHEARERS SERV-UR-SEL	323 IOWA	LUST, HIST UST	Lower	2535, 0.480, SW
M69	SHEARER'S SERV U SEL	323 IOWA AVE	LUST, SWEEPS UST, CA FID UST, Cortese, HIST...	Lower	2535, 0.480, SW
70	RIVERSIDE OLDCASTLE	1326 CITRUS STREET	ENVIROSTOR, VCP	Lower	4672, 0.885, SSW
71	TEXACO	22045 BARTON ROAD	Notify 65	Higher	5153, 0.976, NNE
72	LILY-TULIP CO (OFF S	800 IOWA AVENUE	ENVIROSTOR, DEED, LDS, ENF, CIWQS, CERS	Lower	5179, 0.981, SSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROLS ---------- Institutional Controls Sites List

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

EXECUTIVE SUMMARY

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
US CDL ---------- National Clandestine Laboratory Register
PFAS ---------- PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

CA FID UST ---------- Facility Inventory Database

Local Land Records

LIENS ---------- Environmental Liens Listing
LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System

LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
ABANDONED MINES	Abandoned Mines
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
EMI	Emissions Inventory Data
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WIP	Well Investigation Program Case List

MILITARY PRIV SITES MILITARY PRIV SITES (GEOTRACKER)
PROJECT PROJECT (GEOTRACKER)
WDR Waste Discharge Requirements Listing
NON-CASE INFO NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ Well Stimulation Project (GEOTRACKER)
HWTS Hazardous Waste Tracking System
MINES MRDS Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS list

SEMS: SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the SEMS list, as provided by EDR, and dated 07/29/2020 has revealed that there is 1 SEMS

site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
K J PLATING INCORPOR	***21750 MAIN ST.***	***ESE 0 - 1/8 (0.079 mi.)***	***D29***	***117***
Site ID: 0905014				
EPA Id: CAD981172125				

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 06/15/2020 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EPTC-HIGHGROVE	***12600 TAYLOR ST.***	***NNE 0 - 1/8 (0.043 mi.)***	***B19***	***82***
EPA ID:: CAD000631028				

Federal RCRA generators list

RCRA-LQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

A review of the RCRA-LQG list, as provided by EDR, and dated 06/15/2020 has revealed that there are 2 RCRA-LQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GRAND TERRACE HIGH S	21810 MAIN STREET	ESE 1/8 - 1/4 (0.156 mi.)	H44	160
EPA ID:: CAC002641324				
GRAND TERRACE HIGH S	21810 MAIN STREET	ESE 1/8 - 1/4 (0.156 mi.)	H46	165
EPA ID:: CAD002641324				

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/15/2020 has revealed that there are 4 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EPTC-HIGHGROVE EPA ID:: CAD000631028	***12600 TAYLOR ST.***	***NNE 0 - 1/8 (0.043 mi.)***	***B19***	***82***
K J PLATING INCORPOR EPA ID:: CAD981172125	***21750 MAIN ST.***	***ESE 0 - 1/8 (0.079 mi.)***	***D29***	***117***
TOY TECH EPA ID:: CAR000076844	***983 CENTER ST***	***S 1/8 - 1/4 (0.241 mi.)***	***J54***	***199***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRECISION FLEET REPA EPA ID:: CAR000071258	***21506 MAIN ST***	***WNW 0 - 1/8 (0.064 mi.)***	***C24***	***103***

Federal ERNS list

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 06/15/2020 has revealed that there is 1 ERNS site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported NRC Report #: 963826 Incident Date Time: 2011-01-05 09:00:00	12700 TAYLOR ST.	0 - 1/8 (0.000 mi.)	A11	33

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/27/2020 has revealed that there are 5 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EPTC-HIGHGROVE Facility Id: 80001332 Status: No Further Action	***12600 TAYLOR ST***	***NNE 0 - 1/8 (0.043 mi.)***	***B20***	***93***
K & J ENTERPRISES	***21750 MAIN STREET***	***ESE 0 - 1/8 (0.079 mi.)***	***D30***	***123***

Facility Id: 36340037
Facility Id: 71002735
Status: Certified / Operation & Maintenance
Status: No Further Action

HIGH SCHOOL NO. 3 | ***MAIN STREET/TAYLOR S*** | ***E 1/4 - 1/2 (0.439 mi.)*** | ***66*** | ***247***
Facility Id: 36010044
Status: Certified O&M - Land Use Restrictions Only

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE OLDCASTLE	***1326 CITRUS STREET***	***SSW 1/2 - 1 (0.885 mi.)***	***70***	***285***
Facility Id: 33330009 Status: Active				
LILY-TULIP CO (OFF S	***800 IOWA AVENUE***	***SSW 1/2 - 1 (0.981 mi.)***	***72***	***291***
Facility Id: 33490044 Status: Refer: Other Agency				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 12 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LVW BROWN ESTATES, I	***859 CENTER ST***	***SSE 1/4 - 1/2 (0.255 mi.)***	***K57***	***208***
Database: LUST, Date of Government Version: 06/08/2020 Status: Completed - Case Closed Global Id: T0606500345				
L V W BROWN ESTATE I	***859 CENTER STREET***	***SSE 1/4 - 1/2 (0.255 mi.)***	***K58***	***210***
Database: RIVERSIDE CO. LUST, Date of Government Version: 03/10/2020 Facility Id: 93557 Facility Status: 9				
CALIFORNIA CITRUS	***859 CENTER STREET***	***SSE 1/4 - 1/2 (0.255 mi.)***	***K59***	***220***
Database: LUST REG 8, Date of Government Version: 02/14/2005 Facility Status: Case Closed Global ID: T0606500345				
LYNN PARCEL (FORMER	***503 EAST PALMYRITA A***	***S 1/4 - 1/2 (0.259 mi.)***	***J60***	***225***
Database: LUST REG 8, Date of Government Version: 02/14/2005 Database: LUST, Date of Government Version: 06/08/2020 Status: Completed - Case Closed Facility Status: Case Closed Global Id: T0606591642 Global ID: T0606591642				
U HAUL OF SAN BERNAR	***800 MAIN ST E***	***E 1/4 - 1/2 (0.370 mi.)***	***64***	***239***
Database: LUST REG 6V, Date of Government Version: 06/07/2005 Database: LUST, Date of Government Version: 06/08/2020 Status: Completed - Case Closed				

Global Id: T0607100876
Close Date: 6/24/1997
Status: Case Closed

Lower Elevation	Address	Direction / Distance	Map ID	Page
IOWA SHELL	***2718 IOWA AVE***	***WNW 1/8 - 1/4 (0.185 mi.)***	***I47***	***168***

Database: LUST, Date of Government Version: 06/08/2020
Status: Completed - Case Closed
Global Id: T0607165402

SHELL STATION	***2718 IOWA AVENUE***	***WNW 1/8 - 1/4 (0.185 mi.)***	***I50***	***192***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Facility Status: Pollution Characterization
Global ID: T0607165402

CIRCLE K STORE #311	***1091 CENTER ST***	***SSW 1/4 - 1/2 (0.275 mi.)***	***61***	***228***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: RIVERSIDE CO. LUST, Date of Government Version: 03/10/2020
Database: LUST, Date of Government Version: 06/08/2020
Status: Completed - Case Closed
Facility Status: Case Closed
Facility Id: 93056
Global Id: T0606500315
Facility Status: 9
Global ID: T0606500315

ROY BARNETT LANDSCAP	***1253 W CHURCH ST***	***WSW 1/4 - 1/2 (0.376 mi.)***	***65***	***243***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: VENTURA CO. LUST, Date of Government Version: 05/29/2008
Database: RIVERSIDE CO. LUST, Date of Government Version: 03/10/2020
Database: LUST, Date of Government Version: 06/08/2020
Status: Completed - Case Closed
Facility Status: Case Closed
Facility Id: 90127
Facility Id: 90127
Status: Case Closed
Global Id: T0606500172
Facility Status: 9
Global ID: T0606500172

D AND K SERVICE	***291***	***SW 1/4 - 1/2 (0.465 mi.)***	***M67***	***257***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: RIVERSIDE CO. LUST, Date of Government Version: 03/10/2020
Database: LUST, Date of Government Version: 06/08/2020
Status: Open - Inactive
Facility Status: Preliminary site assessment workplan submitted
Facility Id: 980243
Global Id: T0606500518
Facility Status: 0
Global ID: T0606500518

SHEARERS SERV-UR-SEL	***323 IOWA***	***SW 1/4 - 1/2 (0.480 mi.)***	***M68***	***266***

Database: RIVERSIDE CO. LUST, Date of Government Version: 03/10/2020
Database: LUST, Date of Government Version: 06/08/2020
Status: Completed - Case Closed
Facility Id: 91308
Global Id: T0606500233

Facility Status: 0

SHEARER'S SERV U SEL ***323 IOWA AVE*** ***SW 1/4 - 1/2 (0.480 mi.)*** ***M69*** ***281***
Database: LUST REG 8, Date of Government Version: 02/14/2005
Facility Status: Pollution Characterization
Global ID: T0606500233

CPS-SLIC: Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the CPS-SLIC list, as provided by EDR, has revealed that there are 2 CPS-SLIC sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
WHITNEY MACHINERY, I	***20 IOWA AVENUE***	***WSW 1/4 - 1/2 (0.288 mi.)***	***L62***	***237***
Database: SLIC REG 8, Date of Government Version: 04/03/2008 Facility Status: Closed				
WHITNEY MACHINERY, I	***20 IOWA AVENUE***	***WSW 1/4 - 1/2 (0.288 mi.)***	***L63***	***238***
Database: CPS-SLIC, Date of Government Version: 06/08/2020 Facility Status: Completed - Case Closed Global Id: SLT8R2694057				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 6 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE CANAL POWE	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A1	9
Database: UST, Date of Government Version: 06/08/2020 Facility Id: 85004389				
INLAND TIMBER CO	***21850 MAIN ST***	***ESE 1/8 - 1/4 (0.202 mi.)***	***52***	***197***
Database: UST, Date of Government Version: 06/08/2020 Facility Id: 92026908				

Lower Elevation	Address	Direction / Distance	Map ID	Page
HARRIS TRANSFER INC	21506 MAIN ST	WNW 0 - 1/8 (0.064 mi.)	C27	114
Database: UST, Date of Government Version: 06/08/2020 Facility Id: FA0007575				
GULF NO. TRANSPORT I	***21496 MAIN ST***	***WSW 1/8 - 1/4 (0.140 mi.)***	***F41***	***159***
Database: UST, Date of Government Version: 06/08/2020 Facility Id: 93030154				
IOWA SHELL	2718 S IOWA AVE	WNW 1/8 - 1/4 (0.142 mi.)	G42	160
Database: UST, Date of Government Version: 06/08/2020				

Facility Id: 86009099

IOWA SHELL | 2718 IOWA AVE | WNW 1/8 - 1/4 (0.185 mi.) | I48 | 190
Database: UST, Date of Government Version: 06/08/2020
Facility Id: FA0004012

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there are 2 AST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE CANAL POWE	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A10***	***30***
Database: AST, Date of Government Version: 07/06/2016				
DIRECT TOWING, INC	***21849 PICO ST***	***ENE 1/8 - 1/4 (0.212 mi.)***	***53***	***198***
Database: AST, Date of Government Version: 07/06/2016				

State and tribal voluntary cleanup sites

VCP: Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

A review of the VCP list, as provided by EDR, and dated 04/27/2020 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
K & J ENTERPRISES	***21750 MAIN STREET***	***ESE 0 - 1/8 (0.079 mi.)***	***D30***	***123***
Status: Certified / Operation & Maintenance				
Facility Id: 36340037				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 06/08/2020 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SAFE WAY RECYCLING &	***21516 MAIN ST STE B***	***WSW 0 - 1/8 (0.121 mi.)***	***F38***	***155***
Cert Id: RC169425.002				

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 04/20/2020 has revealed that there are 3 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GRAND TERRACE HIGH S	***21810 MAIN ST***	***ESE 0 - 1/8 (0.106 mi.)***	***D35***	***148***
TOY TECH	***983 CENTER ST***	***S 1/8 - 1/4 (0.241 mi.)***	***J54***	***199***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRECISION FLEET REPA	***21506 MAIN ST UNIT B***	***WNW 0 - 1/8 (0.064 mi.)***	***C25***	***106***

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***NE 0 - 1/8 (0.002 mi.)***	***A17***	***71***
Status: A				
Tank Status: A				
Comp Number: 22181				

Lower Elevation	Address	Direction / Distance	Map ID	Page
MEDITERRANEAN INC	***12717 IOWA***	***NW 1/8 - 1/4 (0.200 mi.)***	***51***	***194***
Status: A				
Tank Status: A				
Comp Number: 21900				

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 8 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***
Facility Id: 00000022181				
Facility Id: 00000066306				
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***NE 0 - 1/8 (0.002 mi.)***	***A17***	***71***
TMCOBB COMPANY	960 MAIN STREET	S 0 - 1/8 (0.055 mi.)	21	98

Facility Id: 00000005961				
CENTER STREET SERVIC Facility Id: 00000019485	983 CENTER ST	S 1/8 - 1/4 (0.241 mi.)	J55	207
HIGHGROVE MAINTENANC Facility Id: 00000065526	1041 CENTER STREET	S 1/8 - 1/4 (0.248 mi.)	J56	207

Lower Elevation	Address	Direction / Distance	Map ID	Page
TRIANGLE MECHANICAL Facility Id: 00000004661	***17 COMMERCIAL AVE***	***SW 0 - 1/8 (0.093 mi.)***	***E31***	***140***
TRIANGLE MECHANICAL Facility Id: 00000002766	17 COMMERCIAL ST	SW 0 - 1/8 (0.093 mi.)	E32	143
MEDITERRANEAN INC Facility Id: 00000021900	***12717 IOWA***	***NW 1/8 - 1/4 (0.200 mi.)***	***51***	***194***

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 04/20/2020 has revealed that there is 1 CERS TANKS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
IOWA SHELL	***2718 IOWA AVE***	***WNW 1/8 - 1/4 (0.185 mi.)***	***I47***	***168***

Local Land Records

DEED: The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes .

A review of the DEED list, as provided by EDR, and dated 06/01/2020 has revealed that there is 1 DEED site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGH SCHOOL NO. 3 Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY Envirostor ID: 36010044	***MAIN STREET/TAYLOR S***	***E 1/4 - 1/2 (0.439 mi.)***	***66***	***247***

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 03/31/2020 has revealed that there is 1 CHMIRS site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported OES Incident Number: 1-0074	12700 TAYLOR ST (FOR	0 - 1/8 (0.000 mi.)	A13	65

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/15/2020 has revealed that there are 10 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION EPA ID:: CAC003057806	12700-12898 TAYLOR S	0 - 1/8 (0.000 mi.)	A3	10
RIVERSIDE CANAL POWE EPA ID:: CAL000181154	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A5	13
GRAND TERRACE HIGH S EPA ID:: CAL000345223	21810 MAIN ST	ESE 1/8 - 1/4 (0.156 mi.)	H45	163

Lower Elevation	Address	Direction / Distance	Map ID	Page
HARRIS TRANSFER INC EPA ID:: CAL000303408	21506 MAIN ST	WNW 0 - 1/8 (0.064 mi.)	C23	101
PRECISION FLEET REPA EPA ID:: CAL000275443	21506 MAIN ST	WNW 0 - 1/8 (0.064 mi.)	C28	114
JT THORPE EPA ID:: CAC002974402	17 COMMERCIAL AVE	SW 0 - 1/8 (0.093 mi.)	E33	143
CAT TRACKING INC EPA ID:: CAL000445134	17 COMMERCIAL AVE	SW 0 - 1/8 (0.093 mi.)	E34	146
SAFE WAY RECYCLING & EPA ID:: CAL000450087	21516 MAIN ST STE B	WSW 0 - 1/8 (0.121 mi.)	F37	153
LRB MILLWORK & CASEW	2760 S IOWA AVE	WNW 1/8 - 1/4 (0.131 mi.)	G40	157
LUCKY OIL CO INC DBA EPA ID:: CAL000316888	2718 IOWA	WNW 1/8 - 1/4 (0.185 mi.)	I49	190

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, has revealed that there is 1 US MINES site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
PORTABLE Database: MINES VIOLATIONS, Date of Government Version: 05/28/2020	21506 MAIN ST	WNW 0 - 1/8 (0.064 mi.)	C22	99

EXECUTIVE SUMMARY

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 02/03/2020 has revealed that there are 3 FINDS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE CANAL POWE	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A8***	***27***
Registry ID:: 110021288836				
AES HIGHGROVE LLC	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A14***	***67***
Registry ID:: 110038615068				
SCE-HIGHGROVE SWITCH	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A15	67
Registry ID:: 110066371517				

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 06/27/2020 has revealed that there are 2 ECHO sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE CANAL POWE	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A8***	***27***
Registry ID: 110021288836				
AES HIGHGROVE LLC	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A14***	***67***
Registry ID: 110038615068				

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 06/22/2020 has revealed that there are 8 Cortese sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CALIFORNIA CITRUS	***859 CENTER STREET***	***SSE 1/4 - 1/2 (0.255 mi.)***	***K59***	***220***
Cleanup Status: COMPLETED - CASE CLOSED				
LYNN PARCEL (FORMER	***503 EAST PALMYRITA A***	***S 1/4 - 1/2 (0.259 mi.)***	***J60***	***225***
Cleanup Status: COMPLETED - CASE CLOSED				
U HAUL OF SAN BERNAR	***800 MAIN ST E***	***E 1/4 - 1/2 (0.370 mi.)***	***64***	***239***
Cleanup Status: COMPLETED - CASE CLOSED				

Lower Elevation	Address	Direction / Distance	Map ID	Page
SHELL STATION	***2718 IOWA AVENUE***	***WNW 1/8 - 1/4 (0.185 mi.)***	***I50***	***192***

Cleanup Status: COMPLETED - CASE CLOSED

CIRCLE K STORE #311	***1091 CENTER ST***	***SSW 1/4 - 1/2 (0.275 mi.)***	***61***	***228***
Cleanup Status: COMPLETED - CASE CLOSED				
ROY BARNETT LANDSCAP	***1253 W CHURCH ST***	***WSW 1/4 - 1/2 (0.376 mi.)***	***65***	***243***
Cleanup Status: COMPLETED - CASE CLOSED				
D AND K SERVICE	***291***	***SW 1/4 - 1/2 (0.465 mi.)***	***M67***	***257***
Cleanup Status: OPEN - INACTIVE				
SHEARER'S SERV U SEL	***323 IOWA AVE***	***SW 1/4 - 1/2 (0.480 mi.)***	***M69***	***281***
Cleanup Status: COMPLETED - CASE CLOSED				

DRYCLEANERS: A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaners' agents; linen supply; coin-operated laundries and cleaning; drycleaning plants except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

A review of the DRYCLEANERS list, as provided by EDR, has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***NE 0 - 1/8 (0.002 mi.)***	***A17***	***71***
Database: DRYCLEAN SOUTH COAST, Date of Government Version: 08/19/2020				

ENF: A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

A review of the ENF list, as provided by EDR, and dated 04/03/2020 has revealed that there is 1 ENF site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***
Status: Historical				
Facility Id: 226994				

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the HAZNET list, as provided by EDR, and dated 12/31/2019 has revealed that there are 4 HAZNET sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***
GEPAID: CAC002889847				
HIGHGROVE SUBSTATION	***12700-12898 TAYLOR S***	***0 - 1/8 (0.000 mi.)***	***A7***	***26***

GEPAID: CAC002958004

SOUTHERN CALIFORNIA GEPAID: CAC002804848	***12700 TAYLOR ST.***	***0 - 1/8 (0.000 mi.)***	***A9***	***28***
RIVERSIDE CANAL POWE GEPAID: CAL000181154	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A12***	***37***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 5 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LVW BROWN ESTATES, I Reg Id: 083302350T	***859 CENTER ST***	***SSE 1/4 - 1/2 (0.255 mi.)***	***K57***	***208***
U HAUL OF SAN BERNAR Reg Id: 6B3600744T	***800 MAIN ST E***	***E 1/4 - 1/2 (0.370 mi.)***	***64***	***239***

Lower Elevation	Address	Direction / Distance	Map ID	Page
CIRCLE K STORE #311 Reg Id: 083302230T	***1091 CENTER ST***	***SSW 1/4 - 1/2 (0.275 mi.)***	***61***	***228***
D AND K SERVICE Reg Id: 083303139T	***291***	***SW 1/4 - 1/2 (0.465 mi.)***	***M67***	***257***
SHEARER'S SERV U SEL Reg Id: 083301831T	***323 IOWA AVE***	***SW 1/4 - 1/2 (0.480 mi.)***	***M69***	***281***

HWP: Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

A review of the HWP list, as provided by EDR, and dated 05/18/2020 has revealed that there is 1 HWP site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EPTC-HIGHGROVE EPA Id: CAD000631028 Cleanup Status: CLOSED	***12600 TAYLOR ST***	***NNE 0 - 1/8 (0.043 mi.)***	***B20***	***93***

San Bern. Co. Permit: San Bernardino County Fire Department Hazardous Materials Division.

A review of the San Bern. Co. Permit list, as provided by EDR, and dated 02/25/2020 has revealed that there are 14 San Bern. Co. Permit sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION Facility Status: ACTIVE	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***

Facility Status: INACTIVE Facility Id: FA0006050				
RIVERSIDE CANAL POWE Facility Status: ACTIVE Facility Status: INACTIVE Facility Id: FA0005742	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A10***	***30***
RN #7 CHLORINATION S Facility Status: INACTIVE Facility Id: FA0005747	21700 MAIN ST	SE 0 - 1/8 (0.028 mi.)	18	81
K & J ENTERPRISES Facility Status: INACTIVE Facility Id: FA0004205	***21750 MAIN STREET***	***ESE 0 - 1/8 (0.079 mi.)***	***D30***	***123***
GRAND TERRACE HIGH S Facility Status: ACTIVE Facility Id: FA0014847	***21810 MAIN ST***	***ESE 0 - 1/8 (0.106 mi.)***	***D35***	***148***
LUCKY FARMS INC Facility Status: INACTIVE Facility Id: FA0000553	PICO & TAYLOR ST	NNE 0 - 1/8 (0.107 mi.)	36	153
HAMPTON LUMBER SALES Facility Status: INACTIVE Facility Id: FA0006592	21800 MAIN ST	ESE 1/8 - 1/4 (0.144 mi.)	H43	160
INLAND TIMBER CO Facility Status: INACTIVE Facility Id: FA0003978	***21850 MAIN ST***	***ESE 1/8 - 1/4 (0.202 mi.)***	***52***	***197***
DIRECT TOWING, INC Facility Status: INACTIVE Facility Id: FA0002747	***21849 PICO ST***	***ENE 1/8 - 1/4 (0.212 mi.)***	***53***	***198***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRECISION FLEET REPA Facility Status: ACTIVE Facility Id: FA0013116	***21506 MAIN ST UNIT B***	***WNW 0 - 1/8 (0.064 mi.)***	***C25***	***106***
PRECISION FLEET REPA Facility Status: INACTIVE Facility Id: FA0007575	***21506 MAIN ST***	***WNW 0 - 1/8 (0.064 mi.)***	***C26***	***112***
MIKE THOMPSONS RV SU Facility Status: INACTIVE Facility Id: FA0010878	21516 N MAIN ST #4	WSW 0 - 1/8 (0.121 mi.)	F39	156
GULF NO. TRANSPORT I Facility Status: ACTIVE Facility Status: INACTIVE Facility Id: FA0018511 Facility Id: FA0003656	***21496 MAIN ST***	***WSW 1/8 - 1/4 (0.140 mi.)***	***F41***	***159***
IOWA SHELL Facility Status: ACTIVE Facility Status: INACTIVE Facility Id: FA0004012	***2718 IOWA AVE***	***WNW 1/8 - 1/4 (0.185 mi.)***	***I47***	***168***

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 08/21/2020 has revealed that there is 1 Notify 65 site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TEXACO	22045 BARTON ROAD	NNE 1/2 - 1 (0.976 mi.)	71	291

WDS: California Water Resources Control Board - Waste Discharge System.

A review of the WDS list, as provided by EDR, and dated 06/19/2007 has revealed that there is 1 WDS site within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE CANAL POWE Facility Status: A Facility Id: 8 36I016117	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A4	12

CIWQS: The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

A review of the CIWQS list, as provided by EDR, and dated 06/01/2020 has revealed that there are 2 CIWQS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE STATION TA	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A2	9
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***

CERS: The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

A review of the CERS list, as provided by EDR, and dated 04/20/2020 has revealed that there are 2 CERS sites within approximately 0.001 miles of the target property.

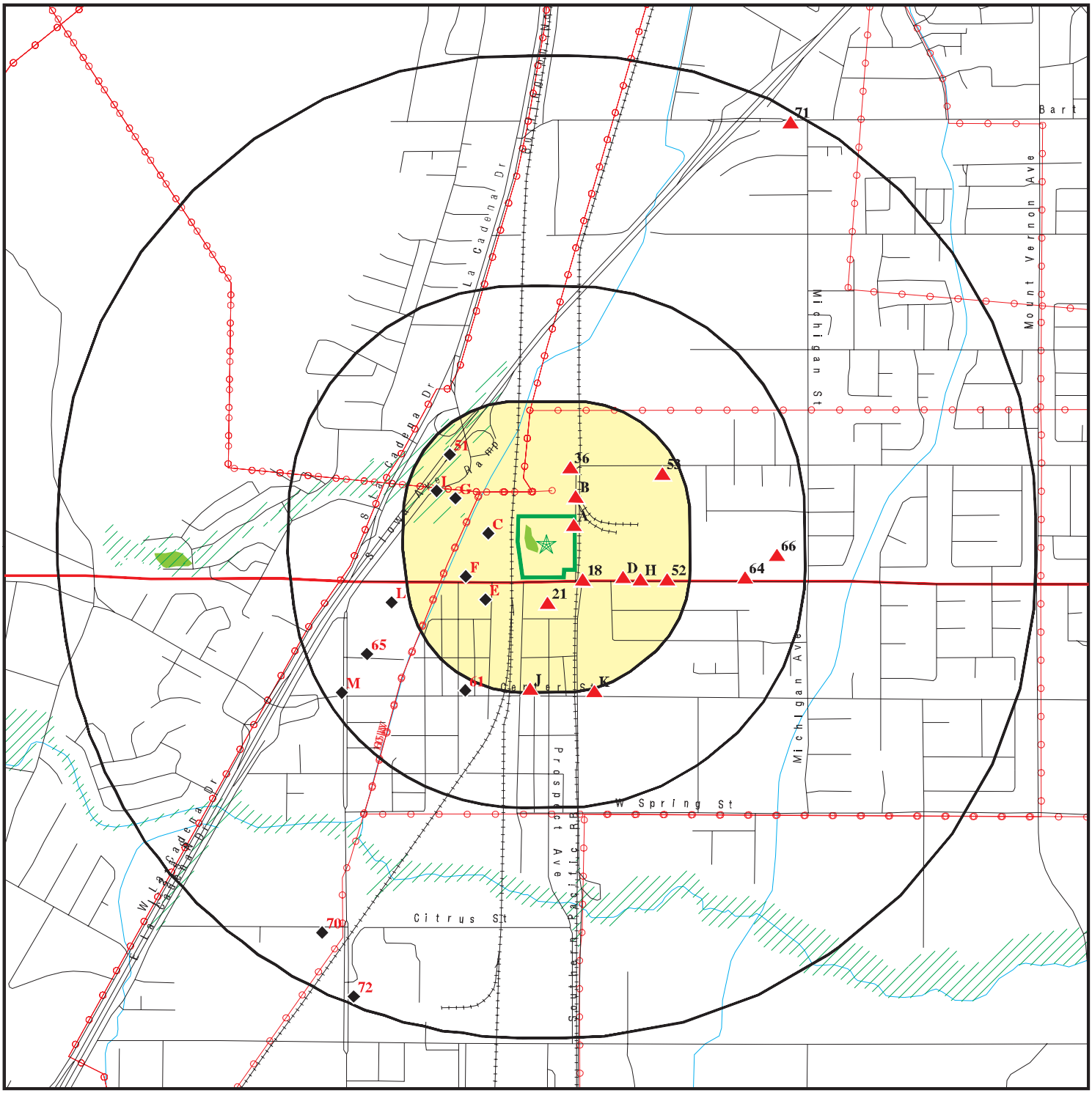
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HIGHGROVE SUBSTATION	***12700 TAYLOR ST***	***0 - 1/8 (0.000 mi.)***	***A6***	***15***
RIVERSIDE CANAL POWE	12700 TAYLOR ST	0 - 1/8 (0.000 mi.)	A16	68

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

Site Name	Database(s)
MAIN & GARNER BUSINESS PARK	CIWQS

OVERVIEW MAP - 6212139.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

County Boundary

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

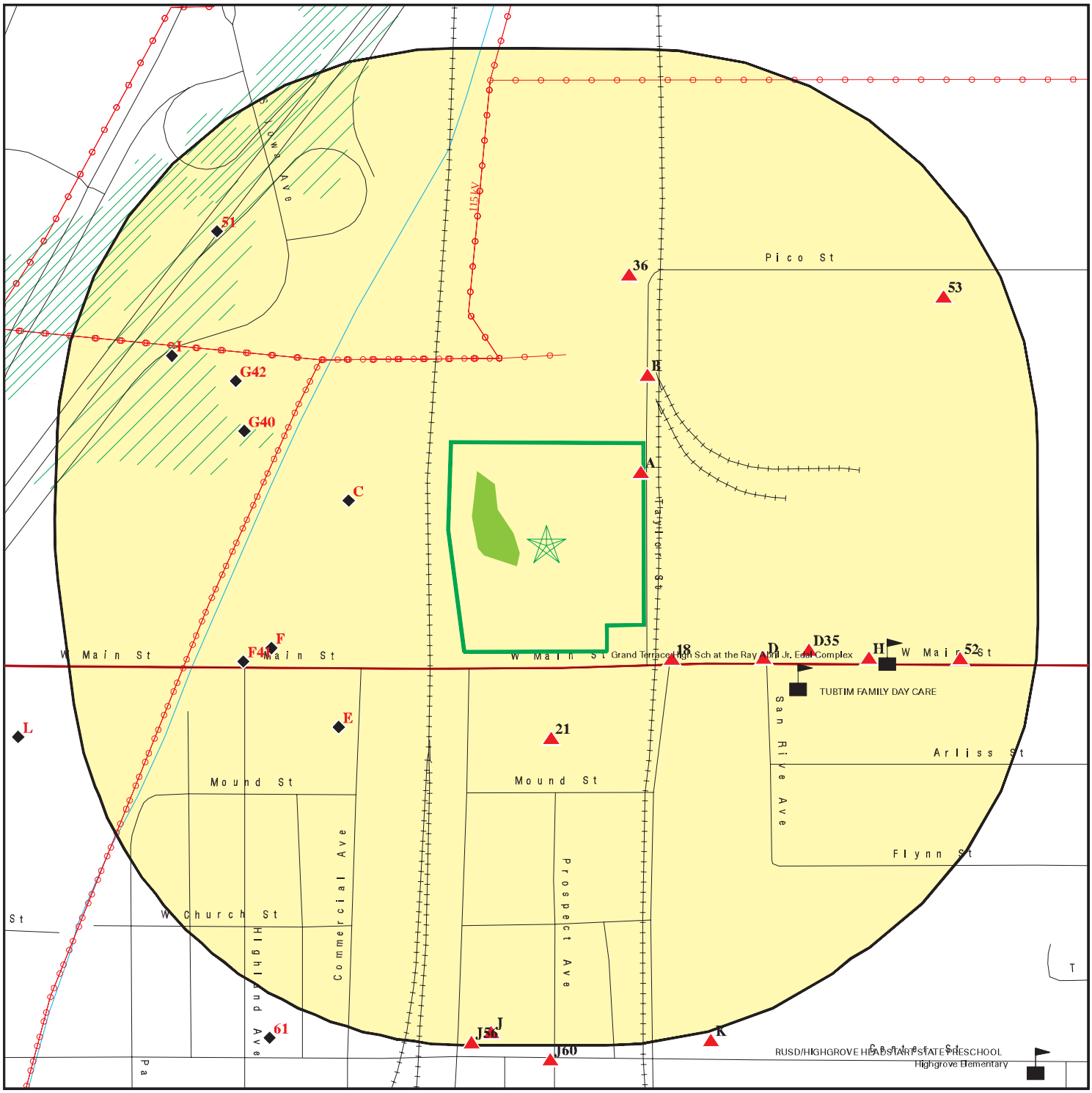
State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Cage Park ADDRESS: 21660 Main Street Grand Terrace CA 92313 LAT/LONG: 34.020457 / 117.332281	CLIENT: Alta Environmental CONTACT: Eric Fraske INQUIRY #: 6212139.2s DATE: October 01, 2020 9:28 pm

DETAIL MAP - 6212139.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Cage Park ADDRESS: 21660 Main Street Grand Terrace CA 92313 LAT/LONG: 34.020457 / 117.332281	CLIENT: Alta Environmental CONTACT: Eric Fraske INQUIRY #: 6212139.2s DATE: October 01, 2020 9:29 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		1	0	0	NR	NR	1
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		1	0	0	0	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	2	NR	NR	NR	2
RCRA-SQG	0.250		3	1	NR	NR	NR	4
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		1	NR	NR	NR	NR	1
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		2	0	1	2	NR	5
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	2	10	NR	NR	12

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	2	NR	NR	2
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		2	4	NR	NR	NR	6
AST	0.250		1	1	NR	NR	NR	2
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		1	0	0	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		1	0	0	NR	NR	1
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		2	1	NR	NR	NR	3
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		1	1	NR	NR	NR	2
HIST UST	0.250		5	3	NR	NR	NR	8
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	1	NR	NR	1
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		1	NR	NR	NR	NR	1
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		7	3	NR	NR	NR	10
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		1	0	NR	NR	NR	1
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		3	NR	NR	NR	NR	3
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		2	NR	NR	NR	NR	2
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	1	7	NR	NR	8
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		1	0	NR	NR	NR	1
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		1	NR	NR	NR	NR	1
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		4	NR	NR	NR	NR	4
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	5	NR	NR	5
HWP	1.000		1	0	0	0	NR	1
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		9	5	NR	NR	NR	14
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	1	NR	1
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		1	NR	NR	NR	NR	1
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		2	NR	NR	NR	NR	2
CERS	0.001		2	NR	NR	NR	NR	2
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	56	25	26	3	0	110

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **RIVERSIDE CANAL POWER CO** **UST** **U004050623**
12700 TAYLOR ST **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 1 of 17 in cluster A

Relative: UST:
Higher

Actual: Name: RIVERSIDE CANAL POWER CO
948 ft. Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Facility ID: 85004389
Permitting Agency: SAN BERNARDINO COUNTY
Latitude: 34.02111
Longitude: -117.33119

A2 **HIGHGROVE STATION TANK DEMO** **CIWQS** **S121644088**
12700 TAYLOR ST **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 2 of 17 in cluster A

Relative: CIWQS:
Higher

Actual: Name: HIGHGROVE STATION TANK DEMO
948 ft. Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Agency: Southern California Edison
Agency Address: 14005 S Benson Ave, Chino, CA 91710
Place/Project Type: Construction - Industrial
SIC/NAICS: Not reported
Region: 8
Program: CONSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water construction
Order Number: 99-08DW
WDID: 8 36C313853
NPDES Number: CAS000002
Adoption Date: Not reported
Effective Date: 08/25/2000
Termination Date: 07/23/2001
Expiration/Review Date: Not reported
Design Flow: Not reported
Major/Minor: Not reported
Complexity: Not reported
TTWQ: Not reported
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: Not reported
Longitude: Not reported

A3 **HIGHGROVE SUBSTATION** **RCRA NonGen / NLR** **1026050945**
12700-12898 TAYLOR STREET **CAC003057806**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 3 of 17 in cluster A

Relative: **Higher**
Actual: **948 ft.**

RCRA Listings:

Date Form Received by Agency:	2020-02-27 00:00:00.0
Handler Name:	HIGHGROVE SUBSTATION
Handler Address:	12700-12898 TAYLOR STREET
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAC003057806
Contact Name:	JASON J. THOMAS
Contact Address:	ESD, PROGRAMS & GOVERNANCE
Contact City,State,Zip:	ROSEMEAD, CA 91770
Contact Telephone:	626-302-3105
Contact Fax:	Not reported
Contact Email:	JASON.THOMAS@SCE.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	ESD, PROGRAMS & GOVERNANCE
Mailing City,State,Zip:	ROSEMEAD, CA 91770
Owner Name:	SOUTHERN CALIFORNIA EDISON
Owner Type:	Other
Operator Name:	JASON J. THOMAS
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

HIGHGROVE SUBSTATION (Continued) **1026050945**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-03-06 18:11:17.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	JASON J. THOMAS
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	ESD, PROGRAMS & GOVERNANCE
Owner/Operator City,State,Zip:	ROSEMEAD, CA 91770
Owner/Operator Telephone:	626-302-3105
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	SOUTHERN CALIFORNIA EDISON
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	ESD, PROGRAMS & GOVERNANCE
Owner/Operator City,State,Zip:	ROSEMEAD, CA 91770
Owner/Operator Telephone:	626-302-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

HIGHGROVE SUBSTATION (Continued) **1026050945**

Historic Generators:

Receive Date:	2020-02-27 00:00:00.0
Handler Name:	HIGHGROVE SUBSTATION
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

A4 **RIVERSIDE CANAL POWER CO** **WDS U003784560**
12700 TAYLOR ST **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 4 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

WDS:

Name:	RIVERSIDE CANAL POWER CO
Address:	12700 Taylor St
City:	GRAND TERRACE
Facility ID:	Santa Ana River 36I016117
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	8
Facility Telephone:	9098253414
Facility Contact:	THOMAS GLENN
Agency Name:	RIVERSIDE CANAL POWER COMPANY
Agency Address:	12700 TAYLOR STREET
Agency City,St,Zip:	GRAND TERRACE 923135828
Agency Contact:	DAVID KEHRES
Agency Telephone:	9094787946
Agency Type:	Private
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Not reported
Primary Waste:	Not reported
Waste Type2:	Not reported
Waste2:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0

RIVERSIDE CANAL POWER CO (Continued) **U003784560**

Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

A5 **RIVERSIDE CANAL POWER CO** **RCRA NonGen / NLR** **1024796963**
12700 TAYLOR ST **CAL000181154**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 5 of 17 in cluster A

Relative: **Higher**

Actual: **948 ft.**

RCRA Listings:

Date Form Received by Agency:	1998-08-03 00:00:00.0
Handler Name:	RIVERSIDE CANAL POWER CO
Handler Address:	12700 TAYLOR ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313-5828
EPA ID:	CAL000181154
Contact Name:	JEFF MILLER
Contact Address:	690 NORTH STUDEBAKER RD
Contact City,State,Zip:	LONG BEACH, CA 90804-0000
Contact Telephone:	916-747-4847
Contact Fax:	Not reported
Contact Email:	JEFF.MILLER@AES.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	690 NORTH STUDEBAKER
Mailing City,State,Zip:	LONG BEACH, CA 90803-0000
Owner Name:	RIVERSIDE CANAL POWER CO
Owner Type:	Other
Operator Name:	JEFF MILLER
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No

RIVERSIDE CANAL POWER CO (Continued) **1024796963**

Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 15:44:05.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	JEFF MILLER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	690 NORTH STUDEBAKER RD
Owner/Operator City,State,Zip:	LONG BEACH, CA 90804-0000
Owner/Operator Telephone:	916-747-4847

RIVERSIDE CANAL POWER CO (Continued) **1024796963**

Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name:	RIVERSIDE CANAL POWER CO
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	690 NORTH STUDEBAKER
Owner/Operator City,State,Zip:	LONG BEACH, CA 90803-0000
Owner/Operator Telephone:	310-318-7512
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	1998-08-03 00:00:00.0
Handler Name:	RIVERSIDE CANAL POWER CO
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

A6 **HIGHGROVE SUBSTATION** **HIST UST** **U001574677**
12700 TAYLOR ST **ENF** **N/A**
< 1/8 **GRAND TERRACE, CA 92313** **HAZNET**
1 ft. **San Bern. Co. Permit**
Site 6 of 17 in cluster A **CIWQS**
CERS
Relative: Higher **HWTS**

Actual: 948 ft.

HIST UST:

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92324
File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000066306
Facility Type:	Other
Other Type:	ELECTRIC UTILITY
Contact Name:	VICTOR BARRION
Telephone:	7148895454
Owner Name:	SOUTHERN CALIFORNIA EDISON COM
Owner Address:	2244 WALNUT GROVE AVENUE
Owner City,St,Zip:	ROSEMEAD, CA 91770
Total Tanks:	0002

HIGHGROVE SUBSTATION (Continued) **U001574677**

Tank Num:	001
Container Num:	510
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	X
Leak Detection:	None

Tank Num:	001
Container Num:	154
Year Installed:	1953
Tank Capacity:	00000100
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Tank Num:	002
Container Num:	512
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	None

Tank Num:	002
Container Num:	155
Year Installed:	1951
Tank Capacity:	00000100
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Tank Num:	003
Container Num:	156
Year Installed:	1953
Tank Capacity:	00000370
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Tank Num:	004
Container Num:	157
Year Installed:	1951
Tank Capacity:	00000370
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Tank Num:	005
Container Num:	158
Year Installed:	1951

HIGHGROVE SUBSTATION (Continued) **U001574677**

Tank Capacity:	00039000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	006
Container Num:	159
Year Installed:	1951
Tank Capacity:	00021000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	007
Container Num:	160
Year Installed:	1951
Tank Capacity:	00021000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	008
Container Num:	161
Year Installed:	1953
Tank Capacity:	00021000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	009
Container Num:	162
Year Installed:	1953
Tank Capacity:	00021000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	010
Container Num:	163
Year Installed:	Not reported
Tank Capacity:	00018000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	011
Container Num:	164
Year Installed:	1980
Tank Capacity:	00005000
Tank Used for:	WASTE
Type of Fuel:	06

HIGHGROVE SUBSTATION (Continued) **U001574677**

Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	012
Container Num:	165
Year Installed:	Not reported
Tank Capacity:	00002900
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	013
Container Num:	166
Year Installed:	Not reported
Tank Capacity:	00018000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

ENF:

Name:	GENERATING STATION,HIGHGROVE
Address:	12700 TAYLOR
City,State,Zip:	HIGHGROVE, CA 92324
Region:	8
Facility Id:	226994
Agency Name:	Not reported
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Not reported
# Of Agencies:	Not reported
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	4911
SIC Desc 1:	Electric Services
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Enf Action
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported

HIGHGROVE SUBSTATION (Continued) **U001574677**

Program:	Not reported
Program Category1:	Not reported
Program Category2:	NPDESWW
# Of Programs:	Not reported
WDID:	Not reported
Reg Measure Id:	Not reported
Reg Measure Type:	Not reported
Region:	Not reported
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Not reported
Status Date:	Not reported
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	Not reported
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Not reported
Enforcement Id(EID):	234392
Region:	8
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	04/05/2000
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 8 332015005
Description:	Issued comprehensive notice of violation with 13267 request to address all violations.
Program:	NPDESWW
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

Name: GENERATING STATION,HIGHGROVE

HIGHGROVE SUBSTATION (Continued) **U001574677**

Address:	12700 TAYLOR
City,State,Zip:	HIGHGROVE, CA 92324
Region:	8
Facility Id:	226994
Agency Name:	Not reported
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Not reported
# Of Agencies:	Not reported
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	4911
SIC Desc 1:	Electric Services
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Enf Action
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	Not reported
Program Category1:	Not reported
Program Category2:	NPDESWW
# Of Programs:	Not reported
WDID:	Not reported
Reg Measure Id:	Not reported
Reg Measure Type:	Not reported
Region:	Not reported
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Not reported
Status Date:	Not reported
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported

HIGHGROVE SUBSTATION (Continued) **U001574677**

WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	Not reported
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Not reported
Enforcement Id(EID):	233140
Region:	8
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	Oral Communication
Effective Date:	01/11/2000
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	01/11/2000
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 8 332015005
Description:	On 01/06/2000 discharger was contacted via telephone and on 01/11/2000 a meeting was held at Regional Board staff office with the discharger to address several violations to Order No. 94-045. Board staff will followup with a NOV.
Program:	NPDESWW
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

HAZNET:

Name:	HIGHGROVE SUBSTATION
Address:	12700 TAYLOR ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92313
Contact:	SARA DUVALL
Telephone:	6268628458
Mailing Name:	Not reported
Mailing Address:	P.O. BOX 800
Year:	2016
Gepaid:	CAC002889847
TSD EPA ID:	CAD050806850
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	7.3226

San Bern. Co. Permit:

Name: SCE HIGHGROVE SWITCHYARD SUBSTATION

HIGHGROVE SUBSTATION (Continued) **U001574677**

Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0006050
Owner: Southern California Edison
Permit Number: PT0013939
Permit Category: HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: SCE HIGHGROVE SWITCHYARD SUBSTATION
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0006050
Owner: Southern California Edison
Permit Number: PT0027731
Permit Category: APSA EXEMPT
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: SCE HIGHGROVE SWITCHYARD SUBSTATION
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0006050
Owner: Southern California Edison
Permit Number: PT0020868
Permit Category: ABOVEGROUND PETROLEUM STORAGE (AST) (SPCC)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

CIWQS:
Name: GENERATING STATION,HIGHGROVE
Address: 12700 TAYLOR
City,State,Zip: HIGHGROVE, CA 92324
Agency: Riverside Canal Power Company
Agency Address: 25770 San Bernardino Avenue, San Bernardino, CA 92408-5828
Place/Project Type: Other
SIC/NAICS: 4911
Region: 8
Program: NPDESWW
Regulatory Measure Status: Historical
Regulatory Measure Type: NPDES Permit
Order Number: R8-2000-0004
WDID: 8 332015005
NPDES Number: CA0001555
Adoption Date: 5/19/2000
Effective Date: 05/19/2000
Termination Date: 04/03/2003
Expiration/Review Date: 05/01/2005
Design Flow: 0.611
Major/Minor: Minor
Complexity: A
TTWQ: 2
Enforcement Actions within 5 years: 0
Violations within 5 years: 0

HIGHGROVE SUBSTATION (Continued) **U001574677**

Latitude:	Not reported
Longitude:	Not reported
Name:	RIVERSIDE CANAL POWER COMPANY
Address:	12700 TAYLOR STREET
City,State,Zip:	GRAND TERRACE, CA 92313
Agency:	Riverside Canal Power Company
Agency Address:	21730 Newland St, Hunginton Beach, CA 92646
Place/Project Type:	Industrial - Electric Services
SIC/NAICS:	4911
Region:	8
Program:	INDSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water industrial
Order Number:	2014-0057-DWQ
WDID:	8 36I016117
NPDES Number:	CAS000001
Adoption Date:	Not reported
Effective Date:	09/22/2000
Termination Date:	09/19/2012
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.021111
Longitude:	-117.33117

CERS:

Name:	SCE HIGHGROVE SWITCHYARD SUBSTATION
Address:	12700 TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92313
Site ID:	151560
CERS ID:	10044502
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	01-19-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	SCE Highgrove substation routine inspection
Eval Division:	San Bernardino County Fire Department
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	01-19-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	SCE Highgrove substation routine inspection
Eval Division:	San Bernardino County Fire Department
Eval Program:	APSA
Eval Source:	CERS

HIGHGROVE SUBSTATION (Continued) **U001574677**

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-21-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	ROUTINE HANDLER INSPECTION-SCE HIGHGROVE
Eval Division:	San Bernardino County Fire Department
Eval Program:	HMRRP
Eval Source:	CERS

Coordinates:

Site ID:	151560
Facility Name:	SCE Highgrove Switchyard Substation
Env Int Type Code:	HMBP
Program ID:	10044502
Coord Name:	Not reported
Ref Point Type Desc:	Unknown
Latitude:	34.022832
Longitude:	-117.331204

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	San Bernardino County Fire
Entity Title:	Not reported
Affiliation Address:	620 South E Street
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92415-0153
Affiliation Phone:	(909) 386-8401

Affiliation Type Desc:	Environmental Contact
Entity Name:	Environmental Notification Center
Entity Title:	Not reported
Affiliation Address:	P.O. Box 5085 (Attn: ESD, Programs & Governance)
Affiliation City:	Rosemead
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	91770
Affiliation Phone:	Not reported

Affiliation Type Desc:	Parent Corporation
Entity Name:	Southern California Edison, Transmission and Distribution Organization (TD)
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Document Preparer
Entity Name:	Roslyn Woods
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported

HIGHGROVE SUBSTATION (Continued) **U001574677**

Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	Southern California Edison
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(626) 302-1212
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	P.O. Box 5085 (Attn: ESD, Programs & Governance)
Affiliation City:	Rosemead
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	91770
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Southern California Edison
Entity Title:	Not reported
Affiliation Address:	P.O. Box 5085 (Attn: ESD, Programs & Governance)
Affiliation City:	Rosemead
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	91770
Affiliation Phone:	(626) 302-1212
Affiliation Type Desc:	Identification Signer
Entity Name:	Roslyn Woods
Entity Title:	Consultant
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Property Owner
Entity Name:	Southern California Edison
Entity Title:	Not reported
Affiliation Address:	P.O. Box 5085 (Attn: ESD, Programs & Governance)
Affiliation City:	Rosemead
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	91770
Affiliation Phone:	(626) 302-1212

HIGHGROVE SUBSTATION (Continued) **U001574677**

HWTS:

Name:	HIGHGROVE SUBSTATION
Address:	12700 TAYLOR ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAC002889847
Inactive Date:	03/17/2017
Create Date:	12/15/2016
Last Act Date:	08/01/2017
Mailing Name:	Not reported
Mailing Address:	PO BOX 800
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROSEMEAD, CA 917700000
Owner Name:	SOUTHERN CALIFORNIA EDISON
Owner Address:	PO BOX 800
Owner Address 2:	Not reported
Owner City,State,Zip:	ROSEMEAD, CA 917700000
Contact Name:	SARA M. DUVALL
Contact Address:	P.O. BOX 800
Contact Address 2:	Not reported
City,State,Zip:	ROSEMEAD, CA 91770

NAICS:

EPA ID:	CAC002889847
Create Date:	2016-12-15 13:51:49
NAICS Code:	221121
NAICS Description:	Electric Bulk Power Transmission and Control
Issued EPA ID Date:	2016-12-15 13:51:49
Inactive Date:	2017-03-17 03:00:22
Facility Name:	HIGHGROVE SUBSTATION
Facility Address:	12700 TAYLOR ST
Facility Address 2:	Not reported
Facility City:	GRAND TERRACE
Facility County:	36
Facility State:	CA
Facility Zip:	92313

A7 **HIGHGROVE SUBSTATION** **HAZNET S124677264**
12700-12898 TAYLOR STREET **HWTS N/A**
< 1/8 **GRAND TERRACE, CA 91770**
1 ft.

Site 7 of 17 in cluster A

Relative: Higher

Actual: 948 ft.

HAZNET:

Name:	HIGHGROVE SUBSTATION
Address:	12700-12898 TAYLOR STREET
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 917700000
Contact:	SARA M. DUVALL
Telephone:	6268628458
Mailing Name:	Not reported
Mailing Address:	PO BOX 800
Year:	2018
Gepaid:	CAC002958004
TSD EPA ID:	CAD050806850
CA Waste Code:	221 - Waste oil and mixed oil

HIGHGROVE SUBSTATION (Continued) **S124677264**

Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.00000

HWTS:
Name: HIGHGROVE SUBSTATION
Address: 12700-12898 TAYLOR STREET
Address 2: Not reported
City,State,Zip: GRAND TERRACE, CA 92313
EPA ID: CAC002958004
Inactive Date: 07/19/2018
Create Date: 04/18/2018
Last Act Date: 09/05/2019
Mailing Name: Not reported
Mailing Address: PO BOX 800
Mailing Address 2: Not reported
Mailing City,State,Zip: ROSEMEAD, CA 917700000
Owner Name: SOUTHERN CALIFORNIA EDISON
Owner Address: PO BOX 800
Owner Address 2: Not reported
Owner City,State,Zip: ROSEMEAD, CA 917700000
Contact Name: SARA M. DUVALL
Contact Address: P.O. BOX 800
Contact Address 2: Not reported
City,State,Zip: ROSEMEAD, CA 91770

NAICS:
EPA ID: CAC002958004
Create Date: 2018-04-18 15:50:44
NAICS Code: 221121
NAICS Description: Electric Bulk Power Transmission and Control
Issued EPA ID Date: 2018-04-18 15:50:44
Inactive Date: 2018-07-19 03:00:27
Facility Name: HIGHGROVE SUBSTATION
Facility Address: 12700-12898 TAYLOR STREET
Facility Address 2: Not reported
Facility City: GRAND TERRACE
Facility County: 36
Facility State: CA
Facility Zip: 92313

A8 **RIVERSIDE CANAL POWER COMPANY** **FINDS 1008237023**
12700 TAYLOR ST **ECHO N/A**
< 1/8 **COLTON, CA 92313**
1 ft.

Site 8 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

FINDS:
Registry ID: 110021288836

Click Here:

Environmental Interest/Information System:
CAMDBS (Clean Air Markets Division Business System) is a national information system that supports the implementation of market-based air pollution control programs administered by the Clean Air Markets

RIVERSIDE CANAL POWER COMPANY (Continued) **1008237023**

Division, within the Office of Air and Radiation. These programs include the Acid Rain Program, established by Title IV of the Clean Air Act Amendments of 1990, and regional programs designed reduce the transport of ozone. These emissions trading programs allows regulated facilities (primarily electric utilities) to adopt the most cost-effective strategies to reduce emissions at their units. Units that reduce their emissions below the number of allowances they hold -- each allowance is equivalent to one ton of sulfur dioxide or nitrogen oxides -- may trade allowances with other units in their system, sell them to other utilities on the open market or through EPA auctions, or bank them to cover emissions in future years. CAMDBS functions include registering responsible officials, establishing allowance accounts, reporting hourly emissions data, and transferring allowances between accounts.
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.
US National Pollutant Discharge Elimination System (NPDES) module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
HAZARDOUS AIR POLLUTANT MAJOR
HAZARDOUS WASTE BIENNIAL REPORTER
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1008237023
Registry ID:	110021288836
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110021288836
Name:	RIVERSIDE CANAL POWER COMPANY
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92313

A9 **SOUTHERN CALIFORNIA EDISON HIGHGROVE SUBSTATION** **HAZNET S123596405**
12700 TAYLOR ST. **HWTS N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 9 of 17 in cluster A

Relative: HAZNET:
Higher

Name:	SOUTHERN CALIFORNIA EDISON HIGHGROVE SUBSTATION
Address:	12700 TAYLOR ST.
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92313

Actual:
948 ft.

SOUTHERN CALIFORNIA EDISON HIGHGROVE SUBSTATION (Continued) **S123596405**

Contact:	SARA DUVALL
Telephone:	6263021212
Mailing Name:	Not reported
Mailing Address:	PO BOX 800
Year:	2015
Gepaid:	CAC002804848
TSD EPA ID:	CAD050806850
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	9.006

Additional Info:

Year:	2015
Gen EPA ID:	CAC002804848
Shipment Date:	20150302
Creation Date:	6/25/2015 22:15:51
Receipt Date:	20150302
Manifest ID:	006957291FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD050806850
Trans Name:	CLEAN HARBORS LOS ANGELES LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	9.006
Waste Quantity:	2370
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	SOUTHERN CALIFORNIA EDISON HIGHGROVE SUBSTATION
Address:	12700 TAYLOR ST.
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAC002804848
Inactive Date:	05/25/2015
Create Date:	02/23/2015
Last Act Date:	08/19/2016
Mailing Name:	Not reported
Mailing Address:	PO BOX 800
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROSEMEAD, CA 917700000

SOUTHERN CALIFORNIA EDISON HIGHGROVE SUBSTATION (Continued) **S123596405**

Owner Name:	SOUTHERN CALIFORNIA EDISON
Owner Address:	PO BOX 800
Owner Address 2:	Not reported
Owner City,State,Zip:	ROSEMEAD, CA 917700000
Contact Name:	SARA M. DUVALL
Contact Address:	P.O. BOX 800
Contact Address 2:	Not reported
City,State,Zip:	ROSEMEAD, CA 91770

A10 **RIVERSIDE CANAL POWER CO** **AST** **S105974276**
12700 TAYLOR ST **San Bern. Co. Permit** **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 10 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

AST:

Name:	SCE-HIGHGROVE SWITCHYARD SUBSTATION
Address:	12700 TAYLOR
City/Zip:	GRAND TERRACE,
Certified Unified Program Agencies:	San Bernardino
Owner:	SOUTHERN CALIFORNIA EDISON
Total Gallons:	8,338
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported
Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported
Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	Not reported

San Bern. Co. Permit:

Name:	RIVERSIDE CANAL POWER CO
Address:	12700 TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0005742
Owner:	RIVERSIDE CANAL POWER CO
Permit Number:	PT0001599
Permit Category:	HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status:	ACTIVE

RIVERSIDE CANAL POWER CO (Continued) **S105974276**

Expiration Date: 09/30/2020

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0027723
Permit Category: APSA EXEMPT
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0001600
Permit Category: HAZARDOUS WASTE GENERATOR - 0-10 EMPLOYEES
Facility Status: INACTIVE
Expiration Date: 09/30/2013

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012467
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012468
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012469
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

RIVERSIDE CANAL POWER CO (Continued) **S105974276**

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012470
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012471
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012472
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2010

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0018634
Permit Category: AST OPERATING PERMIT
Facility Status: INACTIVE
Expiration Date: 09/30/2009

Name: RIVERSIDE CANAL POWER CO
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0005742
Owner: RIVERSIDE CANAL POWER CO
Permit Number: PT0012473
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2007

A11 **ERNS** **2011963826**
N/A

12700 TAYLOR ST.
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 11 of 17 in cluster A

Relative: **Higher**

Actual: **948 ft.**

Incident Commons:

NRC Report #:	963826
Description of Incident:	CALLER IS REPORTING A RELEASE OF LIQUID MERCURY FROM A THERMOMETER OR MANOMETER DUE TO UNKNOWN CAUSES. CALLER STATED THIS OCCURRED AT A FORMER POWER PLANT.
Type of Incident:	FIXED
Incident Cause:	UNKNOWN
Incident Date Time:	2011-01-05 09:00:00
Incident DTG:	DISCOVERED
Incident Location:	Not reported
Loaction Address:	12700 TAYLOR ST.
Location Street 1:	Not reported
Location Street 2:	Not reported
Location Nearest City:	GRAND TERRACE
Location State:	CA
Location County:	SAN BERNARDINO
Location Zip:	92313
Distance From City:	Not reported
Distance Units:	Not reported
Direction From City:	Not reported
Lat Deg:	Not reported
Lat Min:	Not reported
Lat Sec:	Not reported
Lat Quad:	Not reported
Long Deg:	Not reported
Long Min:	Not reported
Long Sec:	Not reported
Long Quad:	Not reported
Location Section:	Not reported
Location Township:	Not reported
Location range:	Not reported
Potential Range:	N

Incidents:

NRC Report #:	963826
Aircraft Type:	Not reported
Aircraft Model:	Not reported
Aircraft ID:	Not reported
Aircraft Fuel Capacity:	Not reported
Aircraft Fuel Capacity Units:	Not reported
Aircraft Fuel on Board:	Not reported
Aircraft Fuel on Board Units:	Not reported
Aircraft Spot Number:	Not reported
Aircraft Hanger:	Not reported
Aircraft Runway Number:	Not reported
Road Mile Marker:	Not reported
Building ID:	Not reported
Type of Fixed Object:	POWER PLANT
Power Generating Facility:	Y
Generating Capacity:	Not reported
Type of Fuel:	Not reported
NPDES:	Not reported
NPDES Compliance:	U
Pipeline Type:	Not reported

(Continued) **2011963826**

DOT Regulated:	U
Pipeline Above Ground:	ABOVE
Exposed Underwater:	N
Pipeline Covered:	U
Railroad Hotline:	Not reported
Grade Crossing:	U
Location Subdivision:	Not reported
Railroad Milepost:	Not reported
Type Vehicle Involved:	Not reported
Crossing Device Type:	Not reported
Device Operational:	U
DOT Crossing Number:	Not reported
Brake Failure:	U
Description of Tank:	Not reported
Tank Above Ground:	ABOVE
Transportable Container:	U
Tank Regulated:	U
Tank Regulated By:	Not reported
Tank ID:	Not reported
Capacity of Tank:	Not reported
Capacity of Tank Units:	Not reported
Actual Amount:	Not reported
Actual Amount Units:	Not reported
Platform Rig Name:	Not reported
Platform Letter:	Not reported
Location Area ID:	Not reported
Location Block ID:	Not reported
OCSG Number:	Not reported
OCSP Number:	Not reported
State Lease Number:	Not reported
Pier Dock Number:	Not reported
Berth Slip Number:	Not reported
Continuous Release Type:	Not reported
Initial Continuous Release No:	Not reported
Continuous Release Permit:	Not reported
Allision:	U
Type of Structure:	Not reported
Structure Name:	Not reported
Structure Operational:	U
Airbag Deployed:	U
Date Tiem Normal Service:	Not reported
Service Disruption Time:	Not reported
Service Disruption Units:	Not reported
Transit Bus Flag:	Not reported
CR Begin Date:	Not reported
CR End Date:	Not reported
CR Change Date:	Not reported
FBI Contact:	Not reported
FBI Contact Date Time:	Not reported
Sub Part C Testing Req:	XXX
Conductor Testing:	Not reported
Engineer Testing:	Not reported
Trainman Testing:	Not reported
Yard Foreman Testing:	Not reported
RCL Operator Testing:	Not reported
Brakeman Testing:	Not reported
Train Dispatcher Testing:	Not reported

(Continued) **2011963826**

Signalman Testing:	Not reported
Other Employee Testing:	Not reported
Unknown Testing:	Not reported
Passenger Handling:	Not reported
Passenger Route:	XXX
Passenger Delay:	XXX

Incident Details:

NRC Report #:	963826
Fire Involved:	N
Fire Extinguished:	U
Any Evacuations:	N
Number Evacuated:	Not reported
Who Evacuated:	Not reported
Radius of Evacuation:	Not reported
Any Injuries:	N
Number Injured:	Not reported
Number Hospitalized:	Not reported
Any Fatalities:	N
Number Fatalities:	Not reported
Any Damages:	N
Damage Amount:	Not reported
Air Corridor Closed:	N
Air Corridor Desc:	Not reported
Air Closure Time:	Not reported
Waterway Closed:	N
Waterway Desc:	Not reported
Waterway Closure Time:	Not reported
Road Closed:	N
Road Desc:	Not reported
Road Closure Time:	Not reported
Closure Direction:	Not reported
Major Artery:	N
Track Closed:	N
Track Desc:	Not reported
Track Closure Time:	Not reported
Media Interest:	NONE
Medium Desc:	OTHER
Additional Medium Info:	/ CONCRETE FLOOR IN A BUILDING
Body of Water:	Not reported
Tributary of:	Not reported
Release Secured:	Y
Estimated Duration of Release:	Not reported
Release rate:	Not reported
Desc Remedial Action:	MATERIAL IS SEALED OFF, HAZMAT CONTRACTOR IS EN ROUTE FOR CLEAN UP.
State Agency on Scene:	NONE
State Agency Report Number:	11-0074
Other Agency Notified:	Not reported
Weather Conditions:	CLEAR
Air Temperature:	Not reported
Wind Speed:	Not reported
Wind Direction:	Not reported
Water Supply Contaminated:	U
Sheen Size:	Not reported
Sheen Color:	Not reported
Direction of Sheen Travel:	Not reported
Sheen Odor Description:	Not reported

(Continued) **2011963826**

Wave Condition:	Not reported
Current Speed:	Not reported
Current Direction:	Not reported
Water Temperature:	Not reported
Track Close Dir:	Not reported
Empl Fatality:	Not reported
Pass Fatality:	Not reported
Community Impact:	Not reported
Wind Speed Unit:	Not reported
Employee Injuries:	Not reported
Passenger Injuries:	Not reported
Occupant Fatality:	Not reported
Current Speed Unit:	Not reported
Road Closure Units:	Not reported
Track CLosure Units:	Not reported
Sheen Size Units:	Not reported
Additional Info:	CALLER HAD NO ADDITIONAL INFORMATION.
State Agency Notified:	OES, CUPA
Federal Agency Notified:	NONE
nearest River Mile Marker:	Not reported
Sheen Size Length:	Not reported
Sheen Size Length Units:	Not reported
Sheen Size Width:	Not reported
Sheen Size Width Units:	Not reported
Offshore:	N
Duration Unit:	Not reported
Release Rate Unit:	Not reported
Release Rate Rate:	Not reported
Passengers Transferred:	NO

Calls:

NRC Report #:	963826
Site ID:	2011963826
Date Time Received:	2011-01-05 15:36:02
Date Time Complete:	2011-01-05 15:42:19
Call Type:	INC
Responsible Company:	AES HIGH GROVE
Responsible Org Type:	PRIVATE ENTERPRISE
Responsible City:	GRAND TERRACE
Responsible State:	CA
Responsible Zip:	92313
On Behalf:	Not reported
Source:	TELEPHONE

Material Involved:

NRC Report #:	963826
Chris Code:	MCR
Case Number:	007439-97-6
UN Number:	Not reported
Amount of Material:	3
Unit of Measure:	TABLESPOON(S)
Name of Material:	MERCURY
If Reached Water:	NO
Amount in Water:	Not reported
Unit of Measure Reach Water:	Not reported

A12 **RIVERSIDE CANAL POWER CO** **HAZNET S123620656**
12700 TAYLOR ST **HWTS N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 12 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

HAZNET:

Name:	RIVERSIDE CANAL POWER CO
Address:	12700 TAYLOR ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 923135828
Contact:	W STEVENS/HUNT BCH ENV COORD
Telephone:	7143741479
Mailing Name:	Not reported
Mailing Address:	690 STUDEBAKER RD
Year:	2012
Gepaid:	CAL000181154
TSD EPA ID:	AZC950823111
CA Waste Code:	151 - Asbestos containing waste
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	12
Year:	2011
Gepaid:	CAL000181154
TSD EPA ID:	CAT080013352
CA Waste Code:	343 - Unspecified organic liquid mixture
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.748
Year:	2011
Gepaid:	CAL000181154
TSD EPA ID:	AZC950823111
CA Waste Code:	151 - Asbestos containing waste
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	3.2
Year:	2011
Gepaid:	CAL000181154
TSD EPA ID:	AZ0000337630
CA Waste Code:	261 - Polychlorinated biphenyls and material containing PCBs
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	9.51892
Year:	2011
Gepaid:	CAL000181154
TSD EPA ID:	AZ0000337360
CA Waste Code:	181 - Other inorganic solid waste
Disposal Method:	H010 - Metals Recovery Including Retoring,Smelting,Chemicals,Ect
Tons:	0.03
Year:	2011
Gepaid:	CAL000181154
TSD EPA ID:	AZ0000337360
CA Waste Code:	725 - Liquids with mercury >= 20 Mg./L

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Disposal Method: H010 - Metals Recovery Including Retoring,Smelting,Chemicals,Ect
Tons: 0.003

Year: 2011
Gepaid: CAL000181154
TSD EPA ID: CAD009007626
CA Waste Code: 151 - Asbestos containing waste
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 6

Year: 2011
Gepaid: CAL000181154
TSD EPA ID: AZR000031559
CA Waste Code: 611 - Contaminated soil from site clean-up
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 700.92

Year: 2010
Gepaid: CAL000181154
TSD EPA ID: CAD097030993
CA Waste Code: 223 - Unspecified oil-containing waste
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.8

Year: 2010
Gepaid: CAL000181154
TSD EPA ID: CAD009007626
CA Waste Code: 151 - Asbestos containing waste
Disposal Method: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons: 660.8

Click this hyperlink while viewing on your computer to access
48 additional CA HAZNET: record(s) in the EDR Site Report.

Additional Info:
Year: 2000
Gen EPA ID: CAL000181154

Shipment Date: 20001219
Creation Date: 3/5/2001 0:00:00
Receipt Date: 20001219
Manifest ID: 20131128
Trans EPA ID: CAD982030173
Trans Name: Not reported
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
TSDF EPA ID: CAT080022148
Trans Name: Not reported
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 221 - Waste oil and mixed oil
RCRA Code: Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Meth Code:	H01 - Transfer Station
Quantity Tons:	0.8
Waste Quantity:	1600
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001219
Creation Date:	3/5/2001 0:00:00
Receipt Date:	20001219
Manifest ID:	20131128
Trans EPA ID:	CAD982030173
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	1
Waste Quantity:	2000
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20001103
Creation Date:	1/24/2001 0:00:00
Receipt Date:	20001103
Manifest ID:	98762492
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD097030993
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD097030993
TSDF Alt Name:	Not reported
Waste Code Description:	791 - Liquids with pH < 2 792 Liquids with pH < 2 with metals
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	3.753
Waste Quantity:	900
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Shipment Date:	20000821
Creation Date:	10/23/2000 0:00:00
Receipt Date:	20000823
Manifest ID:	20180762
Trans EPA ID:	CAR000017657
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD009007626
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	6.7424
Waste Quantity:	8
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20000727
Creation Date:	9/11/2000 0:00:00
Receipt Date:	20000728
Manifest ID:	99259173
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	T01 - Treatment, Tank
Quantity Tons:	0.038
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20000727
Creation Date:	9/11/2000 0:00:00
Receipt Date:	20000728
Manifest ID:	99259173
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.05
Waste Quantity:	100
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20000503
Creation Date:	6/21/2000 0:00:00
Receipt Date:	20000504
Manifest ID:	99259111
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000646117
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000646117
TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	29.498
Waste Quantity:	35
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20000128
Creation Date:	4/4/2000 0:00:00
Receipt Date:	20000204
Manifest ID:	99569601
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080022148
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.3
Waste Quantity:	600
Quantity Unit:	P

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20000121
Creation Date:	3/22/2000 0:00:00
Receipt Date:	20000121
Manifest ID:	99567073
Trans EPA ID:	CAD981376213
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD087030993
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD087030993
TSDF Alt Name:	Not reported
Waste Code Description:	122 - Alkaline solution without metals (pH > 12.5
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	18.765
Waste Quantity:	4500
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20000120
Creation Date:	4/4/2000 0:00:00
Receipt Date:	20000120
Manifest ID:	99567074
Trans EPA ID:	CAD981376213
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD087030993
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD097030993
TSDF Alt Name:	Not reported
Waste Code Description:	122 - Alkaline solution without metals (pH > 12.5
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	20.85
Waste Quantity:	5000
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2012
Gen EPA ID:	CAL000181154

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Shipment Date:	20120326
Creation Date:	8/28/2012 22:15:13
Receipt Date:	20120328
Manifest ID:	001356667GBF
Trans EPA ID:	CAR000181891
Trans Name:	BDC SPECIAL WASTE SERVICES
Trans 2 EPA ID:	CAR000045963
Trans 2 Name:	ARO TRUCKING
TSDF EPA ID:	AZC950823111
Trans Name:	LA PAZ COUNTY LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	12
Waste Quantity:	30
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2002
Gen EPA ID:	CAL000181154
Shipment Date:	20020314
Creation Date:	7/22/2002 18:32:38
Receipt Date:	20020314
Manifest ID:	21034991
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	1.254
Waste Quantity:	330
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20020314
Creation Date:	7/22/2002 18:32:38
Receipt Date:	20020314
Manifest ID:	21034991

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.45
Waste Quantity:	900
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2006
Gen EPA ID:	CAL000181154
Shipment Date:	20060626
Creation Date:	9/8/2006 18:33:30
Receipt Date:	20060629
Manifest ID:	25133475
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD097030993
Trans Name:	US FILTERS RECOVERY SERVICES INC
TSDF Alt EPA ID:	CAD097030993
TSDF Alt Name:	Not reported
Waste Code Description:	122 - Alkaline solution without metals (pH > 12.5
RCRA Code:	D002
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.834
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20060626
Creation Date:	9/8/2006 18:33:30
Receipt Date:	20060629
Manifest ID:	25133475
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD097030993

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans Name:	US FILTERS RECOVERY SERVICES INC
TSDF Alt EPA ID:	CAD097030993
TSDF Alt Name:	Not reported
Waste Code Description:	791 - Liquids with pH < 2 792 Liquids with pH < 2 with metals
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	0.57129
Waste Quantity:	137
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20060626
Creation Date:	9/8/2006 18:31:20
Receipt Date:	20060626
Manifest ID:	25133474
Trans EPA ID:	CAR000164327
Trans Name:	T R ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	CAD980737068
Trans 2 Name:	ANCON MARINE
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING
TSDF Alt EPA ID:	CAD98244448
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.45
Waste Quantity:	900
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20060626
Creation Date:	9/14/2006 18:37:41
Receipt Date:	20060629
Manifest ID:	25133476
Trans EPA ID:	CAR000164327
Trans Name:	T R ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	CAD980737068
Trans 2 Name:	ANCON MARINE
TSDF EPA ID:	CAD008302903
Trans Name:	ONYX ENVIRONMENTAL SERVICES LL
TSDF Alt EPA ID:	CAD008302903
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.2
Waste Quantity:	400
Quantity Unit:	P

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20060622
Creation Date:	9/13/2006 18:31:19
Receipt Date:	20060622
Manifest ID:	25133446
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	CAT080013352
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	20.85
Waste Quantity:	5000
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2003
Gen EPA ID:	CAL000181154
Shipment Date:	20031217
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031217
Manifest ID:	22395169
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008302903
Trans Name:	ONYX ENVIRONMENTAL SERVICES LL
TSDF Alt EPA ID:	CAD008302903
TSDF Alt Name:	Not reported
Waste Code Description:	123 - Unspecified alkaline solution
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Shipment Date:	20031217
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031217
Manifest ID:	22395169
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008302903
Trans Name:	ONYX ENVIRONMENTAL SERVICES LL
TSDF Alt EPA ID:	CAD008302903
TSDF Alt Name:	Not reported
Waste Code Description:	123 - Unspecified alkaline solution
RCRA Code:	D002
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0834
Waste Quantity:	20
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031217
Creation Date:	8/13/2004 7:53:20
Receipt Date:	20031218
Manifest ID:	22395168
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	512 - Other empty containers 30 gallons or more
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.015
Waste Quantity:	30
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031217
Creation Date:	8/13/2004 7:53:20
Receipt Date:	20031218
Manifest ID:	22395168
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	512 - Other empty containers 30 gallons or more
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.015
Waste Quantity:	30
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031217
Creation Date:	8/13/2004 7:53:20
Receipt Date:	20031218
Manifest ID:	22395168
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	791 - Liquids with pH < 2 792 Liquids with pH < 2 with metals
RCRA Code:	D002
Meth Code:	R01 - Recycler
Quantity Tons:	2.7105
Waste Quantity:	650
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031217
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031217
Manifest ID:	22395169
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008302903
Trans Name:	ONYX ENVIRONMENTAL SERVICES LL
TSDF Alt EPA ID:	CAD008302903
TSDF Alt Name:	Not reported
Waste Code Description:	123 - Unspecified alkaline solution
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031211
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031211
Manifest ID:	22395156
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	122 - Alkaline solution without metals (pH > 12.5
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.1668
Waste Quantity:	40
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031211
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031211
Manifest ID:	22395157
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	512 - Other empty containers 30 gallons or more
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.06
Waste Quantity:	120
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20031211
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031211

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Manifest ID:	22395156
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.494
Waste Quantity:	130
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20031211
Creation Date:	8/12/2004 8:09:46
Receipt Date:	20031211
Manifest ID:	22395156
Trans EPA ID:	CAD980737068
Trans Name:	ANCON MARINE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	D/K ENVIRONMENTAL
TSDF Alt EPA ID:	CAT080033681
TSDF Alt Name:	Not reported
Waste Code Description:	141 - Off-specification, aged, or surplus inorganics
RCRA Code:	Not reported
Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.0875
Waste Quantity:	175
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2011
Gen EPA ID:	CAL000181154

Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622023JJK
Trans EPA ID:	CAR000182519
Trans Name:	POSADAS TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622024JJK
Trans EPA ID:	CAR000201467
Trans Name:	LA PLEBE TRUCK
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622025JJK
Trans EPA ID:	CAR000045443
Trans Name:	D & S TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

	Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622026JJK
Trans EPA ID:	CAD983616202
Trans Name:	NC MCDONALD
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622027JJK
Trans EPA ID:	CAR000190777
Trans Name:	ESPINOSA M TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622030JJK
Trans EPA ID:	CAR000187831
Trans Name:	S & V TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622029JJK
Trans EPA ID:	CAR000190694
Trans Name:	ESTRADA TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111028
Manifest ID:	005622033JJK

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans EPA ID:	CAR000191015
Trans Name:	ROCAMI TRUCKING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111028
Manifest ID:	005622032JJK
Trans EPA ID:	CAR000184143
Trans Name:	ZEPEDA BROS
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	611 - Contaminated soil from site clean-ups
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	21.24
Waste Quantity:	18
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20111027
Creation Date:	3/26/2012 20:30:13
Receipt Date:	20111027
Manifest ID:	005622031JJK
Trans EPA ID:	CAR000209494
Trans Name:	WEST COAST LAND CLEARING
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	AZR000031559
Trans Name:	NORTHWEST REGIONAL LANDFILL
TSDF Alt EPA ID:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

TSDF Alt Name: Not reported
Waste Code Description: 611 - Contaminated soil from site clean-ups
RCRA Code: Not reported
Meth Code: H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons: 21.24
Waste Quantity: 18
Quantity Unit: Y
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Additional Info:
Year: 2010
Gen EPA ID: CAL000181154

Shipment Date: 20101222
Creation Date: 5/27/2011 18:30:13
Receipt Date: 20110106
Manifest ID: 008076768JJK
Trans EPA ID: CAD981377864
Trans Name: IDR ENVIRONMENTAL SERVICES
Trans 2 EPA ID: CAD982030173
Trans 2 Name: ECOLOGY CONTROL IND
TSDF EPA ID: NVT330010000
Trans Name: US ECOLOGY
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: - Not reported
RCRA Code: Not reported
Meth Code: H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons: 4.35765
Waste Quantity: 1045
Quantity Unit: G
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Shipment Date: 20101222
Creation Date: 5/27/2011 18:30:13
Receipt Date: 20110106
Manifest ID: 008076768JJK
Trans EPA ID: CAD981377864
Trans Name: IDR ENVIRONMENTAL SERVICES
Trans 2 EPA ID: CAD982030173
Trans 2 Name: ECOLOGY CONTROL IND
TSDF EPA ID: NVT330010000
Trans Name: US ECOLOGY
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 352 - Other organic solids
RCRA Code: Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.6
Waste Quantity:	1200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20101222
Creation Date:	5/27/2011 18:30:13
Receipt Date:	20110106
Manifest ID:	008076768JJK
Trans EPA ID:	CAD981377864
Trans Name:	IDR ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	CAD982030173
Trans 2 Name:	ECOLOGY CONTROL IND
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	1.045
Waste Quantity:	275
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20101207
Creation Date:	1/12/2011 18:30:31
Receipt Date:	20101207
Manifest ID:	006836674JJK
Trans EPA ID:	CAD982030173
Trans Name:	ECOLOGY CONTROL INDUSTRIES (MONTCLAIR)
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAR000157206
Trans Name:	WESTERN ENVIRONMENTAL
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H081 - Biological Treatment With Or Without Precitation
Quantity Tons:	7.505
Waste Quantity:	15010
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20101025
Creation Date:	4/22/2011 18:30:20
Receipt Date:	20101104
Manifest ID:	008076536JJK
Trans EPA ID:	CAD981377864
Trans Name:	IDR ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	CAD982030173
Trans 2 Name:	ECOLOGY CONTROL IND
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	2.85
Waste Quantity:	750
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20101025
Creation Date:	4/22/2011 18:30:20
Receipt Date:	20101104
Manifest ID:	008076536JJK
Trans EPA ID:	CAD981377864
Trans Name:	IDR ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	CAD982030173
Trans 2 Name:	ECOLOGY CONTROL IND
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.6
Waste Quantity:	1200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20100924
Creation Date:	12/30/2010 18:30:30
Receipt Date:	20100924
Manifest ID:	000820029GBF

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans EPA ID:	CAR000181891
Trans Name:	BDC SPECIAL WASTE SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD009007626
Trans Name:	AZUSA LAND RECLAMATION
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	30.4
Waste Quantity:	76
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20100820
Creation Date:	11/30/2010 18:30:08
Receipt Date:	20100820
Manifest ID:	000244045GBF
Trans EPA ID:	CAR000181891
Trans Name:	BDC SPECIAL WASTE SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD009007626
Trans Name:	AZUSA LAND RECLAMATION
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	28
Waste Quantity:	70
Quantity Unit:	Y
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20100813
Creation Date:	10/8/2010 18:30:19
Receipt Date:	20100820
Manifest ID:	006432385JJK
Trans EPA ID:	CAD981377864
Trans Name:	IDR ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD099452708
Trans Name:	INDUSTRIAL SERVICE OIL COMPANY INC
TSDF Alt EPA ID:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	0.931
Waste Quantity:	245
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20100813
Creation Date:	1/26/2011 18:30:31
Receipt Date:	20100830
Manifest ID:	006432386JJK
Trans EPA ID:	CAD981377864
Trans Name:	IDR ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID:	CAD982030173
Trans 2 Name:	ECOLOGY CONTROL IND
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.0625
Waste Quantity:	125
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1999
Gen EPA ID:	CAL000181154
Shipment Date:	19991026
Creation Date:	1/4/2000 0:00:00
Receipt Date:	19991104
Manifest ID:	99565934
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	CAR000017657
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	151 - Asbestos-containing waste
RCRA Code:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Meth Code:	D80 - Disposal, Land Fill
Quantity Tons:	0.15
Waste Quantity:	300
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19991026
Creation Date:	1/4/2000 0:00:00
Receipt Date:	19991028
Manifest ID:	99566142
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD028409019
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D001
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.075
Waste Quantity:	150
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566140
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.627
Waste Quantity:	165
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566140
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	1.6054
Waste Quantity:	385
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566140
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.2
Waste Quantity:	400
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566140
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	3
Waste Quantity:	6000
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566139
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	181 - Other inorganic solid waste Organics
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.0175
Waste Quantity:	35
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566139
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.125
Waste Quantity:	250
Quantity Unit:	P

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566139
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.05
Waste Quantity:	100
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19991026
Creation Date:	1/11/2000 0:00:00
Receipt Date:	19991027
Manifest ID:	99566139
Trans EPA ID:	CAD982444481
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD982444481
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.834
Waste Quantity:	200
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2001
Gen EPA ID:	CAL000181154

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Shipment Date:	20010904
Creation Date:	10/23/2001 0:00:00
Receipt Date:	Not reported
Manifest ID:	21034822
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.4587
Waste Quantity:	110
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20010904
Creation Date:	10/23/2001 0:00:00
Receipt Date:	Not reported
Manifest ID:	21034822
Trans EPA ID:	CAD980737068
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080033681
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.1
Waste Quantity:	200
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	RIVERSIDE CANAL POWER CO
Address:	12700 TAYLOR ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 923135828
EPA ID:	CAL000181154
Inactive Date:	Not reported
Create Date:	08/03/1998
Last Act Date:	08/20/2019

RIVERSIDE CANAL POWER CO (Continued) **S123620656**

Mailing Name:	Not reported
Mailing Address:	690 NORTH STUDEBAKER
Mailing Address 2:	Not reported
Mailing City,State,Zip:	LONG BEACH, CA 908030000
Owner Name:	RIVERSIDE CANAL POWER CO
Owner Address:	690 NORTH STUDEBAKER
Owner Address 2:	Not reported
Owner City,State,Zip:	LONG BEACH, CA 908030000
Contact Name:	JEFF MILLER
Contact Address:	690 NORTH STUDEBAKER RD
Contact Address 2:	Not reported
City,State,Zip:	LONG BEACH, CA 908030000

NAICS:

EPA ID:	CAL000181154
Create Date:	2002-03-14 16:36:28
NAICS Code:	22112
NAICS Description:	Electric Power Transmission, Control, and Distribution
Issued EPA ID Date:	1998-08-03 00:00:00
Inactive Date:	Not reported
Facility Name:	RIVERSIDE CANAL POWER CO
Facility Address:	12700 TAYLOR ST
Facility Address 2:	Not reported
Facility City:	GRAND TERRACE
Facility County:	36
Facility State:	CA
Facility Zip:	923135828

EPA ID:	CAL000181154
Create Date:	2003-10-23 15:27:19
NAICS Code:	221122
NAICS Description:	Electric Power Distribution
Issued EPA ID Date:	1998-08-03 00:00:00
Inactive Date:	Not reported
Facility Name:	RIVERSIDE CANAL POWER CO
Facility Address:	12700 TAYLOR ST
Facility Address 2:	Not reported
Facility City:	GRAND TERRACE
Facility County:	36
Facility State:	CA
Facility Zip:	923135828

A13 **CHMIRS** **S111752829**

12700 TAYLOR ST (FORMER POWER STATION) **N/A**

< 1/8 **GRAND TERRACE, CA 92313**

1 ft.

Site 13 of 17 in cluster A

Relative: **Higher**

Actual: **948 ft.**

CHMIRS:

Name:	Not reported
Address:	12700 TAYLOR ST (FORMER POWER STATION)
City,State,Zip:	GRAND TERRACE, CA 92313
OES Incident Number:	1-0074
OES notification:	01/05/2011
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**

(Continued) **S111752829**

Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Utilities/Substation
Cleanup By:	Contractor
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Lbs.
Other:	Not reported
Date/Time:	1130
Year:	2011
Agency:	AES
Incident Date:	1/5/2011
Admin Agency:	San Bernardino County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	Mercury
Quantity Released:	1
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported

(Continued) **S111752829**

Injuries: Not reported
Fatals: Not reported
Comments: Not reported
Description: Non-radiological mercury was discovered on the floor of an old former power plant which is being demolished. This former power plant has been fenced off from the public for several months.

A14 **AES HIGHGROVE LLC** **FINDS 1016081129**
12700 TAYLOR ST **ECHO N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 14 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

FINDS:
Registry ID: 110038615068

Click Here:

Environmental Interest/Information System:
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.
AIR MINOR

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1016081129
Registry ID: 110038615068
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110038615068
Name: AES HIGHGROVE LLC
Address: 12700 TAYLOR ST
City,State,Zip: GRAND TERRACE, CA 92313

A15 **SCE-HIGHGROVE SWITCHYARD SUBSTATION** **FINDS 1023341573**
12700 TAYLOR ST **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 15 of 17 in cluster A

Relative: Higher
Actual: 948 ft.

FINDS:
Registry ID: 110066371517

Click Here:

Environmental Interest/Information System:
STATE MASTER

SCE-HIGHGROVE SWITCHYARD SUBSTATION (Continued) **1023341573**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A16 **RIVERSIDE CANAL POWER CO** **CERS** **S113096024**
12700 TAYLOR ST **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
1 ft.

Site 16 of 17 in cluster A

Relative: Higher

Actual: 948 ft.

CERS:

Name:	RIVERSIDE CANAL POWER CO
Address:	12700 TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92313
Site ID:	62198
CERS ID:	10043866
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	62198
Site Name:	RIVERSIDE CANAL POWER CO
Violation Date:	06-16-2015
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date.
Violation Notes:	Returned to compliance on 06/30/2015. At the time of this inspection, the last CERS submission took place on 9/16/2013.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HMRRP
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-19-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	ROUTINE HANDLER INSPECTION-RIVERSIDE CANAL POWER
Eval Division:	San Bernardino County Fire Department
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-16-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	INSPECTION
Eval Division:	San Bernardino County Fire Department
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-16-2015
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	INSPECTION
Eval Division:	San Bernardino County Fire Department
Eval Program:	APSA
Eval Source:	CERS

RIVERSIDE CANAL POWER CO (Continued) **S113096024**

Enforcement Action:

Site ID:	62198
Site Name:	RIVERSIDE CANAL POWER CO
Site Address:	12700 TAYLOR ST
Site City:	GRAND TERRACE
Site Zip:	92313
Enf Action Date:	06-16-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	San Bernardino County Fire Department
Enf Action Program:	HMRRP
Enf Action Source:	CERS

Coordinates:

Site ID:	62198
Facility Name:	RIVERSIDE CANAL POWER CO
Env Int Type Code:	HMBP
Program ID:	10043866
Coord Name:	Not reported
Ref Point Type Desc:	Unknown
Latitude:	34.022832
Longitude:	-117.331204

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	690 N. STUDEBAKER RD
Affiliation City:	LONG BEACH
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	90803
Affiliation Phone:	Not reported

Affiliation Type Desc:	Legal Owner
Entity Name:	RIVERSIDE CANAL POWER CO
Entity Title:	Not reported
Affiliation Address:	690 N. STUDEBAKER RD
Affiliation City:	LONG BEACH
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	90803
Affiliation Phone:	(562) 493-7783

Affiliation Type Desc:	Environmental Contact
Entity Name:	Jeff Miller
Entity Title:	Not reported
Affiliation Address:	1100 North Harbor Drive
Affiliation City:	Redondo Beach
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	90277
Affiliation Phone:	Not reported

Affiliation Type Desc:	Identification Signer

RIVERSIDE CANAL POWER CO (Continued) **S113096024**

Entity Name:	Steven Lichten
Entity Title:	President, ESCI EnviroServices, Inc.
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	AES Southland, LLC
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(562) 493-7840
Affiliation Type Desc:	CUPA District
Entity Name:	San Bernardino County Fire
Entity Title:	Not reported
Affiliation Address:	620 South E Street
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92415-0153
Affiliation Phone:	(909) 386-8401
Affiliation Type Desc:	Parent Corporation
Entity Name:	RIVERSIDE CANAL POWER CO
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Document Preparer
Entity Name:	STEVEN LICHTEN
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Name:	AES HIGHGROVE LLC
Address:	12700 TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92313
Site ID:	449855
CERS ID:	110038615068
CERS Description:	US EPA Air Emission Inventory System (EIS)

A17
NE
< 1/8
0.002 mi.
9 ft.

Relative:
Higher

Actual:
948 ft.

HIGHGROVE SUBSTATION
12700 TAYLOR ST
COLTON, CA 92324

Site 17 of 17 in cluster A

SWEEPS UST
HIST UST
DRYCLEANERS
EMI
HAZNET
CIWQS
CERS
HWTS

S105939671
N/A

SWEEPS UST:

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9
Board Of Equalization:	44-013675
Referral Date:	08-28-91
Action Date:	08-28-91
Created Date:	02-29-88
Owner Tank Id:	154
SWRCB Tank Id:	36-000-022181-000001
Tank Status:	A
Capacity:	100
Active Date:	06-30-88
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	7

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9
Board Of Equalization:	44-013675
Referral Date:	08-28-91
Action Date:	08-28-91
Created Date:	02-29-88
Owner Tank Id:	155
SWRCB Tank Id:	36-000-022181-000002
Tank Status:	A
Capacity:	100
Active Date:	06-30-88
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	Not reported

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9
Board Of Equalization:	44-013675
Referral Date:	08-28-91
Action Date:	08-28-91

HIGHGROVE SUBSTATION (Continued) **S105939671**

Created Date:	02-29-88
Owner Tank Id:	158
SWRCB Tank Id:	36-000-022181-000005
Tank Status:	A
Capacity:	39000
Active Date:	06-30-88
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	Not reported

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9
Board Of Equalization:	44-013675
Referral Date:	08-28-91
Action Date:	08-28-91
Created Date:	02-29-88
Owner Tank Id:	159
SWRCB Tank Id:	36-000-022181-000006
Tank Status:	A
Capacity:	21000
Active Date:	06-30-88
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	Not reported

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9
Board Of Equalization:	44-013675
Referral Date:	08-28-91
Action Date:	08-28-91
Created Date:	02-29-88
Owner Tank Id:	160
SWRCB Tank Id:	36-000-022181-000007
Tank Status:	A
Capacity:	21000
Active Date:	06-30-88
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	Not reported

Name:	HIGHGROVE GENERATING STATION
Address:	12700 TAYLOR ST
City:	COLTON
Status:	Active
Comp Number:	22181
Number:	9

HIGHGROVE SUBSTATION (Continued) **S105939671**

Board Of Equalization: 44-013675
Referral Date: 08-28-91
Action Date: 08-28-91
Created Date: 02-29-88
Owner Tank Id: 161
SWRCB Tank Id: 36-000-022181-000008
Tank Status: A
Capacity: 21000
Active Date: 06-30-88
Tank Use: UNKNOWN
STG: P
Content: Not reported
Number Of Tanks: Not reported

Name: HIGHGROVE GENERATING STATION
Address: 12700 TAYLOR ST
City: COLTON
Status: Active
Comp Number: 22181
Number: 9
Board Of Equalization: 44-013675
Referral Date: 08-28-91
Action Date: 08-28-91
Created Date: 02-29-88
Owner Tank Id: 162
SWRCB Tank Id: 36-000-022181-000009
Tank Status: A
Capacity: 21000
Active Date: 06-30-88
Tank Use: UNKNOWN
STG: P
Content: Not reported
Number Of Tanks: Not reported

HIST UST:
Name: HIGHGROVE GENERATING STATION
Address: 12700 TAYLOR STREET
City,State,Zip: COLTON, CA 92324
File Number: 0002A6C2
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002A6C2.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported

HIGHGROVE SUBSTATION (Continued) **S105939671**

Container Construction Thickness:	Not reported
Leak Detection:	Not reported
Tank Num:	Not reported
Container Num:	Not reported
Year Installed:	Not reported
Tank Capacity:	Not reported
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported

Click here for Geo Tracker PDF:

DRYCLEAN SOUTH COAST:

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Facility ID:	15872
Application Number:	105587
Permit Number:	Not reported
Status:	A
Representative Name:	PETER WELSING
Representative Telephone:	626 3029536
Permit Status:	Not reported
BCAT Number:	Not reported
BCAT Description:	Not reported
CCAT Number:	Not reported
CCAT Description:	Not reported
UTM East:	469.41799927
UTM North:	3764.3510742

EMI:

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1987
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	2
NOX - Oxides of Nitrogen Tons/Yr:	8
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	1
Part. Matter 10 Micrometers and Smllr Tons/Yr:	1

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324

HIGHGROVE SUBSTATION (Continued) **S105939671**

Year:	1990
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	1
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1995
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	5
Reactive Organic Gases Tons/Yr:	4
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	9
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1996
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

HIGHGROVE SUBSTATION (Continued) **S105939671**

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1997
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	17
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1998
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	17
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	SO CAL EDISON CO
Address:	12700 TAYLOR ST
City,State,Zip:	COLTON, CA 92324
Year:	1999
County Code:	36
Air Basin:	SC
Facility ID:	15872
Air District Name:	SC
SIC Code:	4911
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	17
SOX - Oxides of Sulphur Tons/Yr:	0

HIGHGROVE SUBSTATION (Continued) **S105939671**

Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Name: SO CAL EDISON CO
Address: 12700 TAYLOR ST
City,State,Zip: COLTON, CA 92324
Year: 2000
County Code: 36
Air Basin: SC
Facility ID: 15872
Air District Name: SC
SIC Code: 4911
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 1
NOX - Oxides of Nitrogen Tons/Yr: 17
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Name: RIVERSIDE CANAL POWER COMPANY
Address: 12700 TAYLOR ST
City,State,Zip: COLTON, CA 92324
Year: 2001
County Code: 36
Air Basin: SC
Facility ID: 115666
Air District Name: SC
SIC Code: 4911
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Y
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 2
Reactive Organic Gases Tons/Yr: 1
Carbon Monoxide Emissions Tons/Yr: 11
NOX - Oxides of Nitrogen Tons/Yr: 39
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 1
Part. Matter 10 Micrometers and Smllr Tons/Yr: 1

HAZNET:
Name: HIGHGROVE SUBSTATION
Address: 12700 TAYLOR ST
Address 2: Not reported
City,State,Zip: COLTON, CA 92324
Contact: MICHAEL WEINBERGER
Telephone: 6263024535
Mailing Name: Not reported
Mailing Address: P.O. BOX 800

Year: 2017
Gepaid: CAC002927691
TSD EPA ID: CAD050806850
CA Waste Code: 261 - Polychlorinated biphenyls and material containing PCBs

HIGHGROVE SUBSTATION (Continued) **S105939671**

Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 36.25398

Additional Info:
Year: 2017
Gen EPA ID: CAC002927691

Shipment Date: 20170920
Creation Date: 7/19/2018 18:30:16
Receipt Date: 20170920
Manifest ID: 009568461FLE
Trans EPA ID: CAD072953771
Trans Name: UNITED PUMPING SERVICES INC
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
TSDF EPA ID: CAD050806850
Trans Name: CLEAN HARBORS LOS ANGELES LLC
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 261 - Not reported
RCRA Code: Not reported
Meth Code: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons: 17.931
Waste Quantity: 4300
Quantity Unit: G
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported
Additional Code 5: Not reported

Shipment Date: 20170920
Creation Date: 7/19/2018 18:30:16
Receipt Date: 20170920
Manifest ID: 009568460FLE
Trans EPA ID: MAD039322250
Trans Name: CLEAN HARBORS ENVIRONMENTAL SERVICES INC
Trans 2 EPA ID: Not reported
Trans 2 Name: Not reported
TSDF EPA ID: CAD050806850
Trans Name: CLEAN HARBORS LOS ANGELES LLC
TSDF Alt EPA ID: Not reported
TSDF Alt Name: Not reported
Waste Code Description: 261 - Not reported
RCRA Code: Not reported
Meth Code: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons: 18.32298
Waste Quantity: 4394
Quantity Unit: G
Additional Code 1: Not reported
Additional Code 2: Not reported
Additional Code 3: Not reported
Additional Code 4: Not reported

HIGHGROVE SUBSTATION (Continued) **S105939671**

Additional Code 5: Not reported

CIWQS:
Name: HIGHGROVE GENERATING STATION
Address: 12700 TAYLOR ST
City,State,Zip: COLTON, CA 92324
Agency: Southern California Edison
Agency Address: 14005 S Benson Ave, Chino, CA 91710
Place/Project Type: Industrial - Electric Services
SIC/NAICS: 4911
Region: 8
Program: INDSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water industrial
Order Number: 2014-0057-DWQ
WDID: 8 36I006388
NPDES Number: CAS000001
Adoption Date: Not reported
Effective Date: 04/24/1992
Termination Date: 09/18/2000
Expiration/Review Date: Not reported
Design Flow: Not reported
Major/Minor: Not reported
Complexity: Not reported
TTWQ: Not reported
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: Not reported
Longitude: Not reported

CERS:
Name: RIVERSIDE CANAL POWER COMPANY
Address: 12700 TAYLOR ST
City,State,Zip: COLTON, CA 92313-5828
Site ID: 490424
CERS ID: 110021288836
CERS Description: US EPA Air Emission Inventory System (EIS)

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: STANLEY L MARSH
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Jeff Miller
Entity Title: Not reported
Affiliation Address: 1100 NORTH HARBOR DRIVE
Affiliation City: REDONDOBEACH
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported

HIGHGROVE SUBSTATION (Continued) **S105939671**

Affiliation Phone:	Not reported
Affiliation Type Desc:	Environmental Contact
Entity Name:	SCOTT KICKER
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

HWTS:

Name:	HIGHGROVE SUBSTATION
Address:	12700 TAYLOR ST
Address 2:	Not reported
City,State,Zip:	COLTON, CA 92324
EPA ID:	CAC002927691
Inactive Date:	12/14/2017
Create Date:	09/12/2017
Last Act Date:	10/04/2018
Mailing Name:	Not reported
Mailing Address:	PO BOX 800
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ROSEMEAD, CA 917700000
Owner Name:	SOUTHERN CALIFORNIA EDISON
Owner Address:	PO BOX 800
Owner Address 2:	Not reported
Owner City,State,Zip:	ROSEMEAD, CA 917700000
Contact Name:	SARA M. DUVALL
Contact Address:	P.O. BOX 800
Contact Address 2:	Not reported
City,State,Zip:	ROSEMEAD, CA 91770

NAICS:

EPA ID:	CAC002927691
Create Date:	2017-09-12 15:38:37
NAICS Code:	221121
NAICS Description:	Electric Bulk Power Transmission and Control
Issued EPA ID Date:	2017-09-12 15:38:37
Inactive Date:	2017-12-14 03:00:33
Facility Name:	HIGHGROVE SUBSTATION
Facility Address:	12700 TAYLOR ST
Facility Address 2:	Not reported
Facility City:	COLTON
Facility County:	36
Facility State:	CA
Facility Zip:	92324

18
SE
< 1/8
0.028 mi.
146 ft.

RN #7 CHLORINATION STATION
21700 MAIN ST
GRAND TERRACE, CA 92313

San Bern. Co. Permit

S106718040
N/A

Relative:
Higher

Actual:
953 ft.

San Bern. Co. Permit:

Name:	RN #7 CHLORINATION STATION
Address:	21700 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0005747
Owner:	RIVERSIDE HIGHLAND WATER CO
Permit Number:	PT0007378
Permit Category:	CALARP FACILITY PERMIT
Facility Status:	INACTIVE
Expiration Date:	09/30/2008

Name:	RN #7 CHLORINATION STATION
Address:	21700 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0005747
Owner:	RIVERSIDE HIGHLAND WATER CO
Permit Number:	PT0007380
Permit Category:	HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status:	INACTIVE
Expiration Date:	09/30/2008

Name:	RN #7 CHLORINATION STATION
Address:	21700 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0005747
Owner:	RIVERSIDE HIGHLAND WATER CO
Permit Number:	PT0013435
Permit Category:	EPCRA FACILITY
Facility Status:	INACTIVE
Expiration Date:	09/30/2008

Name:	RN #7 CHLORINATION STATION
Address:	21700 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0005747
Owner:	RIVERSIDE HIGHLAND WATER CO
Permit Number:	PT0015434
Permit Category:	RMP INSPECTION - PROGRAM 2
Facility Status:	INACTIVE
Expiration Date:	09/30/2008

B19 **EPTC-HIGHGROVE** **CORRACTS** **1000167568**
NNE **12600 TAYLOR ST.** **RCRA-SQG** **CAD000631028**
< 1/8 **COLTON, CA 92324**
0.043 mi.
229 ft. **Site 1 of 2 in cluster B**

Relative:
Higher

Actual:
950 ft.

CORRACTS:

Name:	EPTC-HIGHGROVE
Address:	12600 TAYLOR ST.
Address 2:	Not reported
Area Name:	RIVERSIDE CANAL POWER CO.
Corrective Action:	CA100
Actual Date:	2006-11-16 00:00:00.0
Air Release Indicator:	Not reported
Groundwater Release Indicator:	Not reported
Soil Release Indicator:	Y
Surface Water Release Indicator:	Not reported

Name:	EPTC-HIGHGROVE
Address:	12600 TAYLOR ST.
Address 2:	Not reported
Area Name:	RIVERSIDE CANAL POWER CO.
Corrective Action:	CA150
Actual Date:	2007-12-20 00:00:00.0
Air Release Indicator:	Not reported
Groundwater Release Indicator:	Not reported
Soil Release Indicator:	Y
Surface Water Release Indicator:	Not reported

Name:	EPTC-HIGHGROVE
Address:	12600 TAYLOR ST.
Address 2:	Not reported
Area Name:	ENTIRE FACILITY
Corrective Action:	CA380
Actual Date:	2013-10-24 00:00:00.0
Air Release Indicator:	Not reported
Groundwater Release Indicator:	Not reported
Soil Release Indicator:	Not reported
Surface Water Release Indicator:	Not reported

RCRA Listings:

Date Form Received by Agency:	2002-02-28 00:00:00.0
Handler Name:	EPTC-HIGHGROVE
Handler Address:	12600 TAYLOR ST.
Handler City,State,Zip:	COLTON, CA 92324
EPA ID:	CAD000631028
Contact Name:	STANLEY L MARSH
Contact Address:	Not reported
Contact City,State,Zip:	Not reported
Contact Telephone:	626-302-9711
Contact Fax:	Not reported
Contact Email:	STANLEY.MARSH@SCE.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported

EPTC-HIGHGROVE (Continued) **1000167568**

Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	2500 E. VICTORIA ST.
Mailing City,State,Zip:	COMPTON, CA 90220
Owner Name:	Not reported
Owner Type:	Not reported
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	Yes
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	Yes
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2006-09-05 00:00:00.0

EPTC-HIGHGROVE (Continued) **1000167568**

Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Biennial: List of Years
Year: 2001

Click Here for Biennial Reporting System Data:

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	SOUTHERN CA EDISON EPTC
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2500 E VICTORIA ST
Owner/Operator City,State,Zip:	COMPTON, CA 90220
Owner/Operator Telephone:	310-223-1904
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2002-02-28 00:00:00.0
Handler Name:	EPTC-HIGHGROVE
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1998-10-20 00:00:00.0
Handler Name:	EPTC HIGHGROVE
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1992-02-28 00:00:00.0
Handler Name:	SAN CALIF. EDISON CO. HIGHGROVE GEN. STA
Federal Waste Generator Description:	Large Quantity Generator

EPTC-HIGHGROVE (Continued) **1000167568**

State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1996-02-27 00:00:00.0
Handler Name:	SOUTHERN CALIFORNIA EDISON
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1999-04-21 00:00:00.0
Handler Name:	HIGHGROVE GENERATING STATION
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	2002-02-28 00:00:00.0
Handler Name:	EPTC-HIGHGROVE
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Facility Has Received Notices of Violation:

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	Generators - General
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0

EPTC-HIGHGROVE (Continued) **1000167568**

Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1993-09-23 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	WRITTEN INFORMAL
Enforcement Responsible Person:	R9
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	TSD - Surface Impoundment Standards
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1993-09-23 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	WRITTEN INFORMAL
Enforcement Responsible Person:	R9

EPTC-HIGHGROVE (Continued) **1000167568**

Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	Generators - General
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1995-02-01 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	FINAL CIVIL JUDICIAL ACTION FOR COMPLIANCE AND/OR MONETARY PEN
Enforcement Responsible Person:	R9
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	TSD - Surface Impoundment Standards
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0

EPTC-HIGHGROVE (Continued) **1000167568**

Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1995-02-01 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	FINAL CIVIL JUDICIAL ACTION FOR COMPLIANCE AND/OR MONETARY PEN
Enforcement Responsible Person:	R9
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	TSD - Tank System Standards
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1995-02-01 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	FINAL CIVIL JUDICIAL ACTION FOR COMPLIANCE AND/OR MONETARY PEN
Enforcement Responsible Person:	R9

EPTC-HIGHGROVE (Continued) **1000167568**

Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: Yes
Agency Which Determined Violation: State
Violation Short Description: TSD IS-Ground-Water Monitoring
Date Violation was Determined: 1993-09-23 00:00:00.0
Actual Return to Compliance Date: 1995-02-01 00:00:00.0
Return to Compliance Qualifier: Observed
Violation Responsible Agency: State
Scheduled Compliance Date: Not reported
Enforcement Identifier: 001
Date of Enforcement Action: 1993-09-23 00:00:00.0
Enforcement Responsible Agency: State
Enforcement Docket Number: Not reported
Enforcement Attorney: R9
Corrective Action Component: No
Appeal Initiated Date: Not reported
Appeal Resolution Date: Not reported
Disposition Status Date: Not reported
Disposition Status: Not reported
Disposition Status Description: Not reported
Consent/Final Order Sequence Number: Not reported
Consent/Final Order Respondent Name: Not reported
Consent/Final Order Lead Agency: Not reported
Enforcement Type: WRITTEN INFORMAL
Enforcement Responsible Person: R9
Enforcement Responsible Sub-Organization: Not reported
SEP Sequence Number: Not reported
SEP Expenditure Amount: Not reported
SEP Scheduled Completion Date: Not reported
SEP Actual Date: Not reported
SEP Defaulted Date: Not reported
SEP Type: Not reported
SEP Type Description: Not reported
Proposed Amount: Not reported
Final Monetary Amount: Not reported
Paid Amount: Not reported
Final Count: Not reported
Final Amount: Not reported

Found Violation: Yes
Agency Which Determined Violation: State
Violation Short Description: TSD - Tank System Standards
Date Violation was Determined: 1993-09-23 00:00:00.0
Actual Return to Compliance Date: 1995-02-01 00:00:00.0

EPTC-HIGHGROVE (Continued) **1000167568**

Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1993-09-23 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	WRITTEN INFORMAL
Enforcement Responsible Person:	R9
Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Found Violation:	Yes
Agency Which Determined Violation:	State
Violation Short Description:	TSD IS-Ground-Water Monitoring
Date Violation was Determined:	1993-09-23 00:00:00.0
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Return to Compliance Qualifier:	Observed
Violation Responsible Agency:	State
Scheduled Compliance Date:	Not reported
Enforcement Identifier:	001
Date of Enforcement Action:	1995-02-01 00:00:00.0
Enforcement Responsible Agency:	State
Enforcement Docket Number:	Not reported
Enforcement Attorney:	R9
Corrective Action Component:	No
Appeal Initiated Date:	Not reported
Appeal Resolution Date:	Not reported
Disposition Status Date:	Not reported
Disposition Status:	Not reported
Disposition Status Description:	Not reported
Consent/Final Order Sequence Number:	Not reported
Consent/Final Order Respondent Name:	Not reported
Consent/Final Order Lead Agency:	Not reported
Enforcement Type:	FINAL CIVIL JUDICIAL ACTION FOR COMPLIANCE AND/OR MONETARY PEN
Enforcement Responsible Person:	R9

EPTC-HIGHGROVE (Continued) **1000167568**

Enforcement Responsible Sub-Organization:	Not reported
SEP Sequence Number:	Not reported
SEP Expenditure Amount:	Not reported
SEP Scheduled Completion Date:	Not reported
SEP Actual Date:	Not reported
SEP Defaulted Date:	Not reported
SEP Type:	Not reported
SEP Type Description:	Not reported
Proposed Amount:	Not reported
Final Monetary Amount:	Not reported
Paid Amount:	Not reported
Final Count:	Not reported
Final Amount:	Not reported

Evaluation Action Summary:

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes

EPTC-HIGHGROVE (Continued) **1000167568**

Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported
Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

Evaluation Date:	1993-08-19 00:00:00.0
Evaluation Responsible Agency:	State
Found Violation:	Yes
Evaluation Type Description:	CASE DEVELOPMENT INSPECTION
Evaluation Responsible Person Identifier:	R9
Evaluation Responsible Sub-Organization:	Not reported
Actual Return to Compliance Date:	1995-02-01 00:00:00.0
Scheduled Compliance Date:	Not reported

EPTC-HIGHGROVE (Continued) **1000167568**

Date of Request:	Not reported
Date Response Received:	Not reported
Request Agency:	Not reported
Former Citation:	Not reported

B20 **EPTC-HIGHGROVE** **ENVIROSTOR** **S104573777**
NNE **12600 TAYLOR ST** **HWP** **N/A**
< 1/8 **COLTON, CA 92324** **CERS**
0.043 mi.
229 ft. **Site 2 of 2 in cluster B**

Relative:
Higher

Actual:
950 ft.

ENVIROSTOR:

Name:	EPTC-HIGHGROVE
Address:	12600 TAYLOR ST
City,State,Zip:	COLTON, CA 923240000
Facility ID:	80001332
Status:	No Further Action
Status Date:	08/06/2014
Site Code:	530039
Site Type:	Corrective Action
Site Type Detailed:	Corrective Action
Acres:	39
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	WM
Program Manager:	Steven Rounds
Supervisor:	Allan Plaza
Division Branch:	Cleanup Chatsworth
Assembly:	47
Senate:	20
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not reported
Latitude:	34.02263
Longitude:	-117.3313
APN:	NONE SPECIFIED
Past Use:	WASTE WATER PONDS
Potential COC:	Polychlorinated biphenyls (PCBs Vanadium and compounds
Confirmed COC:	30587-NO 30018-NO
Potential Description:	SOIL
Alias Name:	AES Highgrove
Alias Type:	Alternate Name
Alias Name:	Riverside Canal Company
Alias Type:	Alternate Name
Alias Name:	SCE Highgrove
Alias Type:	Alternate Name
Alias Name:	CAD000631028
Alias Type:	EPA Identification Number
Alias Name:	400440
Alias Type:	Project Code (Site Code)
Alias Name:	530039
Alias Type:	Project Code (Site Code)
Alias Name:	80001332
Alias Type:	Envirostor ID Number

Completed Info:

EPTC-HIGHGROVE (Continued) **S104573777**

Completed Area Name: RCRA Surface Impoundments
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 12/15/2006
Comments: CDR was accepted by DTSC and the RCRA basin is considered clean closed
Not reported

Completed Area Name: Site Wide Corrective Action
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation / Feasibility Study
Completed Date: 01/31/2008
Comments: RFI Work Plan approved

Completed Area Name: Site Wide Corrective Action
Completed Sub Area Name: Not reported
Completed Document Type: RFI Report
Completed Date: 05/13/2010
Comments: DTSC error, report was misplaced and consultant never contacted DTSC for a follow up letter until the following year.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RFI Report
Completed Date: 11/14/2012
Comments: Characterization complete. HERO to review cumulative risk

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/11/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RFI Report
Completed Date: 09/11/2013
Comments: RFI portion of Corrective Action is deemed technically complete.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 10/24/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: RCRA Facility Assessment Report
Completed Date: 05/13/2010
Comments: RFA was submitted and DTSC did various site visits ect and concurred with the findings.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Judicial Order
Completed Date: 02/06/1995
Comments: Order signed and recorded.

EPTC-HIGHGROVE (Continued) **S104573777**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Corrective Action Completion Determination
Completed Date: 12/17/2013
Comments: No further action. Remedy complete

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 06/19/2013
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

HWP:
Name: EPTC-HIGHGROVE
Address: 12600 TAYLOR ST
City,State,Zip: COLTON, CA 923240000
EPA Id: CAD000631028
Cleanup Status: CLOSED
Latitude: 34.02263
Longitude: -117.3313
Facility Type: Historical - Non-Operating
Facility Size: Not reported
Team: Not reported
Supervisor: Not reported
Site Code: 400440, 530039
Assembly District: 47
Senate District: 20
Public Information Officer: Not reported
Public Information Officer: Not reported

Closure:
EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Unit Names: Waste Water Retension Basin (East), Waste Water Retension Basin (West)
Event Description: Closure Final - RECEIVE CLOSURE CERTIFICATION
Actual Date: 12/22/2006

EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Unit Names: Waste Water Retension Basin (East), Waste Water Retension Basin (West)
Event Description: Closure Final - ISSUE CLOSURE VERIFICATION
Actual Date: 02/23/2007

Alias:
EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Alias Type: Project Code (Site Code)

EPTC-HIGHGROVE (Continued) **S104573777**

Alias: 400440

EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Alias Type: Project Code (Site Code)
Alias: 530039

EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Alias Type: Alternate Name
Alias: AES Highgrove

EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Alias Type: Alternate Name
Alias: Riverside Canal Company

EPA Id: CAD000631028
Facility Type: Historical - Non-Operating
Alias Type: Alternate Name
Alias: SCE Highgrove

CERS:
Name: EPTC-HIGHGROVE
Address: 12600 TAYLOR ST
City,State,Zip: COLTON, CA 923240000
Site ID: 190531
CERS ID: 80001332
CERS Description: Corrective Action

Affiliation:
Affiliation Type Desc: Facility Contact
Entity Name: SARA M. DUVALL
Entity Title: Not reported
Affiliation Address: P.O. BOX 800
Affiliation City: ROSEMEAD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 91770
Affiliation Phone: 6268628458

Affiliation Type Desc: Facility Owner
Entity Name: Southern California Edison
Entity Title: Not reported
Affiliation Address: PO BOX 800
Affiliation City: ROSEMEAD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 917700000
Affiliation Phone: 6268628458

Affiliation Type Desc: Lead Project Manager
Entity Name: STEVEN ROUNDS
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: CHATSWORTH

EPTC-HIGHGROVE (Continued) **S104573777**

Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Supervisor
Entity Name: ALLAN PLAZA
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Name: EPTC-HIGHGROVE
Address: 12600 TAYLOR ST
City,State,Zip: COLTON, CA 923240000
Site ID: 190531
CERS ID: CAD000631028
CERS Description: Hazardous Waste

Affiliation:
Affiliation Type Desc: Facility Contact
Entity Name: SARA M. DUVALL
Entity Title: Not reported
Affiliation Address: P.O. BOX 800
Affiliation City: ROSEMEAD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 91770
Affiliation Phone: 6268628458

Affiliation Type Desc: Facility Owner
Entity Name: Southern California Edison
Entity Title: Not reported
Affiliation Address: PO BOX 800
Affiliation City: ROSEMEAD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 917700000
Affiliation Phone: 6268628458

Affiliation Type Desc: Lead Project Manager
Entity Name: STEVEN ROUNDS
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: CHATSWORTH
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Supervisor
Entity Name: ALLAN PLAZA
Entity Title: Not reported
Affiliation Address: Not reported

EPTC-HIGHGROVE (Continued) **S104573777**

Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

21
South
< 1/8
0.055 mi.
289 ft.

TMCOBB COMPANY **HIST UST** **U001576548**
960 MAIN STREET **N/A**
RIVERSIDE, CA 92507

Relative:
Higher

Actual:
951 ft.

HIST UST:

Name:	TMCOBB COMPANY
Address:	960 MAIN STREET
City,State,Zip:	RIVERSIDE, CA 92507
File Number:	0001F9DB
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F9DB.pdf
Region:	STATE
Facility ID:	00000005961
Facility Type:	Other
Other Type:	WHSL/DIST. BLDG. MAT
Contact Name:	ROBERT LAWS
Telephone:	7147842020
Owner Name:	T. M. COBB COMPANY
Owner Address:	16832 RED HILL AVENUE SUITE B
Owner City,St,Zip:	IRVINE, CA 92714
Total Tanks:	0003
Tank Num:	001
Container Num:	01
Year Installed:	Not reported
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	002
Container Num:	01
Year Installed:	Not reported
Tank Capacity:	00020000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	003
Container Num:	02
Year Installed:	Not reported
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor

TMCOBB COMPANY (Continued) **U001576548**

Click here for Geo Tracker PDF:

C22 **PORTABLE** **US MINES** **1024906969**
WNW **21506 MAIN ST** **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
0.064 mi.
337 ft. **Site 1 of 7 in cluster C**

Relative: **Lower**
Actual: **925 ft.**

MINES VIOLATIONS:

Name:	PORTABLE
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Facility ID:	Not reported

MINES VIOLATIONS:

Violation Number:	8567906
Mine ID:	0405723
Contractor ID:	Not reported
Date Issued:	02/14/2011
Action Type:	104(a)
Type of Issue:	Citation
S and S:	N
Term Date:	02/14/2011
Title 30 Code of Federal Regulations:	50.30(a)
Proposed Penalty:	100.00
Assessment Amount:	100.00
Paid Penalty Amount:	100.00
Assessment Case Status:	Proposed
Assessment Status:	Closed
Year:	2011
Address Type:	MineLocation
PO Box:	Not reported
Address:	21506 MAIN ST
City:	GRAND TERRACE
State:	CA
Operator:	Harris Transfer, Inc.
Zip:	92313
Mine Controller Name:	Tony Ray Harris
Name:	PORTABLE
Ownership Date:	06/04/2007
Mine Status:	Abandoned
Status Date:	10/14/2011
Primary Site Description:	Crushed, Broken Stone NEC
Mine Type:	Surface
State 2:	CA
County:	SAN BERNARDINO

Violation Number:	8607430
Mine ID:	0405723
Contractor ID:	Not reported
Date Issued:	10/14/2011
Action Type:	104(a)
Type of Issue:	Citation
S and S:	N
Term Date:	10/14/2011
Title 30 Code of Federal Regulations:	56.1000
Proposed Penalty:	100.00
Assessment Amount:	100.00

PORTABLE (Continued) **1024906969**

Paid Penalty Amount:	100.00
Assessment Case Status:	Proposed
Assessment Status:	Closed
Year:	2011
Address Type:	MineLocation
PO Box:	Not reported
Address:	21506 MAIN ST
City:	GRAND TERRACE
State:	CA
Operator:	Harris Transfer, Inc.
Zip:	92313
Mine Controller Name:	Tony Ray Harris
Name:	PORTABLE
Ownership Date:	06/04/2007
Mine Status:	Abandoned
Status Date:	10/14/2011
Primary Site Description:	Crushed, Broken Stone NEC
Mine Type:	Surface
State 2:	CA
County:	SAN BERNARDINO

Violation Number:	8560538
Mine ID:	0405723
Contractor ID:	Not reported
Date Issued:	10/28/2010
Action Type:	104(a)
Type of Issue:	Citation
S and S:	N
Term Date:	10/28/2010
Title 30 Code of Federal Regulations:	56.1000
Proposed Penalty:	100.00
Assessment Amount:	100.00
Paid Penalty Amount:	100.00
Assessment Case Status:	Proposed
Assessment Status:	Closed
Year:	2010
Address Type:	MineLocation
PO Box:	Not reported
Address:	21506 MAIN ST
City:	GRAND TERRACE
State:	CA
Operator:	Harris Transfer, Inc.
Zip:	92313
Mine Controller Name:	Tony Ray Harris
Name:	PORTABLE
Ownership Date:	06/04/2007
Mine Status:	Abandoned
Status Date:	10/14/2011
Primary Site Description:	Crushed, Broken Stone NEC
Mine Type:	Surface
State 2:	CA
County:	SAN BERNARDINO

C23 **HARRIS TRANSFER INC** **RCRA NonGen / NLR** **1024813298**
WNW **21506 MAIN ST** **CAL000303408**
< 1/8 **GRAND TERRACE, CA 92313**
0.064 mi.
337 ft. **Site 2 of 7 in cluster C**

Relative: **Lower**

Actual: **925 ft.**

RCRA Listings:

Date Form Received by Agency:	2006-02-15 00:00:00.0
Handler Name:	HARRIS TRANSFER INC
Handler Address:	21506 MAIN ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313-5808
EPA ID:	CAL000303408
Contact Name:	SONIA BATT
Contact Address:	21506 MAIN STREET
Contact City,State,Zip:	GRAND TERRACE, CA 92313
Contact Telephone:	951-778-1280
Contact Fax:	951-778-1284
Contact Email:	HARRISTRANSFER@YAHOO.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	21506 MAIN ST
Mailing City,State,Zip:	GRAND TERRACE, CA 92313-5808
Owner Name:	HARRIS TRANSFER INC
Owner Type:	Other
Operator Name:	SONIA BATT
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

HARRIS TRANSFER INC (Continued) **1024813298**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 20:28:00.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	HARRIS TRANSFER INC
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21506 MAIN ST
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313-5808
Owner/Operator Telephone:	951-778-1280
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	SONIA BATT
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21506 MAIN STREET
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313
Owner/Operator Telephone:	951-778-1280
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

HARRIS TRANSFER INC (Continued) **1024813298**

Historic Generators:

Receive Date:	2006-02-15 00:00:00.0
Handler Name:	HARRIS TRANSFER INC
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

C24 **PRECISION FLEET REPAIR** **RCRA-SQG** **1001967622**
WNW **21506 MAIN ST** **FINDS** **CAR000071258**
< 1/8 **GRAND TERRACE, CA 92313** **ECHO**
0.064 mi.
337 ft. **Site 3 of 7 in cluster C**

Relative: **Lower**
Actual: **925 ft.**

RCRA Listings:

Date Form Received by Agency:	2000-04-20 00:00:00.0
Handler Name:	PRECISION FLEET REPAIR
Handler Address:	21506 MAIN ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAR000071258
Contact Name:	TROY GROTENHUIS
Contact Address:	21506 MAIN ST
Contact City,State,Zip:	GRAND TERANCE, CA 92313-5808
Contact Telephone:	909-275-9511
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	P O BOX 51963
Mailing City,State,Zip:	RIVERSIDE, CA 92517
Owner Name:	TROY GROTENHUIS
Owner Type:	Private
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No

PRECISION FLEET REPAIR (Continued) **1001967622**

Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2002-10-07 16:36:52.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	Not reported

Hazardous Waste Summary:

Waste Code:	D000
Waste Description:	DESCRIPTION
Waste Code:	D039
Waste Description:	TETRACHLOROETHYLENE

PRECISION FLEET REPAIR (Continued) **1001967622**

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	TROY GROTENHUIS
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21506 MAIN ST
Owner/Operator City,State,Zip:	GRAND TERANCE, CA 92313-5808
Owner/Operator Telephone:	909-275-9511
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2000-04-20 00:00:00.0
Handler Name:	PRECISION FLEET REPAIR
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

FINDS:

Registry ID: 110008288520

Click Here:

Environmental Interest/Information System:

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001967622
Registry ID:	110008288520
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110008288520
Name:	PRECISION FLEET REPAIR
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313

C25 **PRECISION FLEET REPAIR** **CERS HAZ WASTE** **S110326660**
WNW **21506 MAIN ST UNIT B** **San Bern. Co. Permit** **N/A**
< 1/8 **GRAND TERRACE, CA 92313** **CERS**
0.064 mi.
337 ft. **Site 4 of 7 in cluster C**

Relative:
Lower

Actual:
925 ft.

CERS HAZ WASTE:
Name: PRECISION FLEET REPAIR
Address: 21506 MAIN ST UNIT B
City,State,Zip: GRAND TERRACE, CA 92313
Site ID: 144707
CERS ID: 10311133
CERS Description: Hazardous Waste Generator

San Bern. Co. Permit:
Name: PRECISION FLEET REPAIR
Address: 21506 MAIN ST UNIT B
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0013116
Owner: HARRIS, TONY
Permit Number: PT0023066
Permit Category: HAZARDOUS MATERIALS 4-10 CHEMICALS
Facility Status: ACTIVE
Expiration Date: 04/30/2020

Name: PRECISION FLEET REPAIR
Address: 21506 MAIN ST UNIT B
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0013116
Owner: HARRIS, TONY
Permit Number: PT0023067
Permit Category: SMALL QUANTITY GENERATOR
Facility Status: ACTIVE
Expiration Date: 04/30/2020

CERS:
Name: PRECISION FLEET REPAIR
Address: 21506 MAIN ST UNIT B
City,State,Zip: GRAND TERRACE, CA 92313
Site ID: 144707
CERS ID: 10311133
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 144707
Site Name: PRECISION FLEET REPAIR
Violation Date: 06-24-2016
Citation: HSC 6.5 25250.22 - California Health and Safety Code, Chapter 6.5, Section(s) 25250.22
Violation Description: Failure to properly manage used oil and/or fuel filters in accordance with the requirements.
Violation Notes: Returned to compliance on 07/26/2016.
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 144707

PRECISION FLEET REPAIR (Continued) **S110326660**

Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: (1) 240 gallon intermediate bulk container of waste coolant located in the hazardous waste storage area was observed without the following information on the label: Generator Name and Accumulation Start Date. CORRECTIVE ACTION: Submit photos to the CUPA demonstrating that the container listed above has been properly labeled.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	40 CFR 1 265.171 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.171
Violation Description:	Failure to accumulate hazardous waste in a container that is in good condition.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: (1) 5-gallon plastic drum with a hazardous waste label located in the hazardous waste storage area was observed with a crack. CORRECTIVE ACTION: Submit photos to the CUPA demonstrating the waste listed above has been transferred into a container that is in good condition or submit a manifest/receipt demonstrating the waste has been properly disposed of by a registered hazardous waste transporter.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	HSC 6.5 25250.22 - California Health and Safety Code, Chapter 6.5, Section(s) 25250.22
Violation Description:	Failure to properly manage used oil and/or fuel filters in accordance with the requirements.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: (1) 55-gallon drum and (1) 30-gallon drum of used oil and fuel filters located in the hazardous waste storage area were observed without an accumulation start date. CORRECTIVE ACTION: Submit photos to the CUPA demonstrating that the used oil and fuel filters are being properly managed or submit a bill of lading to this department demonstrating proper disposal.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR

PRECISION FLEET REPAIR (Continued) **S110326660**

Violation Date:	06-24-2016
Citation:	HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description:	Hazardous Waste Generator Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 07/26/2016. Failure to label hazardous waste containers (CCR 66262.34(f)(3))
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-24-2016
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 07/26/2016.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: The generator's EPA ID number is inactive. A hazardous waste generator shall not treat, store, dispose of, transport or offer for transportation, hazardous waste without an active EPA ID number. CORRECTIVE ACTION: Submit documentation to the CUPA demonstrating that you have reactivated the facility's EPA ID number.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	22 CCR 11 66261.7 - California Code of Regulations, Title 22, Chapter 11, Section(s) 66261.7
Violation Description:	Failure to manage empty containers greater than 5 gallons in capacity that previously held a hazardous material/waste in accordance with 22 CCR 11 66261.7 including but not limited to the following: (e)(2)By reclaiming its scrap value onsite or shipping the container or inner liner to a person who reclaims its scrap value; or (3) By reconditioning or re manufacturing the container or inner liner onsite for subsequent reuse, or shipping the container or inner liner to a person who reconditions or re-manufactures the container or inner liner; or (4) By shipping the container or inner liner to a supplier or to another intermediate collection location for accumulation prior to managing the container or inner liner pursuant to subsections

PRECISION FLEET REPAIR (Continued) **S110326660**

	(e)(2) or (e)(3) of 22 CCR 11 66261.7; or (i) By shipping the container or inner liner back to the supplier for the purpose of being refilled. (f) A container or an inner liner removed from a container larger than five gallons in capacity which is managed pursuant to subsection (e) of 22 CCR 11 66261.7 shall be marked with the date it has been emptied and shall be managed within one year of being emptied.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: (3) Empty steel drums were observed in the hazardous waste storage area without labels. CORRECTIVE ACTION: Submit photos/documentation to this department demonstrating that the empty containers listed above have been marked with the date they were emptied and are being properly managed pursuant to 22 CCR 11 66261.7.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS
Site ID:	144707
Site Name:	PRECISION FLEET REPAIR
Violation Date:	06-25-2019
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	Returned to compliance on 07/15/2019. OBSERVATION: Hazardous materials inventory was not accurate. The inventory is missing acetylene gas. CORRECTIVE ACTION: Submit an accurate and complete hazardous materials inventory via CERS.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HMRRP
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-24-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	INSPECTION
Eval Division:	San Bernardino County Fire Department
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-24-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	INSPECTION
Eval Division:	San Bernardino County Fire Department
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-25-2019
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported

PRECISION FLEET REPAIR (Continued) **S110326660**

Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-25-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: San Bernardino County Fire Department
Eval Program: HW
Eval Source: CERS

Enforcement Action:
Site ID: 144707
Site Name: PRECISION FLEET REPAIR
Site Address: 21506 MAIN ST UNIT B
Site City: GRAND TERRACE
Site Zip: 92313
Enf Action Date: 06-24-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HMRRP
Enf Action Source: CERS

Site ID: 144707
Site Name: PRECISION FLEET REPAIR
Site Address: 21506 MAIN ST UNIT B
Site City: GRAND TERRACE
Site Zip: 92313
Enf Action Date: 06-24-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HW
Enf Action Source: CERS

Affiliation:
Affiliation Type Desc: Document Preparer
Entity Name: SONIA BATT
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Operator
Entity Name: TONY HARRIS
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported

PRECISION FLEET REPAIR (Continued) **S110326660**

Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 830-0085
Affiliation Type Desc:	Property Owner
Entity Name:	TONY HARRIS
Entity Title:	Not reported
Affiliation Address:	21506 MAIN STREET
Affiliation City:	GRAND TERRACE
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92313
Affiliation Phone:	(951) 275-9511
Affiliation Type Desc:	Parent Corporation
Entity Name:	PRECISION FLEET REPAIR
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	San Bernardino County Fire
Entity Title:	Not reported
Affiliation Address:	620 South E Street
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92415-0153
Affiliation Phone:	(909) 386-8401
Affiliation Type Desc:	Environmental Contact
Entity Name:	TONY HARRIS
Entity Title:	Not reported
Affiliation Address:	21506 MAIN ST "B"
Affiliation City:	GRAND TERRACE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92313
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	21506 MAIN STREET, UNIT B
Affiliation City:	GRAND TERRACE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92313
Affiliation Phone:	Not reported
Affiliation Type Desc:	Identification Signer
Entity Name:	TONY HARRIS

PRECISION FLEET REPAIR (Continued) **S110326660**

Entity Title:	OWNER
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	HARRIS, TONY
Entity Title:	Not reported
Affiliation Address:	21506 MAIN STREET
Affiliation City:	GRAND TERRACE
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92313
Affiliation Phone:	(951) 778-1280

C26 **PRECISION FLEET REPAIR** **HAZNET** **S108217205**
WNW **21506 MAIN ST** **San Bern. Co. Permit** **N/A**
< 1/8 **GRAND TERRACE, CA 92313** **HWTS**
0.064 mi.
337 ft. **Site 5 of 7 in cluster C**

Relative:
Lower

Actual:
925 ft.

HAZNET:

Name:	PRECISION FLEET REPAIR
Address:	21506 MAIN ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 923130000
Contact:	PRECISION FLEET REPAIR
Telephone:	Not reported
Mailing Name:	Not reported
Mailing Address:	P O BOX 51963
Year:	2000
Gepaid:	CAR000071258
TSD EPA ID:	CAT080013352
CA Waste Code:	222 - Oil/water separation sludge
Disposal Method:	R01 - Recycler
Tons:	0.6255

Additional Info:

Year:	2000
Gen EPA ID:	CAR000071258
Shipment Date:	20000928
Creation Date:	12/13/2000 0:00:00
Receipt Date:	20000929
Manifest ID:	99661616
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080013352
Trans Name:	Not reported

PRECISION FLEET REPAIR (Continued) **S108217205**

TSDF Alt EPA ID:	CAT080013352
TSDF Alt Name:	Not reported
Waste Code Description:	222 - Oil/water separation sludge
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.6255
Waste Quantity:	150
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

San Bern. Co. Permit:

Name:	HARRIS TRANSFER INC
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0007575
Owner:	HARRIS, TONY
Permit Number:	PT0013007
Permit Category:	HAZARDOUS MATERIALS 1-3 CHEMICALS
Facility Status:	INACTIVE
Expiration Date:	09/30/2019

Name:	HARRIS TRANSFER INC
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0007575
Owner:	HARRIS, TONY
Permit Number:	PT0010419
Permit Category:	REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status:	INACTIVE
Expiration Date:	09/30/2019

Name:	HARRIS TRANSFER INC
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0007575
Owner:	HARRIS, TONY
Permit Number:	PT0010420
Permit Category:	REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status:	INACTIVE
Expiration Date:	09/30/2019

Name:	HARRIS TRANSFER INC
Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0007575
Owner:	HARRIS, TONY
Permit Number:	PT0013008
Permit Category:	SMALL QUANTITY GENERATOR
Facility Status:	INACTIVE

PRECISION FLEET REPAIR (Continued) **S108217205**

Expiration Date: 09/30/2019

HWTS:

Name:	PRECISION FLEET REPAIR
Address:	21506 MAIN ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 923130000
EPA ID:	CAR000071258
Inactive Date:	06/30/2004
Create Date:	06/21/2004
Last Act Date:	02/08/2005
Mailing Name:	Not reported
Mailing Address:	P O BOX 51963
Mailing Address 2:	Not reported
Mailing City,State,Zip:	RIVERSIDE, CA 925170000
Owner Name:	PRECISION FLEET REPAIR
Owner Address:	21506 MAIN ST
Owner Address 2:	Not reported
Owner City,State,Zip:	GRAND TERRACE, CA
Contact Name:	PRECISION FLEET REPAIR
Contact Address:	21506 MAIN ST
Contact Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA

C27 **HARRIS TRANSFER INC** **UST** **U004264001**
WNW **21506 MAIN ST** **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
0.064 mi.
337 ft. **Site 6 of 7 in cluster C**

Relative: UST:
Lower

Actual: Name:	HARRIS TRANSFER INC
925 ft. Address:	21506 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Facility ID:	FA0007575
Permitting Agency:	San Bernardino County Fire Department
Latitude:	34.020855
Longitude:	-117.33448

C28 **PRECISION FLEET REPAIR** **RCRA NonGen / NLR** **1025866866**
WNW **21506 MAIN ST** **CAL000275443**
< 1/8 **GRAND TERRACE, CA 92313**
0.064 mi.
337 ft. **Site 7 of 7 in cluster C**

Relative: RCRA Listings:
Lower

Actual: Date Form Received by Agency:	2003-10-16 00:00:00.0
925 ft. Handler Name:	PRECISION FLEET REPAIR
Handler Address:	21506 MAIN ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAL000275443
Contact Name:	TONY HARRIS
Contact Address:	21506 MAIN ST STE B
Contact City,State,Zip:	GRAND TERRACE, CA 92313
Contact Telephone:	951-275-9511
Contact Fax:	951-275-9661

PRECISION FLEET REPAIR (Continued) **1025866866**

Contact Email:	PRECISIONFLEET@HOTMAIL.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	5225 CANYON CREST DR STE 71-718
Mailing City,State,Zip:	RIVERSIDE, CA 92507
Owner Name:	TONY HARRIS
Owner Type:	Other
Operator Name:	TONY HARRIS
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A

PRECISION FLEET REPAIR (Continued) **1025866866**

Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-07-29 17:13:43.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	TONY HARRIS
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21506 MAIN ST STE B
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313-0000
Owner/Operator Telephone:	951-275-9511
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	TONY HARRIS
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21506 MAIN ST STE B
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313
Owner/Operator Telephone:	951-275-9511
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2003-10-16 00:00:00.0
Handler Name:	PRECISION FLEET REPAIR
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	Not reported
Recognized Trader Exporter:	Not reported
Spent Lead Acid Battery Importer:	Not reported
Spent Lead Acid Battery Exporter:	Not reported
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

D29 **K J PLATING INCORPORATED** **SEMS** **1000124882**
ESE **21750 MAIN ST.** **RCRA-SQG** **CAD981172125**
< 1/8 **GRAND TERRACE, CA 92313** **FINDS**
0.079 mi. **ECHO**
415 ft. **Site 1 of 3 in cluster D**

Relative:
Higher

Actual:
961 ft.

SEMS:

Site ID:	0905014
EPA ID:	CAD981172125
Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
Address:	21750 MAIN ST.
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92324
Cong District:	35
FIPS Code:	06071
Latitude:	Not reported
Longitude:	Not reported
FF:	N
NPL:	Not on the NPL
Non NPL Status:	Other Cleanup Activity: State-Lead Cleanup

SEMS Detail:

Region:	09
Site ID:	0905014
EPA ID:	CAD981172125
Site Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL:	N
FF:	N
OU:	00
Action Code:	OO
Action Name:	SITE REASS
SEQ:	3
Start Date:	2007-07-01 04:00:00
Finish Date:	Not reported
Qual:	Not reported
Current Action Lead:	EPA Perf

Region:	09
Site ID:	0905014
EPA ID:	CAD981172125
Site Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	Not reported
Finish Date:	12/14/1988 5:00:00 AM
Qual:	L
Current Action Lead:	EPA Perf

Region:	09
Site ID:	0905014
EPA ID:	CAD981172125
Site Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL:	N
FF:	N
OU:	00
Action Code:	SI

K J PLATING INCORPORATED (Continued) **1000124882**

Action Name: SI
SEQ: 1
Start Date: Not reported
Finish Date: 11/19/1990 5:00:00 AM
Qual: L
Current Action Lead: EPA Perf

Region: 09
Site ID: 0905014
EPA ID: CAD981172125
Site Name: RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL: N
FF: N
OU: 00
Action Code: VA
Action Name: OTHR CLEANUP
SEQ: 1
Start Date: 2000-10-01 04:00:00
Finish Date: Not reported
Qual: H
Current Action Lead: St Perf

Region: 09
Site ID: 0905014
EPA ID: CAD981172125
Site Name: RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL: N
FF: N
OU: 00
Action Code: OO
Action Name: SITE REASS
SEQ: 1
Start Date: 2000-08-15 04:00:00
Finish Date: 6/29/2001 4:00:00 AM
Qual: H
Current Action Lead: St Perf

Region: 09
Site ID: 0905014
EPA ID: CAD981172125
Site Name: RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL: N
FF: N
OU: 00
Action Code: OO
Action Name: SITE REASS
SEQ: 2
Start Date: Not reported
Finish Date: 6/13/2006 4:00:00 AM
Qual: H
Current Action Lead: St Perf

Region: 09
Site ID: 0905014
EPA ID: CAD981172125
Site Name: RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL: N

K J PLATING INCORPORATED (Continued) **1000124882**

FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	2
Start Date:	1985-07-01 05:00:00
Finish Date:	12/1/1985 6:00:00 AM
Qual:	L
Current Action Lead:	St Perf
Region:	09
Site ID:	0905014
EPA ID:	CAD981172125
Site Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1985-01-01 06:00:00
Finish Date:	1/1/1985 6:00:00 AM
Qual:	Not reported
Current Action Lead:	St Perf

RCRA Listings:

Date Form Received by Agency:	1997-11-21 00:00:00.0
Handler Name:	K J PLATING INC
Handler Address:	21750 MAIN ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAD981172125
Contact Name:	DENNIS VICE
Contact Address:	21750 MAIN ST
Contact City,State,Zip:	GRAND TERRACE, CA 98313
Contact Telephone:	909-683-7013
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	PO BOX 1329
Mailing City,State,Zip:	RIVERSIDE, CA 92502
Owner Name:	JERRY MALL
Owner Type:	Private
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No

K J PLATING INCORPORATED (Continued) **1000124882**

Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2002-10-07 16:37:48.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	Not reported

Hazardous Waste Summary:

Waste Code:	D001
Waste Description:	IGNITABLE WASTE

K J PLATING INCORPORATED (Continued) **1000124882**

Waste Code: D002
Waste Description: CORROSIVE WASTE

Waste Code: D007
Waste Description: CHROMIUM

Waste Code: D008
Waste Description: LEAD

Waste Code: F006
Waste Description: WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS, EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: NOT REQUIRED
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: NOT REQUIRED
Owner/Operator City,State,Zip: NOT REQUIRED, ME 99999
Owner/Operator Telephone: 415-555-1212
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: JERRY MALL
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: P O BOX 1329
Owner/Operator City,State,Zip: RIVERSIDE, CA 92502-1329
Owner/Operator Telephone: 909-684-9762
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 1996-09-01 00:00:00.0
Handler Name: K J PLATING INC
Federal Waste Generator Description: Large Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: No
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

K J PLATING INCORPORATED (Continued) **1000124882**

Receive Date:	1986-01-22 00:00:00.0
Handler Name:	K J PLATING INC
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1997-11-21 00:00:00.0
Handler Name:	K J PLATING INC
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1994-02-25 00:00:00.0
Handler Name:	K/J PLATING, INC.
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	1999-04-15 00:00:00.0
Handler Name:	K/J PLATING INC.
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

Receive Date:	2000-10-12 00:00:00.0
Handler Name:	K/J PLATING INC
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No

K J PLATING INCORPORATED (Continued) **1000124882**

Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

FINDS:
Registry ID: 110000783395

Click Here:

Environmental Interest/Information System:
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
SUPERFUND (NON-NPL)

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000124882
Registry ID:	110000783395
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110000783395
Name:	RIVERSIDE PLATING (K&N PLATING/K & J ENTERPRISES)
Address:	21750 MAIN ST.
City,State,Zip:	GRAND TERRACE, CA 92313

D30 **K & J ENTERPRISES** **ENVIROSTOR** **S104767488**
ESE **21750 MAIN STREET** **VCP** **N/A**
< 1/8 **GRAND TERRACE, CA 92324** **San Bern. Co. Permit**
0.079 mi.
415 ft. **Site 2 of 3 in cluster D**

Relative: Higher
Actual: 961 ft.

ENVIROSTOR:

Name:	K & J ENTERPRISES
Address:	21750 MAIN STREET
City,State,Zip:	GRAND TERRACE, CA 92324
Facility ID:	36340037
Status:	Certified / Operation & Maintenance
Status Date:	05/10/2013
Site Code:	401477
Site Type:	Voluntary Cleanup
Site Type Detailed:	Voluntary Cleanup
Acres:	1.5
NPL:	NO
Regulatory Agencies:	SMBRP, SAN BERNARDINO COUNTY

K & J ENTERPRISES (Continued) **S104767488**

Lead Agency: SMBRP
Program Manager: Irena Edwards
Supervisor: Maryam Tasnif-Abbasi
Division Branch: Cleanup Cypress
Assembly: 47
Senate: 20
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 34.01987
Longitude: -117.3305
APN: 116715142
Past Use: METAL PLATING - CHROME, METAL PLATING - OTHER
Potential COC: * ACID SOLUTION 2>PH WITH METALS Cadmium and compounds Chromium VI Cyanide (free Nickel
Confirmed COC: NONE SPECIFIED
Potential Description: UE
Alias Name: K & N ENGINEERING (K & J SUBSIDIARY)
Alias Type: Alternate Name
Alias Name: RIVERSIDE PLATING
Alias Type: Alternate Name
Alias Name: 116715142
Alias Type: APN
Alias Name: CAD981172125
Alias Type: EPA Identification Number
Alias Name: 401477
Alias Type: Project Code (Site Code)
Alias Name: 36340037
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 01/25/1983
Comments: FACILITY IDENTIFIED ID VIA RWQCB INACTIVE FILES BOX#58 PLATING.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 09/08/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

K & J ENTERPRISES (Continued) **S104767488**

Completed Document Type: Removal Action Completion Report
Completed Date: 04/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 06/27/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Well Decommissioning Workplan
Completed Date: 07/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/14/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Deed/LUR Enforcement & Implementation Plan
Completed Date: 04/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/30/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 06/12/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 06/11/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/08/2015
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 09/12/2018
Comments: Not reported

K & J ENTERPRISES (Continued) **S104767488**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/17/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/14/2016
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: PA/SI Reassessment
Completed Date: 04/10/2009
Comments: Reassessment completed by DTSC and approved by EPA

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 05/18/2009
Comments: Fully Executed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 02/18/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 01/24/2012
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 02/01/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 11/28/2011
Comments: Amendment #3 executed for time extension and additional funds.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Land Use Restriction Monitoring Report
Completed Date: 01/08/2014
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement

K & J ENTERPRISES (Continued) **S104767488**

Completed Date: 11/20/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/28/2012
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 05/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/20/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 04/15/2014
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/19/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 05/11/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/17/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/10/2019
Comments: Not reported

K & J ENTERPRISES (Continued) **S104767488**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 03/16/2018
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/06/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/18/2016
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/12/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/11/2018
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/23/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 05/01/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report

K & J ENTERPRISES (Continued) **S104767488**

Completed Date: 04/23/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/11/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/12/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/29/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 07/31/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/29/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/16/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 12/09/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 10/30/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 04/01/1985
Comments: FORMER OWNER: WILLIAM LEWIS ET AL(WINIFR V.LEWIS) P.O.BOX 110, COLTON, CA 92324. K&J IS A SUBSIDIARY OF K&N ENGINEERING. SOURCE ACT:

K & J ENTERPRISES (Continued) **S104767488**

RWQCB - NICKEL/CHROME PLATG CO TAX ASSESOR,RWQCB. SUBMIT TO EPA PRELIM ASSESS DONE CERCLA 104

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/12/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/01/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 01/10/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 01/20/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 09/08/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 09/08/2011
Comments: Concured by Laura.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 09/08/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Name: K/J PLATING, INC.
Address: 21750 MAIN STREET

K & J ENTERPRISES (Continued) **S104767488**

City,State,Zip: GRAND TERRACE, CA 92324
Facility ID: 71002735
Status: No Further Action
Status Date: 06/03/2009
Site Code: 400703
Site Type: Tiered Permit
Site Type Detailed: Tiered Permit
Acres: 1.5
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Irena Edwards
Supervisor: Manny Alonzo
Division Branch: Cleanup Cypress
Assembly: 47
Senate: 20
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 34.01987
Longitude: -117.3305
APN: 1167-151-42-0000
Past Use: METAL FINISHING, METAL PLATING - CHROME, METAL PLATING - OTHER
Potential COC: Total Chromium (1:6 ratio Cr VI:Cr III Cadmium and compounds
Chromium III Chromium VI Nickel Zinc
Confirmed COC: NONE SPECIFIED
Potential Description: OTH, SOIL
Alias Name: 1167-151-42-0000
Alias Type: APN
Alias Name: CAD981172125
Alias Type: EPA Identification Number
Alias Name: 400703
Alias Type: Project Code (Site Code)
Alias Name: 71002735
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Acknowledgement of Satisfaction
Completed Date: 06/03/2009
Comments: CACA terminated with K/J Plating and replaced with a VCA signed by K&N Enterprises.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Agreement
Completed Date: 08/27/1999
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Consent Agreement
Completed Date: 08/27/1999
Comments: Not reported

Completed Area Name: PROJECT WIDE

K & J ENTERPRISES (Continued) **S104767488**

Completed Sub Area Name:	Not reported
Completed Document Type:	Phase I Verification
Completed Date:	03/02/1998
Comments:	Inspection report sent on 3/2/1998
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	03/02/1998
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Supplemental Site Investigation Report
Completed Date:	05/23/2003
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

VCP:

Name:	K & J ENTERPRISES
Address:	21750 MAIN STREET
City,State,Zip:	GRAND TERRACE, CA 92324
Facility ID:	36340037
Site Type:	Voluntary Cleanup
Site Type Detail:	Voluntary Cleanup
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	1.5
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP, SAN BERNARDINO COUNTY
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Irena Edwards
Supervisor:	Maryam Tasnif-Abbasi
Division Branch:	Cleanup Cypress
Site Code:	401477
Assembly:	47
Senate:	20
Special Programs Code:	Voluntary Cleanup Program
Status:	Certified / Operation & Maintenance
Status Date:	05/10/2013
Restricted Use:	NO
Funding:	Responsible Party
Lat/Long:	34.01987 / -117.3305
APN:	116715142
Past Use:	METAL PLATING - CHROME, METAL PLATING - OTHER
Potential COC:	10119, 30108, 30153, 30160, 30407
Confirmed COC:	NONE SPECIFIED
Potential Description:	UE

K & J ENTERPRISES (Continued) **S104767488**

Alias Name: K & N ENGINEERING (K & J SUBSIDIARY)
Alias Type: Alternate Name
Alias Name: RIVERSIDE PLATING
Alias Type: Alternate Name
Alias Name: 116715142
Alias Type: APN
Alias Name: CAD981172125
Alias Type: EPA Identification Number
Alias Name: 401477
Alias Type: Project Code (Site Code)
Alias Name: 36340037
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 01/25/1983
Comments: FACILITY IDENTIFIED ID VIA RWQCB INACTIVE FILES BOX#58 PLATING.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 09/08/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 01/19/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 04/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 06/27/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Well Decommissioning Workplan
Completed Date: 07/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

K & J ENTERPRISES (Continued) **S104767488**

Completed Document Type: Monitoring Report
Completed Date: 01/14/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Deed/LUR Enforcement & Implementation Plan
Completed Date: 04/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/30/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 06/12/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 06/11/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/08/2015
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 09/12/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Report
Completed Date: 06/17/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/14/2016
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: PA/SI Reassessment
Completed Date: 04/10/2009
Comments: Reassessment completed by DTSC and approved by EPA

K & J ENTERPRISES (Continued) **S104767488**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 05/18/2009
Comments: Fully Executed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 02/18/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 01/24/2012
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 02/01/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 11/28/2011
Comments: Amendment #3 executed for time extension and additional funds.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Land Use Restriction Monitoring Report
Completed Date: 01/08/2014
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Reimbursement Agreement
Completed Date: 11/20/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/28/2012
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 05/10/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate

K & J ENTERPRISES (Continued) **S104767488**

Completed Date: 11/20/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 04/15/2014
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/19/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 05/11/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/17/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 01/10/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 03/16/2018
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/06/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction - Site Inspection/Visit
Completed Date: 01/13/2020
Comments: Not reported

K & J ENTERPRISES (Continued) **S104767488**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/18/2016
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 01/12/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/11/2018
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/23/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 05/01/2017
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 04/23/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/11/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/12/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report

K & J ENTERPRISES (Continued) **S104767488**

Completed Date: 01/29/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 07/31/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/29/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/16/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 12/09/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 10/30/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 04/01/1985
Comments: FORMER OWNER: WILLIAM LEWIS ET AL(WINIFR V.LEWIS) P.O.BOX 110, COLTON, CA 92324. K&J IS A SUBSIDIARY OF K&N ENGINEERING. SOURCE ACT: RWQCB - NICKEL/CHROME PLATG CO TAX ASSESOR,RWQCB. SUBMIT TO EPA PRELIM ASSESS DONE CERCLA 104

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/12/2009
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/01/2010
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report

K & J ENTERPRISES (Continued) **S104767488**

Completed Date: 01/10/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 01/20/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 09/08/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: *Correspondence - Received
Completed Date: 09/08/2011
Comments: Concured by Laura.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 09/08/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

San Bern. Co. Permit:
Name: K/J PLATING INC
Address: 21750 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004205
Owner: JOHNSON, K & MALL J
Permit Number: PT0001435
Permit Category: HAZARDOUS WASTE GENERATOR - 0-10 EMPLOYEES
Facility Status: INACTIVE
Expiration Date: 11/30/2007

Name: K/J PLATING INC
Address: 21750 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004205
Owner: JOHNSON, K & MALL J
Permit Number: PT0001434
Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES (W/GEN PRMT)

K & J ENTERPRISES (Continued) **S104767488**

Facility Status: INACTIVE
Expiration Date: 11/30/2007

E31 **TRIANGLE MECHANICAL INC** **HIST UST** **U001576552**
SW **17 COMMERCIAL AVE** **HAZNET** **N/A**
< 1/8 **RIVERSIDE, CA 92507** **HWTS**
0.093 mi.
491 ft. **Site 1 of 4 in cluster E**

Relative:
Lower

Actual:
940 ft.

HIST UST:

Name:	TRIANGLE MECHANICAL INC
Address:	17 COMMERCIAL AVE
City,State,Zip:	RIVERSIDE, CA 92507
File Number:	0001F63E
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F63E.pdf
Region:	STATE
Facility ID:	00000004661
Facility Type:	Other
Other Type:	MECHANICAL CONTRACTO
Contact Name:	Not reported
Telephone:	7146823050
Owner Name:	ELMER WOOD
Owner Address:	2507 3RD ST
Owner City,St,Zip:	RIVERSIDE, CA 92507
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	None

Click here for Geo Tracker PDF:

HAZNET:

Name:	TRIANGLE MECHANICAL INC
Address:	17 COMMERCIAL AVE
Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 92507
Contact:	Gary Carvetta
Telephone:	9096823050
Mailing Name:	Not reported
Mailing Address:	17 Commercial Ave
Year:	1998
Gepaid:	CAL000248361
TSD EPA ID:	CAT000613976
CA Waste Code:	541 - Photochemicals/photoprocessing waste
Disposal Method:	H01 - Transfer Station
Tons:	0.1459
Year:	1997
Gepaid:	CAL000248361
TSD EPA ID:	CAT000613976

TRIANGLE MECHANICAL INC (Continued) **U001576552**

CA Waste Code:	541 - Photochemicals/photoprocessing waste
Disposal Method:	H01 - Transfer Station
Tons:	0.0625

Additional Info:

Year:	1998
Gen EPA ID:	CAL000248361
Shipment Date:	19981001
Creation Date:	1/5/1999 0:00:00
Receipt Date:	19981016
Manifest ID:	98209996
Trans EPA ID:	ILD984908202
Trans Name:	Not reported
Trans 2 EPA ID:	SCD987574647
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613976
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613976
TSDF Alt Name:	Not reported
Waste Code Description:	541 - Photochemicals / photo processing waste
RCRA Code:	D011
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0208
Waste Quantity:	5
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19980609
Creation Date:	9/3/1998 0:00:00
Receipt Date:	19980616
Manifest ID:	98005128
Trans EPA ID:	ILD984908202
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613976
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613976
TSDF Alt Name:	Not reported
Waste Code Description:	541 - Photochemicals / photo processing waste
RCRA Code:	D011
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1251
Waste Quantity:	30
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

TRIANGLE MECHANICAL INC (Continued) **U001576552**

Additional Info:

Year:	1997
Gen EPA ID:	CAL000248361
Shipment Date:	19970224
Creation Date:	6/26/1997 0:00:00
Receipt Date:	19970228
Manifest ID:	96661154
Trans EPA ID:	ILD984908202
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613976
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	541 - Photochemicals / photo processing waste
RCRA Code:	D011
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0625
Waste Quantity:	15
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	TRIANGLE MECHANICAL INC
Address:	17 COMMERCIAL AVE
Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 92507
EPA ID:	CAL000248361
Inactive Date:	06/30/2002
Create Date:	03/20/2002
Last Act Date:	04/24/2003
Mailing Name:	Not reported
Mailing Address:	17 Commercial Ave
Mailing Address 2:	Not reported
Mailing City,State,Zip:	RIVERSIDE, CA 92507
Owner Name:	Triangle Mechanical Inc
Owner Address:	17 Commercial Ave
Owner Address 2:	Not reported
Owner City,State,Zip:	RIVERSIDE, CA 92507
Contact Name:	Gary Carvetta
Contact Address:	17 Commercial Ave
Contact Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 92507

NAICS:

EPA ID:	CAL000248361
Create Date:	2002-03-20 15:36:25
NAICS Code:	23511
NAICS Description:	Plumbing, Heating, and Air-Conditioning Contractors
Issued EPA ID Date:	2002-03-20 15:36:25
Inactive Date:	2002-06-30 00:00:00

TRIANGLE MECHANICAL INC (Continued) **U001576552**

Facility Name:	Triangle Mechanical Inc
Facility Address:	17 Commercial Ave
Facility Address 2:	Not reported
Facility City:	RIVERSIDE
Facility County:	33
Facility State:	CA
Facility Zip:	92507

E32 **TRIANGLE MECHANICAL** **HIST UST** **U001576551**
SW **17 COMMERCIAL ST** **N/A**
< 1/8 **HIGHGROVE, CA 92507**
0.093 mi.
491 ft. **Site 2 of 4 in cluster E**

Relative: **Lower**
Actual: **940 ft.**

HIST UST:

Name:	TRIANGLE MECHANICAL
Address:	17 COMMERCIAL ST
City,State,Zip:	HIGHGROVE, CA 92507
File Number:	0001F63C
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F63C.pdf
Region:	STATE
Facility ID:	00000002766
Facility Type:	Other
Other Type:	CONSTRUCTION
Contact Name:	JOE CONTRERAS
Telephone:	7146836930
Owner Name:	ELMER J. WOOD
Owner Address:	5705 GRAND AVENUE
Owner City,St,Zip:	RIVERSIDE, CA 92506
Total Tanks:	0001
Tank Num:	001
Container Num:	171
Year Installed:	1964
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

E33 **JT THORPE** **RCRA NonGen / NLR** **1024754584**
SW **17 COMMERCIAL AVE** **CAC002974402**
< 1/8 **RIVERSIDE, CA 92507**
0.093 mi.
491 ft. **Site 3 of 4 in cluster E**

Relative: **Lower**
Actual: **940 ft.**

RCRA Listings:

Date Form Received by Agency:	2018-08-06 00:00:00.0
Handler Name:	JT THORPE
Handler Address:	17 COMMERCIAL AVE
Handler City,State,Zip:	RIVERSIDE, CA 92507
EPA ID:	CAC002974402
Contact Name:	ANTHONY JONES

JT THORPE (Continued) **1024754584**

Contact Address:	17 COMMERCIAL AVE
Contact City,State,Zip:	RIVERSIDE, CA 92507
Contact Telephone:	714-448-7566
Contact Fax:	Not reported
Contact Email:	ANTHONYJ@JTTHORPE.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	14540 ALONDRA BLVD
Mailing City,State,Zip:	LA MIRADA, CA 90638
Owner Name:	JT THORPE
Owner Type:	Other
Operator Name:	ANTHONY JONES
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking

JT THORPE (Continued) **1024754584**

Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-08-31 17:14:20.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	ANTHONY JONES
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	17 COMMERCIAL AVE
Owner/Operator City,State,Zip:	RIVERSIDE, CA 92507
Owner/Operator Telephone:	714-448-7566
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	JT THORPE
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	17 COMMERCIAL AVE
Owner/Operator City,State,Zip:	RIVERSIDE, CA 92507
Owner/Operator Telephone:	951-788-2070
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2018-08-06 00:00:00.0
Handler Name:	JT THORPE
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No

JT THORPE (Continued) **1024754584**

Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

E34 **CAT TRACKING INC** **RCRA NonGen / NLR** **1025872015**
SW **17 COMMERCIAL AVE** **CAL000445134**
< 1/8 **RIVERSIDE, CA 92507**
0.093 mi.
491 ft. **Site 4 of 4 in cluster E**

Relative: **Lower**
Actual: **940 ft.**

RCRA Listings:

Date Form Received by Agency:	2019-04-11 00:00:00.0
Handler Name:	CAT TRACKING INC
Handler Address:	17 COMMERCIAL AVE
Handler City,State,Zip:	RIVERSIDE, CA 92507
EPA ID:	CAL000445134
Contact Name:	NICK TONKINSON
Contact Address:	17 COMMERCIAL AVE
Contact City,State,Zip:	RIVERSIDE, CA 92507
Contact Telephone:	714-863-1565
Contact Fax:	951-682-1491
Contact Email:	PAM@CATTRACKING.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	17 COMMERCIAL AVE
Mailing City,State,Zip:	RIVERSIDE, CA 92507
Owner Name:	CAT TRUCKING INC
Owner Type:	Other
Operator Name:	NICK TONKINSON
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	Yes
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported

CAT TRACKING INC (Continued) **1025872015**

Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-06-28 17:52:35.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CAT TRUCKING INC
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5210 AVENIDA DE DESPACIO
Owner/Operator City,State,Zip:	YORBA LINDA, CA 92887
Owner/Operator Telephone:	714-305-6471
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	NICK TONKINSON
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported

CAT TRACKING INC (Continued) **1025872015**

Owner/Operator Address: 17 COMMERCIAL AVE
Owner/Operator City,State,Zip: RIVERSIDE, CA 92507
Owner/Operator Telephone: 714-863-1565
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 2019-04-11 00:00:00.0
Handler Name: CAT TRACKING INC
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

D35 **GRAND TERRACE HIGH SCHOOL** **CERS HAZ WASTE** **S112274136**
ESE **21810 MAIN ST** **HAZNET** **N/A**
< 1/8 **GRAND TERRACE, CA 92313** **San Bern. Co. Permit**
0.106 mi. **CERS**
559 ft. **Site 3 of 3 in cluster D** **HWTS**

Relative:
Higher

Actual:
964 ft.

CERS HAZ WASTE:
Name: GRAND TERRACE HIGH SCHOOL
Address: 21810 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92313
Site ID: 34120
CERS ID: 10402468
CERS Description: Hazardous Waste Generator

HAZNET:
Name: GRAND TERRACE HIGH SCHOOL
Address: 21810 MAIN ST
Address 2: Not reported
City,State,Zip: GRAND TERRACE, CA 923240000
Contact: ENRIQUE LERMA
Telephone: 9095805003
Mailing Name: Not reported
Mailing Address: 1313 W VALLEY BLVD

Year: 2019
Gepaid: CAL000345223
TSD EPA ID: CAD008364432
CA Waste Code: 551 - Laboratory waste chemicals
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.22935

GRAND TERRACE HIGH SCHOOL (Continued) **S112274136**

San Bern. Co. Permit:
Name: GRAND TERRACE HIGH SCHOOL
Address: 21810 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0014847
Owner: Colton Joint Unified School District
Permit Number: PT0025849
Permit Category: HAZARDOUS MATERIALS 4-10 CHEMICALS
Facility Status: ACTIVE
Expiration Date: 01/31/2021

Name: GRAND TERRACE HIGH SCHOOL
Address: 21810 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0014847
Owner: Colton Joint Unified School District
Permit Number: PT0025850
Permit Category: CONDITIONALLY EXEMPT SM QTY GENERATOR
Facility Status: ACTIVE
Expiration Date: 01/31/2021

CERS:
Name: GRAND TERRACE HIGH SCHOOL
Address: 21810 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92313
Site ID: 34120
CERS ID: 10402468
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 34120
Site Name: GRAND TERRACE HIGH SCHOOL
Violation Date: 02-03-2016
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description: Haz Waste Generator Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 03/04/2016. Failure to retain Hazardous Waste Manifests for at least 3 years (CCR 66262.40(a))
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-03-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Grand Terrace High School routine inspection
Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-03-2016

GRAND TERRACE HIGH SCHOOL (Continued) **S112274136**

Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Grand Terrace High School routine inspection
Eval Division: San Bernardino County Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-31-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: ROUTINE GENERATOR INSPECTION-GRAND TERRACE HIGH
Eval Division: San Bernardino County Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-31-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: ROUTINE HANDLER INSPECTION-GRAND TERRACE HIGH
Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Enforcement Action:
Site ID: 34120
Site Name: GRAND TERRACE HIGH SCHOOL
Site Address: 21810 MAIN ST
Site City: GRAND TERRACE
Site Zip: 92313
Enf Action Date: 02-03-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HW
Enf Action Source: CERS

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: Mary Doublet
Entity Title: Not reported
Affiliation Address: 325 N. Hermosa Ave. Attn: Risk Mgt.
Affiliation City: Colton
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92324
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Mary Doublet
Entity Title: Risk Manager
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported

GRAND TERRACE HIGH SCHOOL (Continued) **S112274136**

Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	San Bernardino County Fire
Entity Title:	Not reported
Affiliation Address:	620 South E Street
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92415-0153
Affiliation Phone:	(909) 386-8401
Affiliation Type Desc:	Document Preparer
Entity Name:	IEL Consulting
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	Colton Joint Unified School District
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	325 N. Hermosa Ave. Attn: Risk Mgt.
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92324
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Colton Joint Unified School District
Entity Title:	Not reported
Affiliation Address:	1212 Valencia Dr.
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(909) 580-5000
Affiliation Type Desc:	Operator
Entity Name:	Mitch Hovey (Assistant Principal)
Entity Title:	Not reported

GRAND TERRACE HIGH SCHOOL (Continued) **S112274136**

Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(909) 580-5006
Affiliation Type Desc:	Property Owner
Entity Name:	Colton Joint Unified School District
Entity Title:	Not reported
Affiliation Address:	1212 Valencia Dr.
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(909) 580-5000

HWTS:

Name:	GRAND TERRACE HIGH SCHOOL
Address:	21810 MAIN ST
Address 2:	Not reported
City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAL000345223
Inactive Date:	Not reported
Create Date:	07/30/2009
Last Act Date:	07/28/2017
Mailing Name:	ENRIQUE LERMA
Mailing Address:	1313 W VALLEY BLVD
Mailing Address 2:	Not reported
Mailing City,State,Zip:	COLTON, CA 923240000
Owner Name:	COLTON JOINT UNIFIED SCHOOL DIST
Owner Address:	1212 VALENCIA DR.
Owner Address 2:	Not reported
Owner City,State,Zip:	COLTON, CA 923240000
Contact Name:	ENRIQUE LERMA
Contact Address:	1313 W VALLEY BLVD
Contact Address 2:	Not reported
City,State,Zip:	COLTON, CA 92324

NAICS:

EPA ID:	CAL000345223
Create Date:	2009-07-30 11:27:29
NAICS Code:	61111
NAICS Description:	Elementary and Secondary Schools
Issued EPA ID Date:	2009-07-30 11:27:28
Inactive Date:	Not reported
Facility Name:	GRAND TERRACE HIGH SCHOOL
Facility Address:	21810 MAIN ST
Facility Address 2:	Not reported
Facility City:	GRAND TERRACE
Facility County:	36
Facility State:	CA
Facility Zip:	92313

36
NNE
< 1/8
0.107 mi.
564 ft.

LUCKY FARMS INC
PICO & TAYLOR ST
GRAND TERRACE, CA 92324

San Bern. Co. Permit

S102681103
N/A

Relative:
Higher

Actual:
949 ft.

San Bern. Co. Permit:

Name:	LUCKY FARMS INC
Address:	PICO & TAYLOR ST
City,State,Zip:	GRAND TERRACE, CA 92324
Region:	SAN BERNARDINO
Facility ID:	FA0000553
Owner:	LUCKY FARMS INC
Permit Number:	PT0006933
Permit Category:	HAZMAT HANDLER - AGRICULTURAL(FE)
Facility Status:	INACTIVE
Expiration Date:	10/31/1994

F37
WSW
< 1/8
0.121 mi.
639 ft.

SAFE WAY RECYCLING & RECOVERY INC
21516 MAIN ST STE B
GRAND TERRACE, CA 92313

Site 1 of 4 in cluster F

RCRA NonGen / NLR

1025876951
CAL000450087

Relative:
Lower

Actual:
935 ft.

RCRA Listings:

Date Form Received by Agency:	2019-10-18 00:00:00.0
Handler Name:	SAFE WAY RECYCLING & RECOVERY INC
Handler Address:	21516 MAIN ST STE B
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAL000450087
Contact Name:	JOSE MURGUIA
Contact Address:	21516 MAIN ST STE B
Contact City,State,Zip:	GRAND TERRACE, CA 92313
Contact Telephone:	909-877-8777
Contact Fax:	Not reported
Contact Email:	SAFEWAYRECYCLINGRECOVERY@YAHOO.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	21516 MAIN ST STE B
Mailing City,State,Zip:	GRAND TERRACE, CA 92313
Owner Name:	SAFE WAY RECYCLING & RECOVERY INC
Owner Type:	Other
Operator Name:	JOSE MURGUIA
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No

SAFE WAY RECYCLING & RECOVERY INC (Continued) **1025876951**

Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-10-21 14:11:50.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	SAFE WAY RECYCLING & RECOVERY INC
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21516 MAIN ST STE B
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313

SAFE WAY RECYCLING & RECOVERY INC (Continued) **1025876951**

Owner/Operator Telephone:	909-877-8777
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name:	JOSE MURGUIA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	21516 MAIN ST STE B
Owner/Operator City,State,Zip:	GRAND TERRACE, CA 92313
Owner/Operator Telephone:	909-877-8777
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2019-10-18 00:00:00.0
Handler Name:	SAFE WAY RECYCLING & RECOVERY INC
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

F38 **SAFE WAY RECYCLING & RECOVERY INC** **SWRCY S126105014**
WSW **21516 MAIN ST STE B** **HWTS N/A**
< 1/8 **GRAND TERRACE, CA 92313**
0.121 mi.
639 ft. **Site 2 of 4 in cluster F**

Relative: **Lower**

Actual: **935 ft.**

SWRCY:

Name:	SAFE WAY RECYCLING & RECOVERY INC
Address:	21516 MAIN ST STE B
City,State,Zip:	GRAND TERRACE, CA 92313
Reg Id:	Not reported
Cert Id:	RC169425.002
Mailing Address:	21516 Main St Ste B
Mailing City:	Grand Terrace
Mailing State:	CA
Mailing Zip Code:	92313
Website:	Not reported
Email:	Not reported
Phone Number:	(909) 877-8777
Rural:	N
Operation Begin Date:	02/14/2020
Aluminium:	Not reported
Glass:	Not reported
Plastic:	Not reported

SAFE WAY RECYCLING & RECOVERY INC (Continued) **S126105014**

Bimetal: Not reported
Hours of Operation: Mon - Sat 8:00 am - 5:00 pm; Sun Closed
Organization ID: Not reported
Organization Name: Safe Way Recycling & Recovery Inc

HWTS:
Name: SAFE WAY RECYCLING & RECOVERY INC
Address: 21516 MAIN ST STE B
Address 2: Not reported
City,State,Zip: GRAND TERRACE, CA 92313
EPA ID: CAL000450087
Inactive Date: Not reported
Create Date: 10/18/2019
Last Act Date: 10/18/2019
Mailing Name: Not reported
Mailing Address: 21516 MAIN ST STE B
Mailing Address 2: Not reported
Mailing City,State,Zip: GRAND TERRACE, CA 92313
Owner Name: SAFE WAY RECYCLING & RECOVERY INC
Owner Address: 21516 MAIN ST STE B
Owner Address 2: Not reported
Owner City,State,Zip: GRAND TERRACE, CA 92313
Contact Name: JOSE MURGUIA
Contact Address: 21516 MAIN ST STE B
Contact Address 2: Not reported
City,State,Zip: GRAND TERRACE, CA 92313

F39 **MIKE THOMPSONS RV SUPER STORE** **San Bern. Co. Permit** **S108536474**
WSW **21516 N MAIN ST #4** **N/A**
< 1/8 **GRAND TERRACE, CA 92313**
0.121 mi.
639 ft. **Site 3 of 4 in cluster F**

Relative: **Lower**
Actual: **935 ft.**

San Bern. Co. Permit:
Name: MIKE THOMPSONS RV SUPER STORE
Address: 21516 N MAIN ST #4
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0010878
Owner: Mike Thompson RV Superstores
Permit Number: PT0018860
Permit Category: SPECIAL HANDLER
Facility Status: INACTIVE
Expiration Date: 02/28/2009

Name: MIKE THOMPSONS RV SUPER STORE
Address: 21516 N MAIN ST #4
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0010878
Owner: Mike Thompson RV Superstores
Permit Number: PT0018859
Permit Category: SPECIAL GENERATOR
Facility Status: INACTIVE
Expiration Date: 02/28/2009

G40 **LRB MILLWORK & CASEWORK** **RCRA NonGen / NLR** **1026161956**
WNW **2760 S IOWA AVE** **CAC003061939**
1/8-1/4 **COLTON, CA 92324**
0.131 mi.
693 ft. **Site 1 of 2 in cluster G**

Relative: **Lower**

Actual: **920 ft.**

RCRA Listings:

Date Form Received by Agency:	2020-03-31 00:00:00.0
Handler Name:	LRB MILLWORK & CASEWORK
Handler Address:	2760 S IOWA AVE
Handler City,State,Zip:	COLTON, CA 92324-5801
EPA ID:	CAC003061939
Contact Name:	KATHY RADDER
Contact Address:	2760 S IOWA AVE
Contact City,State,Zip:	COLTON, CA 92324-5801
Contact Telephone:	951-328-0105
Contact Fax:	Not reported
Contact Email:	KATHY@LRBMILLWORK.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	2760 S IOWA AVE
Mailing City,State,Zip:	COLTON, CA 92324-5801
Owner Name:	RENE BERNHARDT
Owner Type:	Other
Operator Name:	KATHY RADDER
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

LRB MILLWORK & CASEWORK (Continued) **1026161956**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-04-08 18:59:25.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	RENE BERNHARDT
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2760 S IOWA AVE
Owner/Operator City,State,Zip:	COLTON, CA 92324-5801
Owner/Operator Telephone:	951-328-0105
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	KATHY RADDER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2760 S IOWA AVE
Owner/Operator City,State,Zip:	COLTON, CA 92324-5801
Owner/Operator Telephone:	951-328-0105
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

LRB MILLWORK & CASEWORK (Continued) **1026161956**

Historic Generators:

Receive Date:	2020-03-31 00:00:00.0
Handler Name:	LRB MILLWORK & CASEWORK
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

F41 **GULF NO. TRANSPORT INC** **UST** **U003785325**
WSW **21496 MAIN ST** **San Bern. Co. Permit** **N/A**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.140 mi.
739 ft. **Site 4 of 4 in cluster F**

Relative: **Lower**

Actual: **933 ft.**

UST:

Name:	GULF NO. TRANSPORT INC
Address:	21496 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Facility ID:	93030154
Permitting Agency:	SAN BERNARDINO COUNTY
Latitude:	34.023512
Longitude:	-117.332688

San Bern. Co. Permit:

Name:	NATIONAL LOGISTICS TEAM, LLC
Address:	21496 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92315
Region:	SAN BERNARDINO
Facility ID:	FA0018511
Owner:	ERIK MEZA
Permit Number:	PT0039986
Permit Category:	HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status:	ACTIVE
Expiration Date:	03/31/2021

Name:	GULF NO. TRANSPORT INC
Address:	21496 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Region:	SAN BERNARDINO
Facility ID:	FA0003656
Owner:	HOOD COMMUNICATIONS
Permit Number:	PT0006745
Permit Category:	HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status:	INACTIVE
Expiration Date:	11/30/2001

Name:	GULF NO. TRANSPORT INC
Address:	21496 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313

GULF NO. TRANSPORT INC (Continued) **U003785325**

Region: SAN BERNARDINO
Facility ID: FA0003656
Owner: HOOD COMMUNICATIONS
Permit Number: PT0006744
Permit Category: SPECIAL GENERATOR
Facility Status: INACTIVE
Expiration Date: 11/30/2001

G42 **IOWA SHELL** **UST** **U003784760**
WNW **2718 S IOWA AVE** **N/A**
1/8-1/4 **COLTON, CA 92324**
0.142 mi.
750 ft. **Site 2 of 2 in cluster G**

Relative: UST:
Lower
Name: IOWA SHELL
Actual: Address: 2718 S IOWA AVE
918 ft. City,State,Zip: COLTON, CA 92324
Facility ID: 86009099
Permitting Agency: SAN BERNARDINO COUNTY
Latitude: 34.0231781
Longitude: -117.3342367

H43 **HAMPTON LUMBER SALES COMPANY** **San Bern. Co. Permit** **S104770919**
ESE **21800 MAIN ST** **N/A**
1/8-1/4 **GRAND TERRACE, CA 92324**
0.144 mi.
761 ft. **Site 1 of 4 in cluster H**

Relative: San Bern. Co. Permit:
Higher
Name: HAMPTON LUMBER SALES COMPANY
Actual: Address: 21800 MAIN ST
968 ft. City,State,Zip: GRAND TERRACE, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0006592
Owner: HAMPTON LUMBER SALES COMPANY
Permit Number: PT0007459
Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status: INACTIVE
Expiration Date: 08/31/2006

H44 **GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDU** **RCRA-LQG** **1014386549**
ESE **21810 MAIN STREET** **CAC002641324**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.156 mi.
822 ft. **Site 2 of 4 in cluster H**

Relative: RCRA Listings:
Higher
Date Form Received by Agency: 2010-06-07 00:00:00.0
Actual: Handler Name: GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCA
969 ft. Handler Address: 21810 MAIN STREET
Handler City,State,Zip: GRAND TERRACE, CA 92313
EPA ID: CAC002641324
Contact Name: DARRYL TAYLOR
Contact Address: S. MOUNT VERNON AVE, SUITE 8

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386549**

Contact City,State,Zip:	COLTON, CA 92324
Contact Telephone:	909-580-6640
Contact Fax:	909-554-1882
Contact Email:	DARRYL_TAYLOR@CJUSD.NET
Contact Title:	DIRECTOR OF FACILITIES
EPA Region:	09
Land Type:	District
Federal Waste Generator Description:	Large Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	2009
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	MAIN STREET
Mailing City,State,Zip:	GRAND TERRACE, CA 92313
Owner Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Owner Type:	District
Operator Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Operator Type:	Private
Short-Term Generator Activity:	Yes
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386549**

Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2010-10-06 16:38:05.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	Not reported

Biennial: List of Years
Year: 2009

Click Here for Biennial Reporting System Data:

Hazardous Waste Summary:
Waste Code: D001
Waste Description: IGNITABLE WASTE

Waste Code: D008
Waste Description: LEAD

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Legal Status:	Private
Date Became Current:	2009-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	Not reported
Owner/Operator City,State,Zip:	Not reported
Owner/Operator Telephone:	Not reported
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Legal Status:	District
Date Became Current:	2009-03-01 00:00:00.
Date Ended Current:	Not reported
Owner/Operator Address:	1212 VALENCIA DRIVE
Owner/Operator City,State,Zip:	COLTON, CA 92324
Owner/Operator Telephone:	909-580-5000
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386549**

Historic Generators:

Receive Date:	2010-06-07 00:00:00.0
Handler Name:	GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL CO
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

H45 **GRAND TERRACE HIGH SCHOOL** **RCRA NonGen / NLR** **1024823755**
ESE **21810 MAIN ST** **CAL000345223**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.156 mi.
822 ft. **Site 3 of 4 in cluster H**

Relative: **Higher**

Actual: **969 ft.**

RCRA Listings:

Date Form Received by Agency:	2009-07-30 00:00:00.0
Handler Name:	GRAND TERRACE HIGH SCHOOL
Handler Address:	21810 MAIN ST
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAL000345223
Contact Name:	ENRIQUE LERMA
Contact Address:	1313 W VALLEY BLVD
Contact City,State,Zip:	COLTON, CA 92324
Contact Telephone:	909-580-5003
Contact Fax:	909-876-6390
Contact Email:	ENRIQUE_LERMA@CJUSD.NET
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	1313 W VALLEY BLVD
Mailing City,State,Zip:	COLTON, CA 92324-0000
Owner Name:	COLTON JOINT UNIFIED SCHOOL DIST
Owner Type:	Other
Operator Name:	ENRIQUE LERMA
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No

GRAND TERRACE HIGH SCHOOL (Continued) **1024823755**

Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 20:31:32.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	ENRIQUE LERMA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported

GRAND TERRACE HIGH SCHOOL (Continued) **1024823755**

Owner/Operator Address:	1313 W VALLEY BLVD
Owner/Operator City,State,Zip:	COLTON, CA 92324
Owner/Operator Telephone:	909-580-5003
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name:	COLTON JOINT UNIFIED SCHOOL DIST
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1212 VALENCIA DR.
Owner/Operator City,State,Zip:	COLTON, CA 92324-0000
Owner/Operator Telephone:	909-876-4123
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2009-07-30 00:00:00.0
Handler Name:	GRAND TERRACE HIGH SCHOOL
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

H46 **GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDU** **RCRA-LQG** **1014386603**
ESE **21810 MAIN STREET** **CAD002641324**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.156 mi.
822 ft. **Site 4 of 4 in cluster H**

Relative: **Higher**
Actual: **969 ft.**

RCRA Listings:

Date Form Received by Agency:	2010-06-07 00:00:00.0
Handler Name:	GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCA
Handler Address:	21810 MAIN STREET
Handler City,State,Zip:	GRAND TERRACE, CA 92313
EPA ID:	CAD002641324
Contact Name:	DARRYL TAYLOR
Contact Address:	S. MOUNT VERNON AVE, SUITE 8
Contact City,State,Zip:	COLTON, CA 92324
Contact Telephone:	909-580-6640
Contact Fax:	909-554-1882
Contact Email:	DARRYL_TAYLOR@CJUSD.NET
Contact Title:	DIRECTOR OF FACILITIES
EPA Region:	09
Land Type:	District
Federal Waste Generator Description:	Large Quantity Generator

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386603**

Non-Notifier:	Not reported
Biennial Report Cycle:	2009
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	MAIN STREET
Mailing City,State,Zip:	GRAND TERRACE, CA 92313
Owner Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Owner Type:	District
Operator Name:	COLTON JOINT UNIFIED SCHOOL DISTRICT
Operator Type:	Private
Short-Term Generator Activity:	Yes
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386603**

Significant Non-Complier With a Compliance Schedule Universe: No
Financial Assurance Required: Not reported
Handler Date of Last Change: 2010-10-06 16:38:05.0
Recognized Trader-Importer: No
Recognized Trader-Exporter: No
Importer of Spent Lead Acid Batteries: No
Exporter of Spent Lead Acid Batteries: No
Recycler Activity Without Storage: Not reported
Manifest Broker: Not reported
Sub-Part P Indicator: Not reported

Biennial: List of Years
Year: 2009

Click Here for Biennial Reporting System Data:

Hazardous Waste Summary:
Waste Code: D001
Waste Description: IGNITABLE WASTE

Waste Code: D008
Waste Description: LEAD

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: COLTON JOINT UNIFIED SCHOOL DISTRICT
Legal Status: Private
Date Became Current: 2009-03-01 00:00:00.
Date Ended Current: Not reported
Owner/Operator Address: Not reported
Owner/Operator City,State,Zip: Not reported
Owner/Operator Telephone: Not reported
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: COLTON JOINT UNIFIED SCHOOL DISTRICT
Legal Status: District
Date Became Current: 2009-03-01 00:00:00.
Date Ended Current: Not reported
Owner/Operator Address: 1212 VALENCIA DRIVE
Owner/Operator City,State,Zip: COLTON, CA 92324
Owner/Operator Telephone: 909-580-5000
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 2010-06-07 00:00:00.0
Handler Name: GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL CC
Federal Waste Generator Description: Large Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No

GRAND TERRACE HIGH SCHOOL AT THE RAY ABRIL JR. EDUCATIONAL C (Continued) **1014386603**

Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

I47 **IOWA SHELL** **LUST** **S109934567**
WNW **2718 IOWA AVE** **CERS TANKS** **N/A**
1/8-1/4 **COLTON, CA 92324** **San Bern. Co. Permit**
0.185 mi. **CERS**
979 ft. **Site 1 of 4 in cluster I**

Relative: **Lower**
Actual: **912 ft.**

LUST:

Name:	SHELL STATION
Address:	2718 IOWA AVENUE
City,State,Zip:	COLTON, CA 92324
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607165402
Global Id:	T0607165402
Latitude:	34.022142
Longitude:	-117.335955
Status:	Completed - Case Closed
Status Date:	08/12/2010
Case Worker:	CAB
RB Case Number:	083604020T
Local Agency:	SAN BERNARDINO COUNTY
File Location:	Local Agency
Local Case Number:	2003003
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	MTBE / TBA / Other Fuel Oxygenates, Gasoline, * * TERT-AMYL METHYL ETHER (TAME), * TERT-AMYL METHYL ETHER (TAME), * * TERT-BUTYL ALCOHOL (TBA), * TERT-BUTYL ALCOHOL (TBA)
Site History:	The subject site is an active Shell Oil Service Station with three fuel underground storage tanks and two dispenser islands. In November 2002, five on-site groundwater monitoring wells were installed as a part as the Groundwater Assessment Program by Shell. Nineteen soil samples were collected from monitoring wells MW-1 through MW-5 during well installation. TPH, MTBE, and TBA were detected at a concentrations ranging from non-detect up to 6.6 ppm, 18 ppm, and 93 ppm, respectively. Groundwater was encountered at 98 feet below ground surface (bgs) and was found to flow towards the south. MTBE and TBA were detected in the groundwater at a concentration ranging from non-detect to 47 ug/l to 42 ug/l, respectively. The subsurface geology consisted of permeable fine to coarse grained sands to approximately 115 feet (bgs) with interbedded layers of silty sand and silt. In March 2003, seven exploratory borings (SB-1 through BS-7) were drilled at the site to approximately 40 to 70 feet bgs. Elevated concentrations of TPH-gasoline and TPH-diesel were detected in the soil borings ranging from non-detect to 2,200 and 1,600, respectively. MTBE and TBA were detected at concentrations ranging from non-detect to 8.8 and 45 ppm, respectively. Only one soil sample from SB-3 at 55 feet showed significantly elevated concentrations of BTEX compounds. As a result of these findings, the San Bernardino

IOWA SHELL (Continued) **S109934567**

County Fire Department requested further assessment of the site. In December 2003, four soil vapor extraction wells (SVE-1 through SVE-4) and one soil boring (SB-12) were drilled to a maximum depths of 100 feet bgs. The soil vapor extraction wells were constructed with 50 feet of well screen placed at approximately 15 feet to 65 feet bgs. MTBE and TBA were detected at a concentration ranging from non-detect to 4.5 ppm and 47 ppm, respectively. Non-detect to below 1 ppm concentrations of MTBE and TBA were detected below 60 feet. In May 2004, a soil vapor extraction pilot test was conducted on SVE-1 and SVE-2. The SVE test was conducted at 256.5 scfm and a vacuum of 0.94 inches Hg. A radius of influence was calculated at 134 feet. Approximately 81.9 pounds per day of total petroleum hydrocarbons and 5.0 lbs per day of MTBE were recovered from SVE-1. In June 2004, six additional soil borings (SB-13 through SB-18) were drilled near the property boundaries to a maximum depth of 100 feet bgs. MTBE was detected in soil boring SB-13 at a maximum concentration of 1.3 ppm at a depth of 30 feet bgs and TBA was detected in soil boring SB-18 at a maximum concentration of 3.6 ppm at a depth of 25 feet bgs. Based on these results, SBCFD concluded that the extent of the affected soil was adequately defined and that remedial actions were necessary for the site. In October 2004, Shell submitted a Remedial Action Plan to the SBCFD. In the RAP, Shell proposed to conduct a one year monitored natural attenuation soil-only impact assessment study to assess the potential risks of the residual petroleum hydrocarbon to the underlying groundwater, and if necessary, assess the appropriate target levels for future remediation by soil vapor extraction. In response to the proposed RAP, SCBFD transferred the case to the Regional Board citing that they have no regulatory oversight of demonstration projects as the one proposed. In an April 22, 2005, letter, Board staff concurred with the proposed study with the caveats that Board staff disagrees with Shell s assertion the site was a soils only case, that the results of the study could not be the sole basis for determining if additional remediation was necessary, and potential future treats to the underlying groundwater be mitigated. In January 2006, three CPT exploratory borings (CPT-1 through CPT-3) and one quadruple nested vapor probes/groundwater monitoring well and two quadruple nested vapor probes were installed. The nested vapor probes were installed at 15, 40, 60, and 75 feet bgs. The soil vapor probes were sampled quarterly for one year to monitor natural attenuation in the subsurface soil. The results of the vapor probe monitoring indicated some reduction in gasoline constituent concentrations over time in some of the vapor probe sampling locations and depths. From December 2002 to October 2004, non-detect to low concentrations of MTBE and TBA were detected in the underlying groundwater. In January 2005 the TBA concentration in MW-5 increased to 6700 ug/l, but by July 2005 decreased to non-detect. In April 2006, the concentration of TBA in MW-2 increased to 160 ug/l and in November 2006, reached a maximum concentration of 820 ug/l. The concentration of TBA declined and has been non-detect since July 2007. The increase in the concentration TBA in 2006 appears to be related to a rise of the water table to approximately 81 feet bgs. Since July 2007, groundwater levels have remained deeper than 90 feet bgs. In January 2008, an 8-hour vapor extraction test was conducted on SVE-1 and SVE-2 with applied vacuums of 1.48 inches Hg and 2.82 inches Hg, respectively. Vapor flow rates was approximately 300 scfm. A radius of influence of 107 108 feet was calculated. The TPH and MTBE removal rates for SVE-1 were estimated at 2.24 lbs/day and 0.014

IOWA SHELL (Continued) **S109934567**

lbs/day. The TPH and MTBE removal rates for SVE-1 were estimated at 3.94 lbs/day and 0.0023 lbs/day. Based on these results, Shell concludes that closure is warranted due to the low mass recovery rate. In August 2009, three confirmation soil borings were advanced to 100 feet bgs. The results of the confirmation sampling indicate non-detected petroleum fuel hydrocarbons. Based on these findings, Shell concludes that the results of confirmation soil testing and the January 2008 soil vapor test indicate continued remediation of this site would not result in significant reduction in subsurface mass and requests that no further assessment or remedial actions be required for this site. On November 18, 2009, Board staff notified the current property fee holder as well the adjacent property owners of the proposed site closure. Board staff has not received any objection to the site closure On February 23 through March 2, 2010, six groundwater monitoring wells, four soil vapor extraction wells, and two soil vapor probes were abandoned. On June 27 through July 2, 2010, the remaining groundwater monitoring wells, vapor probes, and soil vapor extraction wells were abandoned.

LUST:
Global Id: T0607165402
Contact Type: Regional Board Caseworker
Contact Name: CARL BERNHARDT
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 MAIN STREET, SUITE 500
City: RIVERSIDE
Email: carl.bernhardt@waterboards.ca.gov
Phone Number: 9517824495

Global Id: T0607165402
Contact Type: Local Agency Caseworker
Contact Name: CATHERINE RICHARDS
Organization Name: SAN BERNARDINO COUNTY
Address: 620 SOUTH E STREET
City: SAN BERNARDINO
Email: crichards@sbcfire.org
Phone Number: 9093868419

LUST:
Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 04/28/2005
Action: Staff Letter

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 08/12/2010
Action: Closure/No Further Action Letter

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 03/08/2005
Action: Referral to Regional Board

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2010

IOWA SHELL (Continued) **S109934567**

Action: Well Destruction Report

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 12/10/2007
Action: Staff Letter

Global Id: T0607165402
Action Type: Other
Date: 12/12/2002
Action: Leak Discovery

Global Id: T0607165402
Action Type: RESPONSE
Date: 04/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 04/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 07/27/2007
Action: Verbal Enforcement

Global Id: T0607165402
Action Type: RESPONSE
Date: 04/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 10/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 01/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 05/29/2009
Action: Staff Letter

IOWA SHELL (Continued) **S109934567**

Global Id: T0607165402
Action Type: Other
Date: 12/12/2002
Action: Leak Reported

Global Id: T0607165402
Action Type: RESPONSE
Date: 11/30/2006
Action: Soil and Water Investigation Report

Global Id: T0607165402
Action Type: RESPONSE
Date: 01/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 09/30/2007
Action: Pilot Study/ Treatability Report

Global Id: T0607165402
Action Type: RESPONSE
Date: 04/30/2008
Action: Pilot Study/ Treatability Report

Global Id: T0607165402
Action Type: RESPONSE
Date: 01/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 04/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 01/12/2010
Action: Notification - Preclosure

Global Id: T0607165402
Action Type: ENFORCEMENT
Date: 11/16/2009
Action: Notification - Fee Title Owners Notice

Global Id: T0607165402
Action Type: RESPONSE

IOWA SHELL (Continued) **S109934567**

Date: 10/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 10/29/2009
Action: Request for Closure

Global Id: T0607165402
Action Type: RESPONSE
Date: 06/30/2006
Action: CAP/RAP - Other Report

Global Id: T0607165402
Action Type: RESPONSE
Date: 10/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 07/30/2009
Action: Monitoring Report - Quarterly

Global Id: T0607165402
Action Type: RESPONSE
Date: 05/01/2009
Action: Soil and Water Investigation Workplan

LUST:
Global Id: T0607165402
Status: Open - Case Begin Date
Status Date: 12/12/2002

Global Id: T0607165402
Status: Open - Site Assessment
Status Date: 02/26/2003

Global Id: T0607165402
Status: Open - Site Assessment
Status Date: 11/13/2006

Global Id: T0607165402
Status: Completed - Case Closed
Status Date: 08/12/2010

CERS TANKS:
Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Site ID: 395218
CERS ID: 10040722
CERS Description: Underground Storage Tank

San Bern. Co. Permit:
Name: IOWA SHELL

IOWA SHELL (Continued) **S109934567**

Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0029009
Permit Category: HAZMAT HANDLER, UST ONLY - PER YEAR
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0023405
Permit Category: WASTE INCIDENTAL UST OPERATION ONLY -PER YEAR
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0024324
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0024325
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0024326
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: ACTIVE
Expiration Date: 09/30/2020

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324

IOWA SHELL (Continued) **S109934567**

Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0002368
Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status: INACTIVE
Expiration Date: 09/30/2013

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0011911
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2011

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0011912
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2011

Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0004012
Owner: LUCKY OIL CO.
Permit Number: PT0011913
Permit Category: REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status: INACTIVE
Expiration Date: 09/30/2011

CERS:
Name: IOWA SHELL
Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Site ID: 395218
CERS ID: 10040722
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: HSC 6.7 25290.1(d) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(d)
Violation Description: Failure of a UST system installed on or after July 1, 2004 to be designed and constructed so as to detect the entry of the liquid or

IOWA SHELL (Continued) **S109934567**

vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary containment.
Violation Notes: Returned to compliance on 05/05/2015. LIQUID WAS OBSERVED IN DIESEL STP DURING INSPECTION. COMPLIANCE REQUIREMENT: LIQUID WAS REMOVED BY CONTRACTOR DURING INSPECTION. VIOLATION CORRECTED.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: HSC 6.5 Multiple Sections - California Health and Safety Code, Chapter 6.5, Section(s) Multiple Sections
Violation Description: Haz Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 05/05/2015. Failure to label hazardous waste containers (CCR 66262.34(f)(3)) OBSERVED LIQUID WASTE DRUM MISSING LABEL AND HAZARDOUS WASTE SOLIDS DRUM WITH FADED LABEL. COMPLIANCE REQUIREMENT: LABELS WERE PROVIDED DURING INSPECTION AND ADDED TO DRUMS. VIOLATION CORRECTED.
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: HSC 6.5 Multiple Sections - California Health and Safety Code, Chapter 6.5, Section(s) Multiple Sections
Violation Description: Haz Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 05/05/2015. Failure to manage hazardous waste lawfully (CHSC 25154) OBSERVED LIQUID WASTE DRUM MISSING LABEL AND HAZARDOUS WASTE SOLIDS DRUM WITH FADED LABEL. COMPLIANCE REQUIREMENT: LABELS WERE PROVIDED DURING INSPECTION AND ADDED TO DRUMS. VIOLATION CORRECTED.
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2016
Citation: HSC 6.7 29291(b) - California Health and Safety Code, Chapter 6.7, Section(s) 29291(b)
Violation Description: Failure of the UST system to be designed and constructed with a monitoring system capable of detecting the entry of the hazardous substance stored in the primary containment into the secondary containment.
Violation Notes: Returned to compliance on 05/05/2016. OBSERVATION: The 3/4 -UDCsG Brine sensor (VR 304) failed when tested. COMPLIANCE REQUIREMENT: Technician programed the sensor for turbine shut down and re-tested-PASSED.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

IOWA SHELL (Continued) **S109934567**

Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-08-2017
Citation:	HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description:	Hazardous Waste Generator Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 05/08/2017. Failure to store hazardous waste in sound containers (CCR 66265.171) HAZARDOUS WASTE GENERATOR INSPECTION OBSERVATIONS: -Observed Inventory: 1) 1 55-gallon drum of UST-related hazardous waste solids. 6 fuel filters left in EVR enclosure. Bucket of kitty litter open. ----Drums not labeled. 2) 2 55-gallon drum of UST-related hazardous waste liquid. 2 5-gallon drums unlabeled and open. Drums not labeled. COMPLIANCE: Station personnel, consolidated, labeled and closed containers today.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HW
Violation Source:	CERS

Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-05-2016
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date.
Violation Notes:	Returned to compliance on 05/24/2016. COMPLIANCE ACTIVITY: FACILITY MADE COMPLIANCE BY UPDATED CERS ON 05/24/2016 OBSERVATION: Facility submitted an area map, not a facility map to CERS. COMPLIANCE REQUIREMENT: Submit a facility map to CERS.
Violation Division:	San Bernardino County Fire Department
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-29-2019
Citation:	23 CCR 16 2641(j) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(j)
Violation Description:	Failure of the leak detection equipment to be installed, calibrated, operated, and/or maintained properly.
Violation Notes:	Returned to compliance on 05/29/2019. OBSERVATION: The 304 sensors within UDCs 3/4 and 7/8 were not functional when tested. CORRECTIVE ACTION: Both sensors were replaced and tested functional. No further action required.
Violation Division:	San Bernardino County Fire Department
Violation Program:	UST
Violation Source:	CERS

Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-29-2019
Citation:	23 CCR 16 2716(a) through (e) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2716(a) through (e)
Violation Description:	For designated operator (DO) monthly inspections conducted before October 1, 2018, failure to comply with one or more of the following requirements: Be performed by an ICC certified DO. Inspect monthly alarm history report, check that alarms are documented and responded

IOWA SHELL (Continued) **S109934567**

to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers. Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented. Verify that all facility employees have been trained in accordance with 23 CCR 2715(c). For designated operator (DO) 30 day inspections conducted on and after October 1, 2018, failure to conduct the designated UST operator visual inspection at least once every 30 days.

Violation Notes: OBSERVATION: February, December, and November's Designated Operator (DO) inspections were conducted over 30 days apart from each other. CORRECTIVE ACTION: Submit a signed Certificate of Compliance stating that you understand that DO inspections are to be conducted every 30 days.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description: Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes: Returned to compliance on 05/03/2018. OBSERVATION: Financial Responsibility: Mechanism identified is State Fund. Remove G yesG from Insurance unless Insurance is only mechanism. Certificate of Responsibility and Chief Financial Officer letter dated March 2016 have expired. COMPLIANCE: Upload new form/letter
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: HSC 6.7 25290.1(d) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(d)
Violation Description: Failure of a UST system installed on or after July 1, 2004 to be designed and constructed with a monitoring system capable of detecting the entry of the liquid or vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary containment.
Violation Notes: Returned to compliance on 05/08/2017. -----OBSERVATION: Diesel STP G observed slight amt of liquid, insufficient to alarm. -----COMPLIANCE: Technician removed liquid today. Maintain sumps in a dry condition
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-03-2018
Citation: HSC 6.7 25284, 25286 - California Health and Safety Code, Chapter 6.7,

IOWA SHELL (Continued) **S109934567**

	Section(s) 25284, 25286
Violation Description:	Failure to submit a complete and accurate application for a permit to operate a UST, or for renewal of the permit.
Violation Notes:	Returned to compliance on 08/08/2018. The site map submitted does not show the piping system. Update the site map on the CERS website to show the piping within the UST system. Submit a signed Certificate of Compliance within 30 days.
Violation Division:	San Bernardino County Fire Department
Violation Program:	UST
Violation Source:	CERS
Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	04-28-2016
Citation:	HSC 6.7 25290.1(d) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(d)
Violation Description:	Failure of a UST system installed on or after July 1, 2004 to be designed and constructed so as to detect the entry of the liquid or vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary containment.
Violation Notes:	Returned to compliance on 05/05/2016. OBSERVATION: Liquid was observed in UDC 9/10 & the Diesel STP. COMPLIANCE MET ON SITE: Technician removed liquid from sumps-PASSED
Violation Division:	San Bernardino County Fire Department
Violation Program:	UST
Violation Source:	CERS
Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-05-2015
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 03/02/2016. CERS SUBMITTAL REFLECTED CERTIFICATE OF FINANCIAL RESPONSIBILITY (CFR) AND DESIGNATED OPERATOR'S CERTIFICATION IS EXPIRED ON DO STATMENT. COMPLIANCE REQUIREMENT: UPDATE CERS DOCUMENTS TO REFLECT CURRENT CFR AND DO STATEMENT. SUBMIT A SIGNED CERTIFICATE OF COMPLIANCE WITH REQUIRED DOCUMENTATION WITHIN 30 DAYS. CERS UPDATED PS 4/15/16
Violation Division:	San Bernardino County Fire Department
Violation Program:	UST
Violation Source:	CERS
Site ID:	395218
Site Name:	IOWA SHELL
Violation Date:	05-06-2014
Citation:	HSC 6.7 25292.1(a) - California Health and Safety Code, Chapter 6.7, Section(s) 25292.1(a)
Violation Description:	Failure to operate the UST system to prevent spills and/or overfills.
Violation Notes:	Returned to compliance on 05/06/2014.
Violation Division:	San Bernardino County Fire Department
Violation Program:	UST
Violation Source:	CERS
Site ID:	395218

IOWA SHELL (Continued) **S109934567**

Site Name: IOWA SHELL
Violation Date: 05-06-2014
Citation: HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description: Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes: Returned to compliance on 05/06/2014.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-29-2019
Citation: HSC 6.7 25284, 25286 - California Health and Safety Code, Chapter 6.7, Section(s) 25284, 25286
Violation Description: Failure to submit a complete and accurate application for a permit to operate a UST, or for renewal of the permit.
Violation Notes: Returned to compliance on 03/10/2020. OBSERVATION: The tank page information submitted via CERS is not accurate. CORRECTIVE ACTION: Update the following information and re-submit all UST documents within 30 days: For your 87 tank, for your tank secondary containment, please update from "steel" to "fiberglass". For your 91 and Diesel tank, for piping primary containment please update from "none" to "fiberglass". For your 91 tank, for your vent piping primary please update from "rigid plastic" to "fiberglass". For all your tanks, for your riser primary containment please select "steel" and for your riser secondary containment please select "fiberglass". For all your tanks, for corrosion prevention, please check yes for isolation.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-29-2019
Citation: 23 CCR 16 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(h)
Violation Description: Failure to have an approved UST Monitoring Plan.
Violation Notes: Returned to compliance on 03/10/2020. OBSERVATION: The tank monitoring plan information submitted via CERS is not accurate. CORRECTIVE ACTION: Update the following information and re-submit all UST documents within 30 days: For all your tanks, for continuous electronic tank monitoring, for tank secondary containment system, please change from dry to vacuum. For all your tanks, for continuous electronic piping secondary containment monitoring, for piping secondary containment system, please change from dry to vacuum. For all your tanks, for record keeping, please check yes for "equipment maintenance and calibration records". For all your tanks, for the training section, check yes for "designated operator" training.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-03-2018

IOWA SHELL (Continued) **S109934567**

Citation: 23 CCR 16 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(B), 2634(d)(1)(a), 2636(f)(1)
Violation Description: Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes: Returned to compliance on 05/03/2018. The ATG on the diesel fuel tank did not initially function due to a blown fuse. The fuse was replaced and ATG was re-tested and functioned properly.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: HSC 6.7 29291(b) - California Health and Safety Code, Chapter 6.7, Section(s) 29291(b)
Violation Description: Failure of the UST system to be designed and constructed with a monitoring system capable of detecting the entry of the hazardous substance stored in the primary containment into the secondary containment.
Violation Notes: Returned to compliance on 05/05/2015. OBSERVED BRINE SENSOR AT 11/12 UDC NOT PROPERLY FUNCTIONING WHEN TESTED. COMPLIANCE REQUIREMENT: SENSOR WAS REPLACED WITH "LIKE FOR LIKE" EQUIPMENT DURING INSPECTION AND RETESTED. VIOLATION WAS CORRECTED.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description: Hazardous Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 05/08/2017. Failure to label hazardous waste containers (CCR 66262.34(f)(3)) HAZARDOUS WASTE GENERATOR INSPECTION OBSERVATIONS: -Observed Inventory: 1) 1 55-gallon drum of UST-related hazardous waste solids. 6 fuel filters left in EVR enclosure. Bucket of kitty litter open. ----Drums not labeled. 2) 2 55-gallon drum of UST-related hazardous waste liquid. 2 5-gallon drums unlabeled and open. Drums not labeled. COMPLIANCE: Station personnel, consolidated, labeled and closed containers today.
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: HSC 6.95 25508(d) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(d)
Violation Description: Failure to complete and/or electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes: Returned to compliance on 05/24/2016. COMPLIANCE ACTIVITY: FACILITY MADE COMPLIANCE BY UPDATED CERS ON 05/24/2016 BUSINESS PLAN INVENTORY

IOWA SHELL (Continued) **S109934567**

ON CERS SUBMTTAL WAS INCOMPLETE. BUSINESS ACTIVITIES SECTION FOR HAZARDOUS WASTE GENERATION WAS INCORRECTLY MARKED NO. EPA ID NUMBER ON CERS WAS INCORRECT. COMPLIANCE REQUIREMENT: UPDATE CERS TO REFLECT CORRECT BUSINESS PLAN INVENTORY, BUSINESS ACTIVITIES AND EPA ID NUMBER. SUBMIT SIGNED CERTIFICATE OF COMPLIANCE WITHIN 30 DAYS. WILL REVIEW CERS AFTER CORRECTIONS COMPLETED.

Violation Division: San Bernardino County Fire Department
Violation Program: HMRRP
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: 23 CCR 16 2712 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712
Violation Description: Failure to comply with any of the applicable requirements of the permit issued for the operation of the UST system.
Violation Notes: Returned to compliance on 05/03/2018. OBSERVATION: Smart Sensor S17 Diesel/91 annular vacuum sensor was not programmed to shut down turbine when a G no vacuum conditionG occurs. Positive shut down in required for all sensors in this jurisdiction. COMPLIANCE: Technician reprogrammed sensor, tested, and positive shut down confirmed. This sensor was programmed to provide positive shut down in system set up documentation from 5/5/16. Removal of sensors from required alarm conditions constitutes tampering and is subject to enforcement action and fines of up to $5000/day. Ensure that all sensors remain in programmed for positive shut down. Sign and return Certificate of Compliance as documentation of understanding of this requirement.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: 23 CCR 16 2665 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2665
Violation Description: Failure of the overfill prevention system to meet one of the following requirements: 1. Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or 2. Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or 3. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or 4. Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling.
Violation Notes: Returned to compliance on 05/05/2015. OBSERVED VISUAL ALARM TO ATG OVERFILL ALARM NON OPERATIONAL WHEN TESTED. COMPLIANCE REQUIREMENT: LIGHT WAS REPLACED DURING INSPECTION AND RETESTED. VIOLATION WAS CORRECTED.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

IOWA SHELL (Continued) **S109934567**

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description: Hazardous Waste Generator Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 05/08/2017. Failure to keep hazardous waste containers closed when not in active use (CCR 66265.173(a)) HAZARDOUS WASTE GENERATOR INSPECTION OBSERVATIONS: -Observed Inventory: 1) 1 55-gallon drum of UST-related hazardous waste solids. 6 fuel filters left in EVR enclosure. Bucket of kitty litter open. ----Drums not labeled. 2) 2 55-gallon drum of UST-related hazardous waste liquid. 2 5-gallon drums unlabeled and open. Drums not labeled. COMPLIANCE: Station personnel, consolidated, labeled and closed containers today.
Violation Division: San Bernardino County Fire Department
Violation Program: HW
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-08-2017
Citation: 23 CCR 6.7 25284, 25286 - California Code of Regulations, Title 23, Chapter 6.7, Section(s) 25284, 25286
Violation Description: Failure to submit a complete and accurate application for a permit to operate a UST, or for renewal of the permit.
Violation Notes: Returned to compliance on 05/21/2018. OBSERVATION: Tank Information Field Verified. The following is inaccurate. --Tank Construction: USTs Primary Containment: Steel not Fiberglass --Vent and Vapor Recovery Piping Construction: Indicate Fiberglass for both primary and secondary --Fill Components Installed: Indicate yes for all three --Vent Piping Transition Sump: Observed. Indicate yes
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2016
Citation: Un-Specified
Violation Description: UST Program - Administration/Documentation - For use of Local Ordinance only
Violation Notes: Returned to compliance on 05/27/2016. Failure to have a written monitoring program with monitoring procedures and response plan (CHSC 25286(a)) COMPLIANCE ACTIVITY: FACILITY MADE COMPLIANCE BY UPDATED CERS ON 05/24/2016 OBSERVATION: 1) Facility did not submit a UST Monitoring Site Plan. COMPLIANCE REQUIREMENT: Submit a UST Monitoring Site Plan to CERS.
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Violation Date: 05-05-2015
Citation: Un-Specified
Violation Description: UST Program - Administration/Documentation - For use of Local Ordinance only

IOWA SHELL (Continued) **S109934567**

Violation Notes: Returned to compliance on 03/02/2016. Failure to submit a signed Designated UST Operator Statement (23 CCR 2715(a)) CERS SUBMITTAL REFLECTED CERTIFICATE OF FINANCIAL RESPONSIBILITY (CFR) AND DESIGNATED OPERATOR'S CERTIFICATION IS EXPIRED ON DO STATMENT. COMPLIANCE REQUIREMENT: UPDATE CERS DOCUMENTS TO REFLECT CURRENT CFR AND DO STATEMENT. SUBMIT A SIGNED CERTIFICATE OF COMPLIANCE WITH REQUIRED DOCUMENTATION WITHIN 30 DAYS. CERS UPDATED PS 3/2/16
Violation Division: San Bernardino County Fire Department
Violation Program: UST
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: IOWA SHELL (LUCKY OIL COMPANY)- UST MONITORING CERTIFICATION
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-29-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: WASTE INCIDENTAL TO UST ONLY INSPECTION
Eval Division: San Bernardino County Fire Department
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-06-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: INSPECTION - UST
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Haz Waste Inspection. Violations issued
Eval Division: San Bernardino County Fire Department
Eval Program: HW
Eval Source: CERS

IOWA SHELL (Continued) **S109934567**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-03-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Routine inspection with monitoring certification
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: ANNUAL MONITORING CERTIFICATION
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HAZARDOUS MATERIALS HANDLER UST ONLY INSPECTION
Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-05-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: IOWA SHELL(LUCKY OIL COMPANY)- UST INSPECTION
Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Haz Mat inventory reflected in CERS
Eval Division: San Bernardino County Fire Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: UST Annual Inspection VPH site
Eval Division: San Bernardino County Fire Department
Eval Program: UST
Eval Source: CERS

Enforcement Action:
Site ID: 395218
Site Name: IOWA SHELL

IOWA SHELL (Continued) **S109934567**

Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-05-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HMRRP
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-05-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HW
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-05-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-05-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HMRRP
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-05-2016
Enf Action Type: Notice of Violation (Unified Program)

IOWA SHELL (Continued) **S109934567**

Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-06-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-08-2017
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: HW
Enf Action Source: CERS

Site ID: 395218
Site Name: IOWA SHELL
Site Address: 2718 IOWA AVE
Site City: COLTON
Site Zip: 92324
Enf Action Date: 05-08-2017
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: San Bernardino County Fire Department
Enf Action Program: UST
Enf Action Source: CERS

Affiliation:
Affiliation Type Desc: Document Preparer
Entity Name: Patti Toro
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Facility Mailing Address

IOWA SHELL (Continued) **S109934567**

Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2718 IOWA AVE
Affiliation City:	COLTON
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92324
Affiliation Phone:	Not reported
Affiliation Type Desc:	Identification Signer
Entity Name:	AHMED RADWAN
Entity Title:	PRESIDENT
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	UST Tank Operator
Entity Name:	Lucky Oil Company, Inc. DBA Iowa Shell
Entity Title:	Not reported
Affiliation Address:	2718 Iowa Avenue
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(951) 781-0517
Affiliation Type Desc:	UST Tank Owner
Entity Name:	Royal Ridge Investments, Inc.
Entity Title:	Not reported
Affiliation Address:	2718 Iowa Avenue
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(951) 781-0517
Affiliation Type Desc:	Legal Owner
Entity Name:	LUCKY OIL CO.
Entity Title:	Not reported
Affiliation Address:	2718 IOWA AVE
Affiliation City:	COLTON
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(951) 781-0517
Affiliation Type Desc:	UST Permit Applicant
Entity Name:	Ahmed Radwan
Entity Title:	President
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

IOWA SHELL (Continued) **S109934567**

Affiliation Phone:	(951) 781-6211
Affiliation Type Desc:	CUPA District
Entity Name:	San Bernardino County Fire
Entity Title:	Not reported
Affiliation Address:	620 South E Street
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92415-0153
Affiliation Phone:	(909) 386-8401
Affiliation Type Desc:	Environmental Contact
Entity Name:	AHMED RADWAN
Entity Title:	Not reported
Affiliation Address:	2718 IOWA AVE.
Affiliation City:	COLTON
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92324
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	AHMED RADWAN
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 781-0517
Affiliation Type Desc:	Parent Corporation
Entity Name:	IOWA SHELL
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	UST Property Owner Name
Entity Name:	Royal Ridge Investments, Inc.
Entity Title:	Not reported
Affiliation Address:	2718 Iowa Avenue
Affiliation City:	Colton
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92324
Affiliation Phone:	(951) 781-0517

I48 **IOWA SHELL** **UST** **U004263809**
WNW **2718 IOWA AVE** **N/A**
1/8-1/4 **COLTON, CA 92324**
0.185 mi.
979 ft. **Site 2 of 4 in cluster I**

Relative: UST:
Lower

Actual: Name: IOWA SHELL
912 ft. Address: 2718 IOWA AVE
City,State,Zip: COLTON, CA 92324
Facility ID: FA0004012
Permitting Agency: San Bernardino County Fire Department
Latitude: 34.019718
Longitude: -117.338707

I49 **LUCKY OIL CO INC DBA IOWA SHELL** **RCRA NonGen / NLR** **1024816220**
WNW **2718 IOWA** **CAL000316888**
1/8-1/4 **COLTON, CA 92324**
0.185 mi.
979 ft. **Site 3 of 4 in cluster I**

Relative: RCRA Listings:
Lower

Actual: Date Form Received by Agency: 2007-02-26 00:00:00.0
912 ft. Handler Name: LUCKY OIL CO INC DBA IOWA SHELL
Handler Address: 2718 IOWA
Handler City,State,Zip: COLTON, CA 92324
EPA ID: CAL000316888
Contact Name: AHMED RADWAN
Contact Address: 5989 BEACH BLVD
Contact City,State,Zip: BUENA PARK, CA 90621
Contact Telephone: 714-742-7333
Contact Fax: 951-369-1272
Contact Email: LUCKYOILCO@VERIZON.NET
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Handler Activities
State District Owner: Not reported
State District: Not reported
Mailing Address: 5989 BEACH BLVD
Mailing City,State,Zip: BUENA PARK, CA 90621-0000
Owner Name: MOBILE LUCKY OIL CO INC
Owner Type: Other
Operator Name: AHMED RADWAN
Operator Type: Other
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility Activity: No
Recycler Activity with Storage: No
Small Quantity On-Site Burner Exemption: No
Smelting Melting and Refining Furnace Exemption: No
Underground Injection Control: No
Off-Site Waste Receipt: No
Universal Waste Indicator: Yes

LUCKY OIL CO INC DBA IOWA SHELL (Continued) **1024816220**

Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 20:28:59.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	MOBILE LUCKY OIL CO INC
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2718 IOWA AVE
Owner/Operator City,State,Zip:	COLTON, CA 92324-0000
Owner/Operator Telephone:	951-781-0517
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported

LUCKY OIL CO INC DBA IOWA SHELL (Continued) **1024816220**

Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name:	AHMED RADWAN
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	5989 BEACH BLVD
Owner/Operator City,State,Zip:	BUENA PARK, CA 90621
Owner/Operator Telephone:	714-742-7333
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2007-02-26 00:00:00.0
Handler Name:	LUCKY OIL CO INC DBA IOWA SHELL
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

I50 **SHELL STATION** **LUST** **S105774161**
WNW **2718 IOWA AVENUE** **Cortese** **N/A**
1/8-1/4 **COLTON, CA 92324** **CERS**
0.185 mi.
979 ft. **Site 4 of 4 in cluster I**

Relative: LUST REG 8:
Lower

Actual: Name:	SHELL STATION
912 ft. Address:	2718 IOWA AVENUE
City:	COLTON
Region:	8
County:	San Bernardino
Regional Board:	Santa Ana Region
Facility Status:	Pollution Characterization
Case Number:	Not reported
Local Case Num:	2003003
Case Type:	Aquifer affected
Substance:	DIPE, 800661
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	Not reported
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Subsurface Monitoring
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	UNK

SHELL STATION (Continued) **S105774161**

Global ID:	T0607165402
How Stopped Date:	Not reported
Enter Date:	Not reported
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	12/12/2002
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	2/26/2003
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	Not reported
GW Qualifies:	=
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	0
Longitude:	0
MTBE Date:	12/31/2002
Max MTBE GW:	47
MTBE Concentration:	0
Max MTBE Soil:	18000
MTBE Fuel:	0
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	CAB
Staff Initials:	CR2
Lead Agency:	Local Agency
Local Agency:	36000L
Hydr Basin #:	Not reported
Beneficial:	MUN
Priority:	A2
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

CORTESE:

Name:	SHELL STATION
Address:	2718 IOWA AVENUE
City,State,Zip:	COLTON, CA 92324
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0607165402
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active

SHELL STATION (Continued) **S105774161**

Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	SHELL STATION
Address:	2718 IOWA AVENUE
City,State,Zip:	COLTON, CA 92324
Site ID:	245326
CERS ID:	T0607165402
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	CATHERINE RICHARDS - SAN BERNARDINO COUNTY
Entity Title:	Not reported
Affiliation Address:	620 SOUTH E STREET
Affiliation City:	SAN BERNARDINO
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9093868419

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	CARL BERNHARDT - SANTA ANA RWQCB (REGION 8)
Entity Title:	Not reported
Affiliation Address:	3737 MAIN STREET, SUITE 500
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9517824495

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51 **MEDITERRANEAN INC** **SWEEPS UST** **U001576592**
NW **12717 IOWA** **HIST UST** **N/A**
1/8-1/4 **COLTON, CA 92509**
0.200 mi.
1057 ft.

Relative:
Lower

Actual:
910 ft.

SWEEPS UST:

Name:	LUCKY OIL CO INC
Address:	12717 IOWA
City:	COLTON
Status:	Active
Comp Number:	21900
Number:	9
Board Of Equalization:	44-020755
Referral Date:	07-28-92
Action Date:	07-28-92
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	36-000-021900-000001

MEDITERRANEAN INC (Continued) **U001576592**

Tank Status: A
Capacity: 550
Active Date: 07-01-85
Tank Use: OIL
STG: W
Content: WASTE OIL
Number Of Tanks: 4

Name: LUCKY OIL CO INC
Address: 12717 IOWA
City: COLTON
Status: Active
Comp Number: 21900
Number: 9
Board Of Equalization: 44-020755
Referral Date: 07-28-92
Action Date: 07-28-92
Created Date: 02-29-88
Owner Tank Id: 2
SWRCB Tank Id: 36-000-021900-000002
Tank Status: A
Capacity: Not reported
Active Date: 07-01-85
Tank Use: UNKNOWN
STG: P
Content: Not reported
Number Of Tanks: Not reported

Name: LUCKY OIL CO INC
Address: 12717 IOWA
City: COLTON
Status: Active
Comp Number: 21900
Number: 9
Board Of Equalization: 44-020755
Referral Date: 07-28-92
Action Date: 07-28-92
Created Date: 02-29-88
Owner Tank Id: 3
SWRCB Tank Id: 36-000-021900-000003
Tank Status: A
Capacity: Not reported
Active Date: 07-01-85
Tank Use: UNKNOWN
STG: P
Content: Not reported
Number Of Tanks: Not reported

Name: LUCKY OIL CO INC
Address: 12717 IOWA
City: COLTON
Status: Active
Comp Number: 21900
Number: 9
Board Of Equalization: 44-020755
Referral Date: 07-28-92
Action Date: 07-28-92

MEDITERRANEAN INC (Continued) **U001576592**

Created Date:	02-29-88
Owner Tank Id:	4
SWRCB Tank Id:	36-000-021900-000004
Tank Status:	A
Capacity:	Not reported
Active Date:	07-01-85
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	Not reported

HIST UST:

Name:	MEDITERRANEAN INC
Address:	12717 IOWA
City,State,Zip:	COLTON, CA 92509
File Number:	0002A64A
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002A64A.pdf
Region:	STATE
Facility ID:	00000021900
Facility Type:	Gas Station
Other Type:	Not reported
Contact Name:	MEDITERRANEAN, INC.
Telephone:	7148247233
Owner Name:	SHELL OIL COMPANY
Owner Address:	P.O. BOX 4848
Owner City,St,Zip:	ANAHEIM, CA 92803
Total Tanks:	0004
Tank Num:	001
Container Num:	1
Year Installed:	1980
Tank Capacity:	00000550
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Container Construction Thickness:	12
Leak Detection:	Stock Inventor, Groundwater Monitoring Well, 10
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported
Tank Num:	003
Container Num:	3
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported
Tank Num:	004
Container Num:	4

MEDITERRANEAN INC (Continued) **U001576592**

Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported

Click here for Geo Tracker PDF:

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52 **INLAND TIMBER CO** **UST** **U003785289**
ESE **21850 MAIN ST** **San Bern. Co. Permit** **N/A**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.202 mi.
1065 ft.

Relative:
Higher

Actual:
975 ft.

UST:

Name:	INLAND TIMBER CO
Address:	21850 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92313
Facility ID:	92026908
Permitting Agency:	SAN BERNARDINO COUNTY
Latitude:	34.02010903
Longitude:	-117.327405

San Bern. Co. Permit:

Name:	INLAND TIMBER CO
Address:	21850 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92324
Region:	SAN BERNARDINO
Facility ID:	FA0003978
Owner:	STOCK BUILDING SUPPLY OF CAL,
Permit Number:	PT0005970
Permit Category:	HAZMAT HANDLER 11-25 EMPLOYEES
Facility Status:	INACTIVE
Expiration Date:	07/31/2009

Name:	INLAND TIMBER CO
Address:	21850 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92324
Region:	SAN BERNARDINO
Facility ID:	FA0003978
Owner:	STOCK BUILDING SUPPLY OF CAL,
Permit Number:	PT0010190
Permit Category:	REGULAR UST ANNUAL INSPECTION (PER TANK)
Facility Status:	INACTIVE
Expiration Date:	07/31/2009

Name:	INLAND TIMBER CO
Address:	21850 MAIN ST
City,State,Zip:	GRAND TERRACE, CA 92324
Region:	SAN BERNARDINO
Facility ID:	FA0003978
Owner:	STOCK BUILDING SUPPLY OF CAL,
Permit Number:	PT0005964
Permit Category:	SPECIAL GENERATOR
Facility Status:	INACTIVE
Expiration Date:	07/31/2009

INLAND TIMBER CO (Continued) **U003785289**

Name: INLAND TIMBER CO
Address: 21850 MAIN ST
City,State,Zip: GRAND TERRACE, CA 92324
Region: SAN BERNARDINO
Facility ID: FA0003978
Owner: STOCK BUILDING SUPPLY OF CAL,
Permit Number: PT0005968
Permit Category: HAZMAT HANDLER, UST ONLY - PER YEAR
Facility Status: INACTIVE
Expiration Date: 07/31/2004

---

53 **DIRECT TOWING, INC** **AST** **S103642377**
ENE **21849 PICO ST** **San Bern. Co. Permit** **N/A**
1/8-1/4 **GRAND TERRACE, CA 92313**
0.212 mi.
1119 ft.

Relative:
Higher

Actual:
970 ft.

AST:

Name:	DIRECT TOWING, INC
Address:	21849 PICO ST
City/Zip:	GRAND TERRACE,
Certified Unified Program Agencies:	San Bernardino
Owner:	DIRECT TOWING, INC
Total Gallons:	1,610
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported
Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported
Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	Not reported

San Bern. Co. Permit:

Name: DIRECT TOWING, INC
Address: 21849 PICO ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0002747
Owner: Darrin Carlson
Permit Number: PT0000794

DIRECT TOWING, INC (Continued) **S103642377**

Permit Category: SPECIAL GENERATOR
Facility Status: INACTIVE
Expiration Date: 12/31/2008

Name: DIRECT TOWING, INC
Address: 21849 PICO ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0002747
Owner: Darrin Carlson
Permit Number: PT0000796
Permit Category: HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status: INACTIVE
Expiration Date: 12/31/2008

Name: DIRECT TOWING, INC
Address: 21849 PICO ST
City,State,Zip: GRAND TERRACE, CA 92313
Region: SAN BERNARDINO
Facility ID: FA0002747
Owner: Darrin Carlson
Permit Number: PT0000795
Permit Category: APSA 1,320-10,000 GAL FAC CAPACITY
Facility Status: INACTIVE
Expiration Date: 12/31/2008

J54 **TOY TECH** **RCRA-SQG** **1004675763**
South **983 CENTER ST** **CERS HAZ WASTE** **CAR000076844**
1/8-1/4 **RIVERSIDE, CA 92507** **FINDS**
0.241 mi. **ECHO**
1275 ft. **Site 1 of 4 in cluster J** **HAZNET**
HWTS

Relative:
Higher

Actual:
954 ft.

RCRA Listings:

Date Form Received by Agency:	2001-05-07 00:00:00.0
Handler Name:	TOY TECH
Handler Address:	983 CENTER ST
Handler City,State,Zip:	RIVERSIDE, CA 92507
EPA ID:	CAR000076844
Contact Name:	MARY LEYON
Contact Address:	983 CENTER ST
Contact City,State,Zip:	RIVERSIDE, CA 92507
Contact Telephone:	909-781-7633
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Private
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	983 CENTER ST
Mailing City,State,Zip:	RIVERSIDE, CA 92507
Owner Name:	JAMES JAURIGUE

TOY TECH (Continued) **1004675763**

Owner Type:	Private
Operator Name:	Not reported
Operator Type:	Not reported
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2002-10-07 16:36:45.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported

TOY TECH (Continued) **1004675763**

Sub-Part P Indicator: Not reported

Hazardous Waste Summary:
Waste Code: D039
Waste Description: TETRACHLOROETHYLENE

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: JAMES JAURIGUE
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 983 CENTER ST
Owner/Operator City,State,Zip: RIVERSIDE, CA 92507
Owner/Operator Telephone: 909-781-7633
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 2001-05-07 00:00:00.0
Handler Name: TOY TECH
Federal Waste Generator Description: Small Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

CERS HAZ WASTE:
Name: TOY TECH
Address: 983 CENTER ST
City,State,Zip: RIVERSIDE, CA 92507
Site ID: 77239
CERS ID: 10319905
CERS Description: Hazardous Waste Generator

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-22-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-09-2015
Violations Found: No

TOY TECH (Continued) **1004675763**

Eval Type: Routine done by local agency
Eval Notes: Haz waste generator inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 77239
Facility Name: Toy Tech
Env Int Type Code: HWG
Program ID: 10319905
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 34.015950
Longitude: -117.332890

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 983 Center St
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92507
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: Toy Tech
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

FINDS:
Registry ID: 110002939508

Click Here:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

TOY TECH (Continued) **1004675763**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004675763
Registry ID:	110002939508
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110002939508
Name:	TOY TECH
Address:	983 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92507

HAZNET:

Name:	TOY TECH
Address:	983 CENTER ST
Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 925070000
Contact:	--
Telephone:	9097817633
Mailing Name:	Not reported
Mailing Address:	983 CENTER ST
Year:	2001
Gepaid:	CAR000076844
TSD EPA ID:	CAT000613927
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H01 - Transfer Station
Tons:	0.6594

Additional Info:

Year:	2001
Gen EPA ID:	CAR000076844
Shipment Date:	20011227
Creation Date:	2/20/2002 0:00:00
Receipt Date:	20011227
Manifest ID:	21327239
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0168
Waste Quantity:	4

TOY TECH (Continued) **1004675763**

Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011207
Creation Date:	2/13/2002 0:00:00
Receipt Date:	20011207
Manifest ID:	21319910
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1932
Waste Quantity:	46
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20011019
Creation Date:	1/16/2002 0:00:00
Receipt Date:	20011019
Manifest ID:	21396089
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.21
Waste Quantity:	50
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010924
Creation Date:	12/17/2001 0:00:00

TOY TECH (Continued) **1004675763**

Receipt Date:	20010924
Manifest ID:	21456513
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0168
Waste Quantity:	4
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20010820
Creation Date:	10/3/2001 0:00:00
Receipt Date:	20010821
Manifest ID:	21110470
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0966
Waste Quantity:	23
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	20010703
Creation Date:	8/24/2001 0:00:00
Receipt Date:	20010705
Manifest ID:	20642605
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927

TOY TECH (Continued) **1004675763**

TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.0168
Waste Quantity:	4
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20010627
Creation Date:	8/24/2001 0:00:00
Receipt Date:	20010628
Manifest ID:	20645994
Trans EPA ID:	SCR000075150
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT000613927
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT000613927
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	D039
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.1092
Waste Quantity:	26
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	TOY TECH
Address:	983 CENTER ST
Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 925070000
EPA ID:	CAR000076844
Inactive Date:	06/30/2001
Create Date:	04/03/2001
Last Act Date:	07/06/2010
Mailing Name:	JAMES JAURIGUE
Mailing Address:	983 CENTER ST
Mailing Address 2:	Not reported
Mailing City,State,Zip:	RIVERSIDE, CA 925070000
Owner Name:	--
Owner Address:	--
Owner Address 2:	Not reported
Owner City,State,Zip:	--, 99 --
Contact Name:	--
Contact Address:	--
Contact Address 2:	Not reported

TOY TECH (Continued) **1004675763**

City,State,Zip: --, 99 --

J55 **CENTER STREET SERVICE** **HIST UST** **U001576492**
South **983 CENTER ST** **N/A**
1/8-1/4 **RIVERSIDE, CA 92507**
0.241 mi.
1275 ft. **Site 2 of 4 in cluster J**

Relative: HIST UST:
Higher

Name:	CENTER STREET SERVICE
Address:	983 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92507
File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000019485
Facility Type:	Gas Station
Other Type:	Not reported
Contact Name:	F. GLEN DEWRY
Telephone:	7146861676
Owner Name:	CAMPBELL OIL COMPANY
Owner Address:	3010 11TH ST
Owner City,St,Zip:	RIVERSIDE, CA 92507
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	1951
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000285
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

Actual:
954 ft.

J56 **HIGHGROVE MAINTENANCE YARD** **HIST UST** **U001576512**
South **1041 CENTER STREET** **N/A**
1/8-1/4 **HIGHGROVE, CA 92507**
0.248 mi.
1309 ft. **Site 3 of 4 in cluster J**

Relative: HIST UST:
Higher

Name:	HIGHGROVE MAINTENANCE YARD
Address:	1041 CENTER STREET
City,State,Zip:	HIGHGROVE, CA 92507
File Number:	0001F595
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F595.pdf
Region:	STATE

Actual:
953 ft.

HIGHGROVE MAINTENANCE YARD (Continued) **U001576512**

Facility ID:	00000065526
Facility Type:	Other
Other Type:	VEHICLE MAINTENANCE
Contact Name:	DELBERT OTEY
Telephone:	7147872182
Owner Name:	COUNTY OF RIVERSIDE ROAD DEPAR
Owner Address:	4080 LEMON STREET
Owner City,St,Zip:	RIVERSIDE, CA 92501
Total Tanks:	0003
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

K57 **LVW BROWN ESTATES, INC.** **LUST** **S100948120**
SSE **859 CENTER ST** **HIST CORTESE** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507**
0.255 mi.
1349 ft. **Site 1 of 3 in cluster K**

Relative:
Higher

Actual:
968 ft.

LUST:

Name:	LVW BROWN ESTATES, INC.
Address:	859 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92507
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500345
Global Id:	T0606500345
Latitude:	34.016634664
Longitude:	-117.32988064
Status:	Completed - Case Closed
Status Date:	08/30/1993
Case Worker:	SCB

LVW BROWN ESTATES, INC. (Continued) **S100948120**

RB Case Number: 083302350T
Local Agency: RIVERSIDE COUNTY LOP
File Location: Local Agency Warehouse
Local Case Number: 93557
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0606500345
Contact Type: Regional Board Caseworker
Contact Name: ROSE SCOTT
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 MAIN STREET, SUITE 500
City: RIVERSIDE
Email: rose.scott@waterboards.ca.gov
Phone Number: 9513206375

Global Id: T0606500345
Contact Type: Local Agency Caseworker
Contact Name: SHARON BOLTINGHOUSE
Organization Name: RIVERSIDE COUNTY LOP
Address: 3880 LEMON ST SUITE 200
City: RIVERSIDE
Email: sbolting@rivco.org
Phone Number: 9519558980

LUST:
Global Id: T0606500345
Action Type: Other
Date: 05/26/1993
Action: Leak Discovery

Global Id: T0606500345
Action Type: ENFORCEMENT
Date: 08/30/1993
Action: Closure/No Further Action Letter - #RCDEH0830

Global Id: T0606500345
Action Type: Other
Date: 05/26/1993
Action: Leak Stopped

Global Id: T0606500345
Action Type: REMEDIATION
Date: 06/15/1993
Action: Excavation

Global Id: T0606500345
Action Type: Other
Date: 06/22/1993
Action: Leak Reported

Global Id: T0606500345
Action Type: ENFORCEMENT
Date: 08/29/1993
Action: File review - #RCDEH Upload Site File 6/10/2015

LVW BROWN ESTATES, INC. (Continued) **S100948120**

LUST:
Global Id: T0606500345
Status: Open - Case Begin Date
Status Date: 05/26/1993

Global Id: T0606500345
Status: Open - Site Assessment
Status Date: 06/15/1993

Global Id: T0606500345
Status: Open - Remediation
Status Date: 06/30/1993

Global Id: T0606500345
Status: Completed - Case Closed
Status Date: 08/30/1993

HIST CORTESE:
edr_fname: LVW BROWN ESTATES INC
edr_fadd1: 859 CENTER
City,State,Zip: HIGHGROVE, CA 92507
Region: CORTESE
Facility County Code: 33
Reg By: LTNKA
Reg Id: 083302350T

K58 **L V W BROWN ESTATE INC** **LUST** **U001576518**
SSE **859 CENTER STREET** **CERS HAZ WASTE** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507** **HIST UST**
0.255 mi. **CERS**
1349 ft. **Site 2 of 3 in cluster K** **HWTS**

Relative: Higher
Actual: 968 ft.

RIVERSIDE CO. LUST:
Name: LVW BROWN ESTATES, INC
Address: 859 CENTER ST
City,State,Zip: RIVERSIDE, CA
Region: RIVERSIDE
Facility ID: 93557
Employee: Boltinghous-LOP
Site Closed: Yes
Case Type: Soil only
Facility Status: closed/action completed
Casetype Decode: Soil only is impacted
Fstatus Decode: Closed/Action completed

CERS HAZ WASTE:
Name: VILLA PARK ORCHARDS
Address: 859 CENTER ST
City,State,Zip: RIVERSIDE, CA 92507
Site ID: 101835
CERS ID: 10316101
CERS Description: Hazardous Waste Generator

HIST UST:
Name: L V W BROWN ESTATE INC

L V W BROWN ESTATE INC (Continued) **U001576518**

Address:	859 CENTER STREET
City,State,Zip:	RIVERSIDE, CA 92507
File Number:	0001F7A1
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F7A1.pdf
Region:	STATE
Facility ID:	00000018926
Facility Type:	Other
Other Type:	CITRUS PACKING HOUSE
Contact Name:	C.H. COWEN
Telephone:	7148249393
Owner Name:	L.V.W. BROWN ESTATE, INC.
Owner Address:	22365 BARTON ROAD, SUITE 100
Owner City,St,Zip:	GRAND TERRACE, CA 92324
Total Tanks:	0005
Tank Num:	001
Container Num:	1
Year Installed:	1960
Tank Capacity:	00000750
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	1
Year Installed:	1982
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	3/16
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	004
Container Num:	3
Year Installed:	1982
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	3/16
Leak Detection:	Stock Inventor
Tank Num:	005
Container Num:	4
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR

L V W BROWN ESTATE INC (Continued) **U001576518**

Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

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CERS:
Name: VILLA PARK ORCHARDS
Address: 859 CENTER ST
City,State,Zip: RIVERSIDE, CA 92507
Site ID: 101835
CERS ID: 10316101
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 101835
Site Name: Villa Park Orchards
Violation Date: 08-21-2018
Citation: Un-Specified
Violation Description: Hazardous Waste Generator Program - Administration/Documentation - General Local Ordinance
Violation Notes: Returned to compliance on 12/18/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 101835
Site Name: Villa Park Orchards
Violation Date: 05-10-2017
Citation: 22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description: Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes: Returned to compliance on 05/23/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 101835
Site Name: Villa Park Orchards
Violation Date: 08-21-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Not reported
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 101835
Site Name: Villa Park Orchards
Violation Date: 05-10-2017
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a

L V W BROWN ESTATE INC (Continued) **U001576518**

	hazardous material.
Violation Notes:	Returned to compliance on 05/23/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	05-10-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 05/23/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	Un-Specified
Violation Description:	Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	12-18-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes:	Emergency Response procedures on file but needs to be submitted on to CERS acct. Template provided.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

L V W BROWN ESTATE INC (Continued) **U001576518**

Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	12-18-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Site map requires more detail and information to be officially complete. Example provided.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	11-27-2018
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes:	Not reported
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	07-05-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 07/14/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	Un-Specified
Violation Description:	Business Plan Program - Administration/Documentation - General Local

L V W BROWN ESTATE INC (Continued) **U001576518**

	Ordinance
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	05-10-2017
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 05/23/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description:	Failure to adequately establish and implement a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	101835
Site Name:	Villa Park Orchards
Violation Date:	08-21-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 12/18/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

L V W BROWN ESTATE INC (Continued) **U001576518**

Site ID: 101835
Site Name: Villa Park Orchards
Violation Date: 08-21-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit the Business Activities Page and/or Business Owner Operator Identification Page.
Violation Notes: Returned to compliance on 12/18/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 12-18-2018
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Hazardous Materials Disclosure Follow up
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-21-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HM disclosure inspection (Villa Park Orchards)
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-21-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HW Generator inspection (Villa Park Orchards)
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-04-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: HM disclosure follow up
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-10-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HM disclosure inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

L V W BROWN ESTATE INC (Continued) **U001576518**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-10-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HW generator inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 07-05-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-04-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: HW generator follow upo
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 05-12-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Conclude inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 05-23-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: HM disclosure follow up
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 05-23-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: HW generator follow up
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 11-27-2018
Violations Found: Yes

L V W BROWN ESTATE INC (Continued) **U001576518**

Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	12-18-2018
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Hazardous Waste Generator follow up
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Coordinates:

Site ID:	101835
Facility Name:	Villa Park Orchards
Env Int Type Code:	HWG
Program ID:	10316101
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	34.016400
Longitude:	-117.330460

Affiliation:

Affiliation Type Desc:	Identification Signer
Entity Name:	Karina Orozco
Entity Title:	Food Safety Coordinator
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	VILLA PARK ORCHARDS ASSOCIATION
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(805) 524-0411
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

L V W BROWN ESTATE INC (Continued) **U001576518**

Affiliation Type Desc:	Environmental Contact
Entity Name:	Cathy Iijima
Entity Title:	Not reported
Affiliation Address:	6100 Quail Valley Ct
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92507
Affiliation Phone:	Not reported

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	859 Center St
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92507
Affiliation Phone:	Not reported

Affiliation Type Desc:	Parent Corporation
Entity Name:	VILLA PARK ORCHARDS ASSOCIATION
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Document Preparer
Entity Name:	Karina Orozco
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Legal Owner
Entity Name:	Brad Leichtfuss
Entity Title:	Not reported
Affiliation Address:	Po Box
Affiliation City:	Fillmore
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	93016
Affiliation Phone:	(805) 524-0411

HWTS:

Name:	VILLA PARK ORCHARDS
Address:	859 CENTER ST
Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 92507
EPA ID:	CAL000441180

L V W BROWN ESTATE INC (Continued) **U001576518**

Inactive Date:	Not reported
Create Date:	11/27/2018
Last Act Date:	09/05/2019
Mailing Name:	Not reported
Mailing Address:	859 CENTER ST
Mailing Address 2:	Not reported
Mailing City,State,Zip:	RIVERSIDE, CA 92507
Owner Name:	BRAD LEICHTFUSS
Owner Address:	960 3RD ST
Owner Address 2:	Not reported
Owner City,State,Zip:	FILLMORE, CA 93016
Contact Name:	ROY BETTENCOURT
Contact Address:	859 CENTER ST
Contact Address 2:	Not reported
City,State,Zip:	RIVERSIDE, CA 92507

NAICS:

EPA ID:	CAL000441180
Create Date:	2018-11-27 15:55:17
NAICS Code:	311119
NAICS Description:	Other Animal Food Manufacturing
Issued EPA ID Date:	2018-11-27 15:55:17
Inactive Date:	Not reported
Facility Name:	VILLA PARK ORCHARDS
Facility Address:	859 CENTER ST
Facility Address 2:	Not reported
Facility City:	RIVERSIDE
Facility County:	33
Facility State:	CA
Facility Zip:	92507

K59 **CALIFORNIA CITRUS** **LUST S102432815**
SSE **859 CENTER STREET** **LDS N/A**
1/4-1/2 **HIGHGROVE, CA 92507** **Cortese**
0.255 mi. **CERS**
1349 ft. **Site 3 of 3 in cluster K**

Relative: Higher
Actual: 968 ft.

LUST REG 8:

Name:	LVW BROWN ESTATES, INC.
Address:	859 CENTER ST
City:	RIVERSIDE
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083302350T
Local Case Num:	Not reported
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	MT. VERNON
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	UNK

CALIFORNIA CITRUS (Continued) **S102432815**

Leak Source:	UNK
Global ID:	T0606500345
How Stopped Date:	5/26/1993
Enter Date:	12/22/1993
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	5/26/1993
Enforcement Date:	Not reported
Close Date:	8/30/1993
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	12/22/1993
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.0155577
Longitude:	-117.3301481
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
MTBE Class:	*
Staff:	RS
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

LDS:

Name:	CALIFORNIA CITRUS
Address:	859 CENTER STREET
City,State,Zip:	HIGHGROVE, CA 92507
Global Id:	T10000007109
Latitude:	34.01853
Longitude:	-117.3307
Case Type:	Land Disposal Site
Status:	Open - Site Assessment
Status Date:	07/07/2015
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Caseworker:	KDP
Local Agency:	Not reported
RB Case Number:	Not reported
LOC Case Number:	Not reported

CALIFORNIA CITRUS (Continued) **S102432815**

File Location: Not reported
Potential Media Affect: Not reported
EDR Link ID: T10000007109
Potential Contaminants of Concern: Not reported
Site History: Site Summary: California Citrus Packing Plant (T10000007109) HISTORICAL BACKGROUND California Citrus is an active orange packing and shipment plant located at 859 Center Street, Riverside, CA 92507, Riverside County. It is charged with violation of the California Water Code Section 13260(a) due to wastewater discharge to unlined ponds to the north of the facility. Waste types include wastewaters with high levels of total dissolved soils (TDS), electrical conductivity (EC), and pH due to the orange packing process. The Regional Board issued a notice of violation (NOV) on July 13, 2015. The packing process was as follows: after being stripped of leaves, dirt, and other debris, oranges are bathed with a liquid saturated with sodium bicarbonate and then sprayed with wax protective coating. All wastewater from the plant, including the concentrated sodium bicarbonate water is discharged to several interconnected wastewater ponds at the very north of the packing plant. SITE GEOLOGY/HYDROGEOLOGY The unlined wastewater ponds are located in Riverside F Groundwater Management Zone (GMZ), which has beneficial uses including municipal water supply. CURRENT LAND USE Active citrus packing and shipment plant CURRENT LANDOWNER Allen Washburn of Washburn & Sons Citrus Management; President, California Citrus Cooperative, Member of Sunkist Growers ENVIRONMENTAL IMPACTS, ACTION TAKEN BY WATERBOARD OR OTHER AGENCIES Environmental impacts of California Citrus include high concentrations of TDS at 19,100 mg/l; a pH value of 9.54; and EC of 28,900 mhos/cm. This is in violation of water quality objectives limiting TDS to 660 mg/l and pH to a range of 6 to 9. Additionally, the Packing Plant is in violation of the EC limit of 2,000 mhos/cm as established in the Basin Plan. TIMELINE " June 1, 2015: Regional Board conducts site inspection to investigate wastewater disposal practices at the facility, including surface impoundments. One water sample is taken from a discharge pipe leading into the wastewater ponds " June 23, 2015: American Environmental Testing Laboratory Inc. delivers water sample analyses. Sample was tested for pesticides, minerals, cyanide, and dissolved oxygen " July 13, 2015: Regional Board issues a notice of violation (NOV) to California Citrus " September 14, 2015: California Citrus requests a 180-day time period to compile a technical and feasibility report to achieve a zero discharge by re-using treated water for industrial, dust control, and landscape needs " September 21, 2015: Regional Board directs California Citrus to cease discharge of washwater from packing operations into onsite disposal ponds " September 29, 2015: California Citrus ceases all discharge to the ponds and begins hauling washwater by a certified discharge for disposal. " November 12, 2015: Regional Board meeting with consultant The Water Quality Company (division of Environmental Logistics, Inc.) to discuss a corrective action plan, interim measures, and closure of the facility ponds " June 27, 2016: Regional Board conducts another site investigation of the now-abandoned wastewater ponds. Six soil samples are taken " July 20, 2016: American Environmental Testing Laboratories (AETL) results from the June 27 sampling come in. Results all show values of EC above Basin Plan limits " August 17, 2016: meeting between Regional Board and California Citrus. Citrus agrees to scrape off the first six inches of contaminated soils from the two southern ponds and dry the soils onsite before hauling them

CALIFORNIA CITRUS (Continued) **S102432815**

to a local landfill " August 22, 2016: after scraping the ponds, Citrus takes three soil samples for EC testing by Babcock Laboratories. " August 27, 2016: Babcock Lab test results come in all under the Basin Plan limits " September 8, 2016: Regional Board conducts confirmation sampling in response to the August 27 results. Thirty-two soil samples are taken for testing by AETL. " September 26, 2016: soil sample results state that the soil in the ponds still exceeds the EC limit " October 6, 2016: due to disparity in results from AETL and Babcock, Citrus collects 12 more soil samples at varying depths and sends them to AETL. " October 18, 2016: AETL results arrive, showing that EC levels are still above limits " November 8, 2016: meeting between Regional Board and Cal Citrus. The Regional Board decides to use EC as an indicator of pollution, not TDS. Citrus agrees to excavate another 2.5 3 feet and requests that the Regional Board take fresh soil samples immediately after hauling " November 18, 2018: Regional Board takes 15 onsite EC samples from the SE pond. Areas with EC levels above the limit are excavated again. Four confirmation samples are sent to Babcock Labs. The results arrive on November 30; all 4 samples test lower than the EC limit " December 1, 2016: Citrus collects 12 confirmation samples from NE, NW, and SW ponds and sends them to Babcock for testing " December 2, 2016: the Regional Board conducts further onsite EC testing on the remaining three ponds. Areas with EC levels above the limit are excavated again. " December 12, 2016: test results from Dec. 1 sampling show all 12 samples are under the EC limit " December 19, 2016: Regional Board meeting decides that the ponds are sufficiently clean and will issue a no futher action (NFA) for this case. The Board suggests that Citrus clean fill the ponds

Click here to access the California GeoTracker records for this facility:

CORTESE:

Name:	LVW BROWN ESTATES, INC.
Address:	859 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92507
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606500345
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CALIFORNIA CITRUS (Continued) **S102432815**

CERS:
Name: LVW BROWN ESTATES, INC.
Address: 859 CENTER ST
City,State,Zip: RIVERSIDE, CA 92507
Site ID: 240184
CERS ID: T0606500345
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: SHARON BOLTINGHOUSE - RIVERSIDE COUNTY LOP
Entity Title: Not reported
Affiliation Address: 3880 LEMON ST SUITE 200
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9519558980

Affiliation Type Desc: Regional Board Caseworker
Entity Name: ROSE SCOTT - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 MAIN STREET, SUITE 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9513206375

Name: CALIFORNIA CITRUS
Address: 859 CENTER STREET
City,State,Zip: HIGHGROVE, CA 92507
Site ID: 354628
CERS ID: T10000007109
CERS Description: Land Disposal Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: KEITH PERSON - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 MAIN STREET, SUITE 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

J60 **LYNN PARCEL (FORMER CITRUS GROVE)** **LUST** **S106387409**
South **503 EAST PALMYRITA AVENUE** **Cortese** **N/A**
1/4-1/2 **HIGHGROVE, CA** **CERS**
0.259 mi.
1367 ft. **Site 4 of 4 in cluster J**

Relative:
Higher

Actual:
958 ft.

LUST:

Name:	LYNN PARCEL (FORMER CITRUS GROVE)
Address:	503 EAST PALMYRITA AVENUE
City,State,Zip:	HIGHGROVE, CA
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606591642
Global Id:	T0606591642
Latitude:	34.015701
Longitude:	-117.332237
Status:	Completed - Case Closed
Status Date:	07/09/2002
Case Worker:	Not reported
RB Case Number:	083303917T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Regional Board
Local Case Number:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606591642
Contact Type:	Local Agency Caseworker
Contact Name:	SHARON BOLTINGHOUSE
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	sbolting@rivco.org
Phone Number:	9519558980

LUST:

Global Id:	T0606591642
Action Type:	Other
Date:	05/09/2000
Action:	Leak Began
Global Id:	T0606591642
Action Type:	Other
Date:	05/09/2000
Action:	Leak Discovery
Global Id:	T0606591642
Action Type:	Other
Date:	05/09/2000
Action:	Leak Stopped
Global Id:	T0606591642
Action Type:	REMEDIATION
Date:	06/18/2001
Action:	Other (Use Description Field)
Global Id:	T0606591642

LYNN PARCEL (FORMER CITRUS GROVE) (Continued) **S106387409**

Action Type: REMEDIATION
Date: 05/05/2000
Action: Excavation

Global Id: T0606591642
Action Type: Other
Date: 03/22/2001
Action: Leak Reported

Global Id: T0606591642
Action Type: ENFORCEMENT
Date: 07/09/2002
Action: Closure/No Further Action Letter

LUST:
Global Id: T0606591642
Status: Open - Case Begin Date
Status Date: 05/09/2000

Global Id: T0606591642
Status: Open - Site Assessment
Status Date: 07/05/2000

Global Id: T0606591642
Status: Open - Site Assessment
Status Date: 10/19/2000

Global Id: T0606591642
Status: Open - Site Assessment
Status Date: 01/15/2001

Global Id: T0606591642
Status: Open - Remediation
Status Date: 06/22/2001

Global Id: T0606591642
Status: Open - Verification Monitoring
Status Date: 04/16/2002

Global Id: T0606591642
Status: Completed - Case Closed
Status Date: 07/09/2002

LUST REG 8:
Name: LYNN PARCEL (FORMER CITRUS GROVE)
Address: 503 EAST PALMYRITA AVENUE
City: HIGHGROVE
Region: 8
County: Riverside
Regional Board: Santa Ana Region
Facility Status: Case Closed
Case Number: 083303917T
Local Case Num: Not reported
Case Type: Soil only
Substance: Gasoline

LYNN PARCEL (FORMER CITRUS GROVE) (Continued) **S106387409**

Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	Not reported
Enf Type:	CLOS
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Close Tank
Leak Cause:	UNK
Leak Source:	D
Global ID:	T0606591642
How Stopped Date:	5/9/2000
Enter Date:	6/26/2002
Date Confirmation of Leak Began:	7/5/2000
Date Preliminary Assessment Began:	Not reported
Discover Date:	5/9/2000
Enforcement Date:	Not reported
Close Date:	7/9/2002
Date Prelim Assessment Workplan Submitted:	10/19/2000
Date Pollution Characterization Began:	1/15/2001
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	6/22/2001
Date Post Remedial Action Monitoring:	4/16/2002
Enter Date:	6/26/2002
GW Qualifies:	Not reported
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.015701
Longitude:	-117.332237
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	3
Max MTBE Soil:	710
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	NOM
Staff Initials:	SCB
Lead Agency:	Regional Board
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: SOIL CONFIRMATION SAMPLING UNDERWAY TO DETERMINE THE EFFECTIVENESS OF THE SOIL VAPOR EXTRACTION.

CORTESE:

Name:	LYNN PARCEL (FORMER CITRUS GROVE)
Address:	503 EAST PALMYRITA AVENUE
City,State,Zip:	HIGHGROVE, CA
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606591642

LYNN PARCEL (FORMER CITRUS GROVE) (Continued) **S106387409**

Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	LYNN PARCEL (FORMER CITRUS GROVE)
Address:	503 EAST PALMYRITA AVENUE
City,State,Zip:	HIGHGROVE, CA
Site ID:	230675
CERS ID:	T0606591642
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	SHARON BOLTINGHOUSE - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

61
SSW
1/4-1/2
0.275 mi.
1451 ft.

Relative:
Lower

Actual:
941 ft.

CIRCLE K STORE #311
1091 CENTER ST
HIGHGROVE, CA 92507

LUST **1000174064**
SWEEPS UST **CAD981680465**
HIST UST
CA FID UST
RCRA NonGen / NLR
FINDS
ECHO
Cortese
HIST CORTESE
CERS

LUST:

Name:	CIRCLE K #0311
Address:	1091 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92501
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500315
Global Id:	T0606500315

CIRCLE K STORE #311 (Continued) **1000174064**

Latitude:	34.01593118
Longitude:	-117.33543666
Status:	Completed - Case Closed
Status Date:	05/04/1999
Case Worker:	RIV
RB Case Number:	083302230T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Local Agency Warehouse
Local Case Number:	93056
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606500315
Contact Type:	Regional Board Caseworker
Contact Name:	CARL BERNHARDT
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	carl.bernhardt@waterboards.ca.gov
Phone Number:	9517824495

Global Id:	T0606500315
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606500315
Action Type:	Other
Date:	01/27/1993
Action:	Leak Discovery

Global Id:	T0606500315
Action Type:	Other
Date:	08/21/1992
Action:	Leak Stopped

Global Id:	T0606500315
Action Type:	Other
Date:	01/28/1993
Action:	Leak Reported

Global Id:	T0606500315
Action Type:	ENFORCEMENT
Date:	02/20/2009
Action:	Closure/No Further Action Letter - #Site Closure

Global Id:	T0606500315
Action Type:	ENFORCEMENT
Date:	02/19/2009
Action:	File review - #RCDEH Upload Site File 5/8/2015

CIRCLE K STORE #311 (Continued) **1000174064**

LUST:

Global Id:	T0606500315
Status:	Open - Case Begin Date
Status Date:	08/21/1992
Global Id:	T0606500315
Status:	Open - Site Assessment
Status Date:	01/27/1993
Global Id:	T0606500315
Status:	Open - Site Assessment
Status Date:	03/01/1993
Global Id:	T0606500315
Status:	Open - Site Assessment
Status Date:	04/05/1993
Global Id:	T0606500315
Status:	Open - Site Assessment
Status Date:	06/23/1994
Global Id:	T0606500315
Status:	Open - Remediation
Status Date:	11/30/1994
Global Id:	T0606500315
Status:	Open - Remediation
Status Date:	04/22/1996
Global Id:	T0606500315
Status:	Completed - Case Closed
Status Date:	05/04/1999

LUST REG 8:

Name:	CIRCLE K #0311
Address:	1091 CENTER ST
City:	RIVERSIDE
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083302230T
Local Case Num:	93056
Case Type:	Aquifer affected
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	HIGHLAND
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	UNK
Global ID:	T0606500315

CIRCLE K STORE #311 (Continued) **1000174064**

How Stopped Date:	8/21/1992
Enter Date:	3/20/1993
Date Confirmation of Leak Began:	1/27/1993
Date Preliminary Assessment Began:	4/5/1993
Discover Date:	1/27/1993
Enforcement Date:	Not reported
Close Date:	5/4/1999
Date Prelim Assessment Workplan Submitted:	3/1/1993
Date Pollution Characterization Began:	6/23/1994
Date Remediation Plan Submitted:	11/30/1994
Date Remedial Action Underway:	4/22/1996
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	3/20/1993
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.0155586
Longitude:	-117.3354152
MTBE Date:	5/17/1996
Max MTBE GW:	20
MTBE Concentration:	1
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	Not reported
Staff:	CAB
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

RIVERSIDE CO. LUST:

Name:	CIRCLE K
Address:	1091 CENTER ST
City,State,Zip:	RIVERSIDE, CA
Region:	RIVERSIDE
Facility ID:	93056
Employee:	Boltinghous-LOP
Site Closed:	Yes
Case Type:	Drinking Water Aquifer affected
Facility Status:	closed/action completed
Casetype Decode:	An Aquifer used for Drinking Water supply has been contaminated.
Fstatus Decode:	Closed/Action completed

SWEEPS UST:

Name:	CIRCLE K #311
Address:	1091 CENTER ST
City:	RIVERSIDE

CIRCLE K STORE #311 (Continued) **1000174064**

Status: Active
Comp Number: 13635
Number: 1
Board Of Equalization: 44-017977
Referral Date: 10-28-92
Action Date: 10-28-92
Created Date: 02-29-88
Owner Tank Id: 000036
SWRCB Tank Id: 33-000-013635-000001
Tank Status: A
Capacity: 9940
Active Date: 10-28-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 2

Name: CIRCLE K #311
Address: 1091 CENTER ST
City: RIVERSIDE
Status: Active
Comp Number: 13635
Number: 1
Board Of Equalization: 44-017977
Referral Date: 10-28-92
Action Date: 10-28-92
Created Date: 02-29-88
Owner Tank Id: 000036
SWRCB Tank Id: 33-000-013635-000002
Tank Status: A
Capacity: 9940
Active Date: 10-28-92
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

HIST UST:
Name: CIRCLE K #311
Address: 1091 CENTER STREET
City,State,Zip: HIGHGROVE, CA 92507
File Number: Not reported
URL: Not reported
Region: STATE
Facility ID: 00000013635
Facility Type: Gas Station
Other Type: Not reported
Contact Name: KEN ZIMMERMAN
Telephone: 7146861122
Owner Name: CIRCLE K CORPORATION
Owner Address: 4500 SOUTH 40TH STREET
Owner City,St,Zip: PHOENIX, AZ 85040
Total Tanks: 0002

Tank Num: 001
Container Num: 2
Year Installed: Not reported

CIRCLE K STORE #311 (Continued) **1000174064**

Tank Capacity: 00009940
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: 1
Year Installed: Not reported
Tank Capacity: 00009940
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

CA FID UST:
Facility ID: 33000366
Regulated By: UTNKA
Regulated ID: 00013635
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 7146861122
Mail To: Not reported
Mailing Address: P O BOX 52084
Mailing Address 2: Not reported
Mailing City,St,Zip: RIVERSIDE 92507
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

RCRA Listings:
Date Form Received by Agency: 1993-06-10 00:00:00.0
Handler Name: CIRCLE K STORE #311
Handler Address: 1091 CENTER ST
Handler City,State,Zip: HIGHGROVE, CA 92507
EPA ID: CAD981680465
Contact Name: ENVIRONMENTAL MANAGER
Contact Address: 1091 CENTER ST
Contact City,State,Zip: HIGHGROVE, CA 92507
Contact Telephone: 916-334-2445
Contact Fax: Not reported
Contact Email: Not reported
Contact Title: Not reported
EPA Region: 09
Land Type: Other
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: CA
State District: 4

CIRCLE K STORE #311 (Continued) **1000174064**

Mailing Address:	5811 MANZANITA AVE
Mailing City,State,Zip:	CARMICHAEL, CA 95608
Owner Name:	CIRCLE K CORP
Owner Type:	Private
Operator Name:	NOT REQUIRED
Operator Type:	Private
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2002-06-27 03:30:01.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No

CIRCLE K STORE #311 (Continued) **1000174064**

Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	Not reported

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CIRCLE K CORP
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	NOT REQUIRED
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	1993-06-10 00:00:00.0
Handler Name:	CIRCLE K STORE #311
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

FINDS:

Registry ID: 110002749376

Click Here:

Environmental Interest/Information System:

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA

CIRCLE K STORE #311 (Continued) **1000174064**

program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
STATE MASTER

~~Click this hyperlink~~ while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000174064
Registry ID:	110002749376
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110002749376
Name:	CIRCLE K STORE #311
Address:	1091 CENTER ST
City,State,Zip:	HIGHGROVE, CA 92507

CORTESE:

Name:	CIRCLE K #0311
Address:	1091 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92501
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606500315
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	CIRCLE K #0311
edr_fadd1:	1091
City,State,Zip:	RIVERSIDE, CA 92501
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	083302230T

CERS:

Name:	CIRCLE K #0311
Address:	1091 CENTER ST
City,State,Zip:	RIVERSIDE, CA 92501
Site ID:	199669
CERS ID:	T0606500315

CIRCLE K STORE #311 (Continued) **1000174064**

CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: CARL BERNHARDT - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 MAIN STREET, SUITE 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9517824495

Affiliation Type Desc: Local Agency Caseworker
Entity Name: Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title: Not reported
Affiliation Address: 3880 LEMON ST SUITE 200
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9519558980

L62 **WHITNEY MACHINERY, INC.** **CPS-SLIC** **S101541249**
WSW **20 IOWA AVENUE** **CERS** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507**
0.288 mi.
1522 ft. **Site 1 of 2 in cluster L**

Relative:
Lower

Actual:
921 ft.

SLIC REG 8:
Name: WHITNEY MACHINERY, INC.
Address: 20 IOWA AVENUE
City: RIVERSIDE
Type: Groundwater
Facility Status: Closed
Staff: XXX
Substance: OIL & GREASE
Lead Agency: Regional Board
Location Code: Not reported
Thomas Bros Code: Not reported

CERS:
Name: WHITNEY MACHINERY, INC.
Address: 20 IOWA AVENUE
City,State,Zip: RIVERSIDE, CA 92507
Site ID: 197577
CERS ID: SLT8R2694057
CERS Description: Cleanup Program Site

L63 **WHITNEY MACHINERY, INC.** **CPS-SLIC** **U001576558**
WSW **20 IOWA AVENUE** **HIST UST** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507**
0.288 mi.
1522 ft. **Site 2 of 2 in cluster L**

Relative:
Lower

Actual:
921 ft.

CPS-SLIC:

Name:	WHITNEY MACHINERY, INC.
Address:	20 IOWA AVENUE
City,State,Zip:	RIVERSIDE, CA 92507
Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	10/22/2009
Global Id:	SLT8R2694057
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Lead Agency Case Number:	Not reported
Latitude:	34.018554014
Longitude:	-117.33806133
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	SLT8R269
File Location:	Regional Board
Potential Media Affected:	Not reported
Potential Contaminants of Concern:	Not reported
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

HIST UST:

Name:	WHITNEY MACHNERY INC.
Address:	20 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000064298
Facility Type:	Other
Other Type:	EQUIPMENT DEALER
Contact Name:	Not reported
Telephone:	7146825353
Owner Name:	WHITNEY MACHINERY, INC.
Owner Address:	20 IOWA AVENUE
Owner City,St,Zip:	RIVERSIDE, CA 92507
Total Tanks:	0006
Tank Num:	001
Container Num:	#1
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	002
Container Num:	#2
Year Installed:	Not reported
Tank Capacity:	00001000

WHITNEY MACHINERY, INC. (Continued) **U001576558**

Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	003
Container Num:	#3
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	004
Container Num:	#4
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Container Construction Thickness:	Not reported
Leak Detection:	None
Tank Num:	005
Container Num:	#5
Year Installed:	1974
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	006
Container Num:	#6
Year Installed:	1974
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

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64 **U HAUL OF SAN BERNARDINO** **LUST** **S102439373**
East **800 MAIN ST E** **Cortese** **N/A**
1/4-1/2 **BARSTOW, CA 92311** **HIST CORTESE**
0.370 mi. **CERS**
1954 ft.

Relative: **Higher**
Actual: **996 ft.**

LUST:

Name:	U HAUL OF SAN BERNARDINO
Address:	800 MAIN ST E
City,State,Zip:	BARSTOW, CA 92311
Lead Agency:	SAN BERNARDINO COUNTY
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607100876
Global Id:	T0607100876
Latitude:	34.898113
Longitude:	-117.016789
Status:	Completed - Case Closed

U HAUL OF SAN BERNARDINO (Continued) **S102439373**

Status Date: 06/24/1997
Case Worker: CR2
RB Case Number: 6B3600744T
Local Agency: SAN BERNARDINO COUNTY
File Location: Local Agency
Local Case Number: 96034
Potential Media Affect: Soil
Potential Contaminants of Concern: Diesel
Site History: Not reported

LUST:
Global Id: T0607100876
Contact Type: Local Agency Caseworker
Contact Name: CATHERINE RICHARDS
Organization Name: SAN BERNARDINO COUNTY
Address: 620 SOUTH E STREET
City: SAN BERNARDINO
Email: crichards@sbcfire.org
Phone Number: 9093868419

Global Id: T0607100876
Contact Type: Regional Board Caseworker
Contact Name: JEHIEL CASS
Organization Name: LAHONTAN RWQCB (REGION 6V)
Address: 15095 Armagosa Road, Building 2, Suite 210
City: VICTORVILLE
Email: jehiel.cass@waterboards.ca.gov
Phone Number: 7602412434

LUST:
Global Id: T0607100876
Action Type: Other
Date: 05/20/1996
Action: Leak Discovery

Global Id: T0607100876
Action Type: Other
Date: 05/20/1996
Action: Leak Stopped

Global Id: T0607100876
Action Type: Other
Date: 06/24/1996
Action: Leak Reported

Global Id: T0607100876
Action Type: ENFORCEMENT
Date: 06/26/1996
Action: * Historical Enforcement

LUST:
Global Id: T0607100876
Status: Open - Case Begin Date
Status Date: 05/20/1996

Global Id: T0607100876
Status: Open - Site Assessment

U HAUL OF SAN BERNARDINO (Continued) **S102439373**

Status Date: 05/20/1996

Global Id: T0607100876
Status: Open - Remediation
Status Date: 09/06/1996

Global Id: T0607100876
Status: Completed - Case Closed
Status Date: 06/24/1997

LUST Region 6V:

Name:	U HAUL OF SAN BERNARDINO
Address:	800 MAIN ST E
City:	BARSTOW
Region:	6V
Case Number:	6B3600744T
Leak Record:	8/26/1996
Report Date:	6/24/1996
Reported By Address:	Not reported
Responsible Party:	U HAUL
Operator:	Not reported
Cross Street:	BARSTOW RD
Local Agency:	36000L
Regional Board:	6V
Chemical:	Diesel
Case Type:	Soil only
Funding:	F
Enforce Type:	EF
How Found:	Tank Closure
How Stopped:	Not reported
Cause of Leak:	UNK
Leak Source:	Other Source
Global ID:	T0607100876
Stop Date:	5/20/1996
Leak Confirm:	Not reported
Submit Workplan:	5/20/1996
Prelim Assess:	5/20/1996
Pollution Char:	Not reported
Remed Plan:	9/6/1996
Remed Action:	Not reported
Monitoring:	Not reported
Close Date:	6/24/1997
Discovered:	5/20/1996
Enforce Date:	6/26/1996
Review Date:	1/13/2000
GW Qualifier:	Not reported
Soil Qualifier:	Not reported
MTBE class:	*
Max MTBE Grnd Wtr:	Not reported
Max MTBE Soil:	Not reported
MTBE Counts:	0
MTBE Fuel:	0
MTBE Tested:	NRQ
Organization Name:	Not reported
Status:	Case Closed
Contact:	Not reported

U HAUL OF SAN BERNARDINO (Continued) **S102439373**

Interim Action:	Not reported
Pilot Program:	LUST
Lat/Long:	34.8986526 / -117
Staff Initials:	KD
Local Agency Staff:	CR2
Lead Agency:	Local Agency
Summary:	CASE #-96034 CASE CLOSED
Basin Number:	LOWER MOJAVE RIVER V
Beneficial:	Not reported
Priority:	Not reported
UST Cleanup Fund ID:	Not reported
Suspended:	Not reported
Local Case Number:	96034
Amount:	Not reported
Abate Method:	Other
Water System:	Not reported
Well Name:	Not reported
Distance:	3293.837382
Wst Disch Reqrmnt Global ID:	Not reported
Wst Disch Reqrmnt Name:	Not reported

CORTESE:

Name:	U HAUL OF SAN BERNARDINO
Address:	800 MAIN ST E
City,State,Zip:	BARSTOW, CA 92311
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0607100876
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	U HAUL OF SAN BERNARDINO
edr_fadd1:	800 MAIN
City,State,Zip:	BARSTOW, CA 92507
Region:	CORTESE
Facility County Code:	36
Reg By:	LTNKA
Reg Id:	6B3600744T

U HAUL OF SAN BERNARDINO (Continued) **S102439373**

CERS:
- Name: U HAUL OF SAN BERNARDINO
- Address: 800 MAIN ST E
- City,State,Zip: BARSTOW, CA 92311
- Site ID: 231874
- CERS ID: T0607100876
- CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
- Affiliation Type Desc: Local Agency Caseworker
- Entity Name: CATHERINE RICHARDS - SAN BERNARDINO COUNTY
- Entity Title: Not reported
- Affiliation Address: 620 SOUTH E STREET
- Affiliation City: SAN BERNARDINO
- Affiliation State: CA
- Affiliation Country: Not reported
- Affiliation Zip: Not reported
- Affiliation Phone: 9093868419

- Affiliation Type Desc: Regional Board Caseworker
- Entity Name: JEHIEL CASS - LAHONTAN RWQCB (REGION 6V)
- Entity Title: Not reported
- Affiliation Address: 15095 Armagosa Road, Building 2, Suite 210
- Affiliation City: VICTORVILLE
- Affiliation State: CA
- Affiliation Country: Not reported
- Affiliation Zip: Not reported
- Affiliation Phone: 7602412434

65
WSW
1/4-1/2
0.376 mi.
1984 ft.

ROY BARNETT LANDSCAPING **LUST S102436061**
1253 W CHURCH ST **Cortese N/A**
RIVERSIDE, CA 92501

Relative: Lower

Actual: 918 ft.

LUST:
- Name: ROY BARNETT LANDSCAPING
- Address: 1253 W CHURCH ST
- City,State,Zip: RIVERSIDE, CA 92501
- Lead Agency: RIVERSIDE COUNTY LOP
- Case Type: LUST Cleanup Site
- Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500172
- Global Id: T0606500172
- Latitude: 34.017629194
- Longitude: -117.33886117
- Status: Completed - Case Closed
- Status Date: 01/03/1991
- Case Worker: SCB
- RB Case Number: 083301420T
- Local Agency: RIVERSIDE COUNTY LOP
- File Location: Local Agency Warehouse
- Local Case Number: 90127
- Potential Media Affect: Soil
- Potential Contaminants of Concern: Diesel
- Site History: Not reported

LUST:

ROY BARNETT LANDSCAPING (Continued) **S102436061**

Global Id: T0606500172
Contact Type: Local Agency Caseworker
Contact Name: SHARON BOLTINGHOUSE
Organization Name: RIVERSIDE COUNTY LOP
Address: 3880 LEMON ST SUITE 200
City: RIVERSIDE
Email: sbolting@rivco.org
Phone Number: 9519558980

LUST:
Global Id: T0606500172
Action Type: ENFORCEMENT
Date: 01/02/1991
Action: File review - #RCDEH Upload Site File 10/21/2015

Global Id: T0606500172
Action Type: Other
Date: 02/07/1990
Action: Leak Discovery

Global Id: T0606500172
Action Type: Other
Date: 02/07/1990
Action: Leak Stopped

Global Id: T0606500172
Action Type: REMEDIATION
Date: 04/20/1990
Action: Excavation

Global Id: T0606500172
Action Type: Other
Date: 02/21/1990
Action: Leak Reported

Global Id: T0606500172
Action Type: ENFORCEMENT
Date: 01/03/1991
Action: Closure/No Further Action Letter - #RCDEH0103

LUST:
Global Id: T0606500172
Status: Open - Case Begin Date
Status Date: 02/07/1990

Global Id: T0606500172
Status: Open - Site Assessment
Status Date: 02/21/1990

Global Id: T0606500172
Status: Open - Remediation
Status Date: 04/20/1990

Global Id: T0606500172
Status: Open - Site Assessment
Status Date: 04/20/1990

ROY BARNETT LANDSCAPING (Continued) **S102436061**

Global Id: T0606500172
Status: Completed - Case Closed
Status Date: 01/03/1991

LUST REG 8:

Name:	ROY BARNETT LANDSCAPING
Address:	1253 CHURCH ST
City:	RIVERSIDE
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083301420T
Local Case Num:	Not reported
Case Type:	Soil only
Substance:	Diesel
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	IOWA
Enf Type:	CLOS
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	Overfill
Leak Source:	Piping
Global ID:	T0606500172
How Stopped Date:	2/7/1990
Enter Date:	2/11/1990
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	2/7/1990
Enforcement Date:	1/1/1965
Close Date:	1/3/1991
Date Prelim Assessment Workplan Submitted:	3/1/1990
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	2/11/1990
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.0166916
Longitude:	-117.3391384
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	0
MTBE Tested:	Not Required to be Tested.
MTBE Class:	*
Staff:	PAH
Staff Initials:	UNK

ROY BARNETT LANDSCAPING (Continued) **S102436061**

Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported
Summary:	Not reported

VENTURA CO. LUST:

Name:	BALLARD PROPERTY (ALEX)
Address:	1210 LOS ANGELES AVE
City:	SATICOY
Region:	VENTURA
Facility ID:	90127
Status:	Case Closed

RIVERSIDE CO. LUST:

Name:	ROY BARNETT LANDSCAPING
Address:	1253 W CHURCH ST
City,State,Zip:	RIVERSIDE, CA
Region:	RIVERSIDE
Facility ID:	90127
Employee:	Rogers
Site Closed:	Yes
Case Type:	Soil only
Facility Status:	closed/action completed
Casetype Decode:	Soil only is impacted
Fstatus Decode:	Closed/Action completed

CORTESE:

Name:	ROY BARNETT LANDSCAPING
Address:	1253 W CHURCH ST
City,State,Zip:	RIVERSIDE, CA 92501
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606500172
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

66
East
1/4-1/2
0.439 mi.
2317 ft.

HIGH SCHOOL NO. 3
MAIN STREET/TAYLOR STREET
GRAND TERRACE, CA 92313

ENVIROSTOR
SCH
DEED
CERS

S105954559
N/A

Relative:
Higher

Actual:
1003 ft.

ENVIROSTOR:

Name:	HIGH SCHOOL NO. 3
Address:	MAIN STREET/TAYLOR STREET
City,State,Zip:	GRAND TERRACE, CA 92313
Facility ID:	36010044
Status:	Certified O&M - Land Use Restrictions Only
Status Date:	05/21/2013
Site Code:	404450
Site Type:	School Cleanup
Site Type Detailed:	School
Acres:	60
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	47
Senate:	20
Special Program:	Not reported
Restricted Use:	YES
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	34.02017
Longitude:	-117.3235
APN:	116-131-39, 116-142-45, 116-156, 116-158-60, 116-715-130, 116-722-102, 116722102
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic Tetrachloroethylene (PCE Trichloroethylene (TCE Cadmium and compounds Chromium VI Dieldrin
Confirmed COC:	Tetrachloroethylene (PCE Trichloroethylene (TCE
Potential Description:	SV
Alias Name:	COLTON JOINT USD-HIGH SCHOOL NO. 3
Alias Type:	Alternate Name
Alias Name:	Grand Terrace High School
Alias Type:	Alternate Name
Alias Name:	HIGH SCHOOL NO. 3
Alias Type:	Alternate Name
Alias Name:	Proposed High School #3
Alias Type:	Alternate Name
Alias Name:	116-131-39
Alias Type:	APN
Alias Name:	116-142-45
Alias Type:	APN
Alias Name:	116-156
Alias Type:	APN
Alias Name:	116-158-60
Alias Type:	APN
Alias Name:	116-715-130
Alias Type:	APN
Alias Name:	116-722-102
Alias Type:	APN
Alias Name:	116722102

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Alias Type: APN
Alias Name: 110033613935
Alias Type: EPA (FRS #)
Alias Name: 404450
Alias Type: Project Code (Site Code)
Alias Name: 36010044
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 05/30/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: School Cleanup Agreement
Completed Date: 03/30/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 05/25/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 05/17/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 07/20/2005
Comments: SSI WP approved

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 02/23/2006
Comments: issued comments and partial site approval for approximately 37 acres, identified as Area A (APNs 1167-221-01, and -02, 1167-151-32, -39, -43, -44 and a portion of 1167-151-45. Results of the SSI indicate that further investigation and possibly a removal action, is required for the 28.5 acre (Assessor s Parcel Numbers (APN) 1167-151-31, -58 through 60 and a portion of -45 for VOCs, and for RCRA closure on a portion.

Completed Area Name: PROJECT WIDE

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 03/27/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 10/23/2006
Comments: Site poses an unacceptable risk based on unrestricted scenario. Based on schools risk assessment with 95th UCL, site is acceptable for use as a school. RAW will be required for LUC to restrict the land use to a school.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 11/09/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 4.15 Request
Completed Date: 12/05/2006
Comments: Accepted, 4.15C

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 07/23/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 11/09/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 01/29/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 05/17/2019
Comments: DTSC Approved 5-year review

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 03/17/2016
Comments: District submitted letter on the LUC compliance

Completed Area Name: PROJECT WIDE

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 05/19/2017
Comments: Received compliance letter from the school

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 03/29/2018
Comments: DTSC approved Annual LUC Inspection Letter

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/17/2016
Comments: Compliance Letter issued by the District

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/10/2017
Comments: Compliance letter issued by the District

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Tech Memo
Completed Date: 06/12/2015
Comments: Approved SSI

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 05/07/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operation & Maintenance Order/Agreement
Completed Date: 03/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 02/22/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 03/22/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/05/2014

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/16/2016
Comments: Annual Cost Estimate letter, dated 9/16/16, sent to RP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/21/2015
Comments: Annual Cost Estimate emailed and mailed to BP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/31/2017
Comments: Annual Cost Estimate letter sent 08/31/17.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/27/2018
Comments: FY 1819 Estimate: $3,442

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/06/2019
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Operations and Maintenance Report
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: HIGH SCHOOL NO. 3
Address: MAIN STREET/TAYLOR STREET
City,State,Zip: GRAND TERRACE, CA 92313
Facility ID: 36010044
Site Type: School Cleanup
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 60
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Aslam Shareef

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404450
Assembly:	47
Senate:	20
Special Program Status:	Not reported
Status:	Certified O&M - Land Use Restrictions Only
Status Date:	05/21/2013
Restricted Use:	YES
Funding:	School District
Latitude:	34.02017
Longitude:	-117.3235
APN:	116-131-39, 116-142-45, 116-156, 116-158-60, 116-715-130, 116-722-102, 116722102
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, Tetrachloroethylene (PCE, Trichloroethylene (TCE, Cadmium and compounds, Chromium VI, Dieldrin
Confirmed COC:	Tetrachloroethylene (PCE, Trichloroethylene (TCE
Potential Description:	SV
Alias Name:	COLTON JOINT USD-HIGH SCHOOL NO. 3
Alias Type:	Alternate Name
Alias Name:	Grand Terrace High School
Alias Type:	Alternate Name
Alias Name:	HIGH SCHOOL NO. 3
Alias Type:	Alternate Name
Alias Name:	Proposed High School #3
Alias Type:	Alternate Name
Alias Name:	116-131-39
Alias Type:	APN
Alias Name:	116-142-45
Alias Type:	APN
Alias Name:	116-156
Alias Type:	APN
Alias Name:	116-158-60
Alias Type:	APN
Alias Name:	116-715-130
Alias Type:	APN
Alias Name:	116-722-102
Alias Type:	APN
Alias Name:	116722102
Alias Type:	APN
Alias Name:	110033613935
Alias Type:	EPA (FRS #)
Alias Name:	404450
Alias Type:	Project Code (Site Code)
Alias Name:	36010044
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	05/30/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	School Cleanup Agreement

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Date: 03/30/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 05/25/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 05/17/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 07/20/2005
Comments: SSI WP approved

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 02/23/2006
Comments: issued comments and partial site approval for approximately 37 acres, identified as Area A (APNs 1167-221-01, and -02, 1167-151-32, -39, -43, -44 and a portion of 1167-151-45. Results of the SSI indicate that further investigation and possibly a removal action, is required for the 28.5 acre (Assessor s Parcel Numbers (APN) 1167-151-31, -58 through 60 and a portion of -45 for VOCs, and for RCRA closure on a portion.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 03/27/2006
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 10/23/2006
Comments: Site poses an unacceptable risk based on unrestricted scenario. Based on schools risk assessment with 95th UCL, site is acceptable for use as a school. RAW will be required for LUC to restrict the land use to a school.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Date: 11/09/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 4.15 Request
Completed Date: 12/05/2006
Comments: Accepted, 4.15C

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 07/23/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operations and Maintenance Plan
Completed Date: 11/09/2007
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 01/29/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 5 Year Review Reports
Completed Date: 05/17/2019
Comments: DTSC Approved 5-year review

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 03/17/2016
Comments: District submitted letter on the LUC compliance

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 05/19/2017
Comments: Received compliance letter from the school

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 03/29/2018
Comments: DTSC approved Annual LUC Inspection Letter

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/17/2016
Comments: Compliance Letter issued by the District

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/10/2017
Comments: Compliance letter issued by the District

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Tech Memo
Completed Date: 06/12/2015
Comments: Approved SSI

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 05/07/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Operation & Maintenance Order/Agreement
Completed Date: 03/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 02/22/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 03/22/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/05/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/16/2016
Comments: Annual Cost Estimate letter, dated 9/16/16, sent to RP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/21/2015
Comments: Annual Cost Estimate emailed and mailed to BP.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Completed Date: 08/31/2017
Comments: Annual Cost Estimate letter sent 08/31/17.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 08/27/2018
Comments: FY 1819 Estimate: $3,442

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/06/2019
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Operations and Maintenance Report
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

DEED:
Name: HIGH SCHOOL NO. 3
Address: MAIN STREET/TAYLOR STREET
City,State,Zip: GRAND TERRACE, CA 92313
Envirostor ID: 36010044
Area: PROJECT WIDE
Sub Area: Not reported
Site Type: SCHOOL CLEANUP
Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): Not reported
File Name: Envirostor Land Use Restrictions

CERS:
Name: HIGH SCHOOL NO. 3
Address: MAIN STREET/TAYLOR STREET
City,State,Zip: GRAND TERRACE, CA 92313
Site ID: 338297
CERS ID: 36010044
CERS Description: School Cleanup

Affiliation:
Affiliation Type Desc: Lead Project Manager
Entity Name: ASLAM SHAREEF
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: CYPRESS
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

HIGH SCHOOL NO. 3 (Continued) **S105954559**

Affiliation Type Desc:	Supervisor
Entity Name:	SHAHIR HADDAD
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

M67 **D AND K SERVICE** **LUST** **S103249171**
SW **291** **Cortese** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507** **HIST CORTESE**
0.465 mi. **CERS**
2454 ft. **Site 1 of 3 in cluster M**

Relative:
Lower

Actual:
916 ft.

LUST:

Name:	D & K SERVICE
Address:	291 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500518
Global Id:	T0606500518
Latitude:	34.015977535
Longitude:	-117.34013822
Status:	Open - Inactive
Status Date:	11/07/2014
Case Worker:	SCM
RB Case Number:	083303139T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Regional Board
Local Case Number:	980243
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	The County conducted a Preliminary Site Assessment in late 2010 to determine possible redevelopment. Plume is not defined and no remediation conducted to date. The RP does not have funds and was declined for UST Cleanup Fund.

LUST:

Global Id:	T0606500518
Contact Type:	Regional Board Caseworker
Contact Name:	SAMANTHA MAK
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 Main Street
City:	RIVERSIDE
Email:	samantha.mak@waterboards.ca.gov
Phone Number:	9513202007

Global Id:	T0606500518
Contact Type:	Local Agency Caseworker
Contact Name:	SHARON BOLTINGHOUSE
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	sbolting@rivco.org

D AND K SERVICE (Continued) **S103249171**

Phone Number: 9519558980

LUST:

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 02/28/2005
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 03/01/2005
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 12/02/2005
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 01/31/2011
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 06/01/2011
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 03/14/2006
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 11/17/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 02/23/2016
Action: Verbal Enforcement

Global Id: T0606500518
Action Type: RESPONSE
Date: 08/22/2018
Action: Verbal Communication

Global Id: T0606500518
Action Type: RESPONSE
Date: 07/13/2018
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE
Date: 09/28/2018
Action: Email Correspondence

D AND K SERVICE (Continued) **S103249171**

Global Id: T0606500518
Action Type: RESPONSE
Date: 12/10/2018
Action: Correspondence

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 06/06/2007
Action: Verbal Enforcement

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 06/13/2007
Action: Verbal Enforcement

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 06/19/2007
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 05/02/2002
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 03/01/2016
Action: Email Correspondence

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 02/13/2013
Action: Verbal Enforcement

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 10/27/2004
Action: Staff Letter

Global Id: T0606500518
Action Type: Other
Date: 03/17/1998
Action: Leak Discovery

Global Id: T0606500518
Action Type: RESPONSE
Date: 03/24/2011
Action: Other Report / Document

Global Id: T0606500518
Action Type: RESPONSE
Date: 03/28/2011
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE

D AND K SERVICE (Continued) **S103249171**

Date: 05/24/2011
Action: Soil and Water Investigation Workplan

Global Id: T0606500518
Action Type: RESPONSE
Date: 07/18/2011
Action: Correspondence

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 10/27/2004
Action: * Verbal Communication

Global Id: T0606500518
Action Type: RESPONSE
Date: 09/07/2018
Action: Verbal Communication

Global Id: T0606500518
Action Type: RESPONSE
Date: 03/22/2018
Action: Other Report / Document

Global Id: T0606500518
Action Type: RESPONSE
Date: 05/24/2011
Action: CAP/RAP - Feasibility Study Report - Regulator Responded

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 02/04/2002
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 10/27/2004
Action: Staff Letter

Global Id: T0606500518
Action Type: RESPONSE
Date: 06/28/2011
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE
Date: 10/30/2011
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE
Date: 07/30/2011
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE
Date: 09/07/2011
Action: Correspondence

D AND K SERVICE (Continued) **S103249171**

Global Id: T0606500518
Action Type: RESPONSE
Date: 12/30/2011
Action: Correspondence

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 07/26/2002
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 09/19/2003
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 09/25/2003
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 08/29/2018
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 09/26/2018
Action: Meeting

Global Id: T0606500518
Action Type: RESPONSE
Date: 05/16/2012
Action: Correspondence

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 04/24/2018
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 08/07/2018
Action: Notice of Responsibility

Global Id: T0606500518
Action Type: Other
Date: 03/26/1998
Action: Leak Reported

Global Id: T0606500518
Action Type: RESPONSE
Date: 10/26/2012
Action: Correspondence

Global Id: T0606500518
Action Type: RESPONSE

D AND K SERVICE (Continued) **S103249171**

Date: 11/13/2012
Action: Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 11/13/2012
Action: Meeting

Global Id: T0606500518
Action Type: RESPONSE
Date: 12/24/2010
Action: Site Assessment Report

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 07/06/2009
Action: File review

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 06/14/2018
Action: Staff Letter

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 04/24/2019
Action: File review

Global Id: T0606500518
Action Type: RESPONSE
Date: 06/15/2007
Action: Other Report / Document

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 04/25/2003
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 04/29/2003
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 11/01/2003
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 09/13/2002
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 09/23/2003
Action: * Verbal Communication

D AND K SERVICE (Continued) **S103249171**

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 11/10/2003
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 07/17/2003
Action: * Verbal Communication

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 05/05/2004
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 11/13/2012
Action: Meeting

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 03/24/2011
Action: File review

Global Id: T0606500518
Action Type: ENFORCEMENT
Date: 10/14/2019
Action: Staff Letter

LUST:
Global Id: T0606500518
Status: Open - Case Begin Date
Status Date: 03/17/1998

Global Id: T0606500518
Status: Open - Site Assessment
Status Date: 03/17/1998

Global Id: T0606500518
Status: Open - Site Assessment
Status Date: 01/23/2002

Global Id: T0606500518
Status: Open - Inactive
Status Date: 11/07/2011

Global Id: T0606500518
Status: Open - Inactive
Status Date: 11/07/2014

LUST REG 8:
Name: D AND K SERVICE
Address: 291 IOWA AVE
City: RIVERSIDE

D AND K SERVICE (Continued) **S103249171**

Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Preliminary site assessment workplan submitted
Case Number:	083303139T
Local Case Num:	980243
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	CENTER
Enf Type:	VER
Funding:	Not reported
How Discovered:	Not reported
How Stopped:	Not reported
Leak Cause:	Not reported
Leak Source:	Not reported
Global ID:	T0606500518
How Stopped Date:	Not reported
Enter Date:	3/31/1998
Date Confirmation of Leak Began:	3/17/1998
Date Preliminary Assessment Began:	Not reported
Discover Date:	3/17/1998
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	1/23/2002
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	3/31/1998
GW Qualifies:	Not reported
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.0155486
Longitude:	-117.3401114
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	1
Max MTBE Soil:	.2
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	TME
Staff Initials:	UNK
Lead Agency:	Regional Board
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

D AND K SERVICE (Continued) **S103249171**

RIVERSIDE CO. LUST:

Name:	D&K SERVICE
Address:	291 IOWA AVE
City,State,Zip:	RIVERSIDE, CA
Region:	RIVERSIDE
Facility ID:	980243
Employee:	Boltinghous-LOP
Site Closed:	Referred to Water Board
Case Type:	Soil only
Facility Status:	0
Casetype Decode:	Soil only is impacted
Fstatus Decode:	Not reported

CORTESE:

Name:	D & K SERVICE
Address:	291 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606500518
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	OPEN - INACTIVE
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	D AND K SERVICE
edr_fadd1:	291
City,State,Zip:	RIVERSIDE, CA 92507
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	083303139T

CERS:

Name:	D & K SERVICE
Address:	291 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Site ID:	178628
CERS ID:	T0606500518
CERS Description:	Leaking Underground Storage Tank Cleanup Site

D AND K SERVICE (Continued) **S103249171**

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	SHARON BOLTINGHOUSE - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	SAMANTHA MAK - SANTA ANA RWQCB (REGION 8)
Entity Title:	Not reported
Affiliation Address:	3737 Main Street
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9513202007

M68 **SHEARERS SERV-UR-SELF** **LUST U001576544**
SW **323 IOWA** **HIST UST N/A**
1/4-1/2 **RIVERSIDE, CA 92507**
0.480 mi.
2535 ft. **Site 2 of 3 in cluster M**

Relative: **Lower**

Actual: **916 ft.**

LUST:

Name:	SHEARER'S SERV U SELF
Address:	323 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500233
Global Id:	T0606500233
Latitude:	34.0149906
Longitude:	-117.3401104
Status:	Completed - Case Closed
Status Date:	03/14/2008
Case Worker:	Not reported
RB Case Number:	083301831T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Not reported
Local Case Number:	91308
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0606500233
Contact Type:	Local Agency Caseworker
Contact Name:	SHARON BOLTINGHOUSE
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	sbolting@rivco.org
Phone Number:	9519558980

SHEARERS SERV-UR-SELF (Continued) **U001576544**

LUST:

Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	02/05/2004
Action:	Meeting
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	06/22/2004
Action:	Meeting
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	10/22/2004
Action:	* Verbal Communication
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	06/24/2005
Action:	* No Action
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	04/10/2008
Action:	Verbal Communication
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	05/17/2005
Action:	* No Action
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	10/26/2004
Action:	* Verbal Communication
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	04/26/2005
Action:	* No Action
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	12/28/2004
Action:	Staff Letter
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	11/10/2005
Action:	* No Action
Global Id:	T0606500233
Action Type:	ENFORCEMENT
Date:	01/31/2000
Action:	File review - #RCDEH Upload Site File 9/24/2015
Global Id:	T0606500233

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Action Type: RESPONSE
Date: 03/31/2003
Action: Soil and Water Investigation Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 02/28/2004
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 03/31/2003
Action: Well Installation Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 08/22/2002
Action: Other Report / Document

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/15/2002
Action: CAP/RAP - Final Remediation / Design Plan

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/30/2002
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 01/16/2002
Action: Soil and Water Investigation Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 01/31/2003
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/05/2006
Action: Verbal Enforcement

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/10/2006
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/29/2005
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/26/2005

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/13/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 12/28/2005
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/15/2005
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/17/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/13/2005
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/27/2006
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/28/2005
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/27/2006
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/19/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/28/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/01/2005
Action: * Verbal Communication

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/20/2006
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/23/2006
Action: Meeting

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/01/2006
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/31/2006
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/23/2006
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/26/2006
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/08/2006
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/03/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/08/2006
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/08/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/09/2006
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Date: 03/27/2001
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/02/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/27/2001
Action: Staff Letter

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/30/2004
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 01/30/2004
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 10/31/2006
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/20/2007
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/12/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/21/2007
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/12/2007
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/22/2007
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/24/2007
Action: Verbal Enforcement

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/19/2006
Action: Verbal Enforcement

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/05/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/08/2007
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/19/2007
Action: Meeting

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/11/2008
Action: Meeting

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/02/2007
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/30/2008
Action: Notification - Preclosure

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/14/2008
Action: Closure/No Further Action Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/25/2007
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/20/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/20/2001
Action: Staff Letter

Global Id: T0606500233
Action Type: Other

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Date: 03/28/1991
Action: Leak Discovery

Global Id: T0606500233
Action Type: RESPONSE
Date: 11/30/2003
Action: Remedial Progress Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 03/31/2004
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 03/31/2004
Action: Soil and Water Investigation Workplan

Global Id: T0606500233
Action Type: RESPONSE
Date: 08/30/2003
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 11/30/2003
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 10/27/2004
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/22/2008
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 08/27/2007
Action: Meeting

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/11/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: Other
Date: 04/01/1991
Action: Leak Stopped

Global Id: T0606500233
Action Type: RESPONSE
Date: 06/01/2004
Action: Soil and Water Investigation Workplan

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Global Id: T0606500233
Action Type: RESPONSE
Date: 04/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 11/15/2004
Action: Soil and Water Investigation Report

Global Id: T0606500233
Action Type: REMEDIATION
Date: 08/14/2003
Action: Free Product Removal

Global Id: T0606500233
Action Type: REMEDIATION
Date: 09/16/2003
Action: Soil Vapor Extraction (SVE)

Global Id: T0606500233
Action Type: REMEDIATION
Date: 09/16/2003
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500233
Action Type: REMEDIATION
Date: 02/16/2000
Action: Other (Use Description Field)

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 05/16/2008
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/21/2003
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/25/2002
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/24/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/05/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Date: 07/25/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/09/2003
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/16/2007
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/16/2007
Action: Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/07/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/25/2006
Action: Verbal Enforcement

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/15/2005
Action: Other Report / Document

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/27/2005
Action: Soil and Water Investigation Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 07/01/2005
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/02/2006
Action: Other Report / Document

Global Id: T0606500233
Action Type: RESPONSE
Date: 12/30/2005
Action: Monitoring Report - Quarterly

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Global Id: T0606500233
Action Type: RESPONSE
Date: 09/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 10/30/2005
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/30/2005
Action: Other Workplan

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/23/2008
Action: File review

Global Id: T0606500233
Action Type: Other
Date: 04/15/1991
Action: Leak Reported

Global Id: T0606500233
Action Type: RESPONSE
Date: 04/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/01/2006
Action: Other Report / Document

Global Id: T0606500233
Action Type: RESPONSE
Date: 08/30/2006
Action: Well Installation Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 03/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 03/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Date: 08/03/2006
Action: Other Workplan

Global Id: T0606500233
Action Type: RESPONSE
Date: 07/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 02/28/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: RESPONSE
Date: 06/05/2006
Action: Other Workplan

Global Id: T0606500233
Action Type: RESPONSE
Date: 05/16/2008
Action: Well Destruction Report

Global Id: T0606500233
Action Type: RESPONSE
Date: 01/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 12/01/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/09/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/29/2002
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/29/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 10/22/2002
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/20/2003
Action: * No Action

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/27/2004
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 01/08/2004
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/21/2005
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 10/04/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 12/06/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/25/2002
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 07/18/2002
Action: * Verbal Communication

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 10/22/2002
Action: File review

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 03/05/2002
Action: Preparation of Record for Appeal/Referral/Petition

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 11/25/2003
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 02/21/2003
Action: Staff Letter

Global Id: T0606500233
Action Type: ENFORCEMENT

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Date: 11/21/2003
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 09/25/2003
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 06/18/2003
Action: * No Action

Global Id: T0606500233
Action Type: ENFORCEMENT
Date: 04/28/2004
Action: Staff Letter

LUST:
Global Id: T0606500233
Status: Open - Case Begin Date
Status Date: 03/28/1991

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 08/19/1991

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 11/22/1991

Global Id: T0606500233
Status: Open - Remediation
Status Date: 02/01/1992

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 03/19/1992

Global Id: T0606500233
Status: Open - Remediation
Status Date: 04/25/1994

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 04/17/2001

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 07/06/2001

Global Id: T0606500233
Status: Open - Remediation
Status Date: 05/15/2002

Global Id: T0606500233
Status: Open - Remediation

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Status Date: 07/05/2002

Global Id: T0606500233
Status: Open - Remediation
Status Date: 07/25/2002

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 03/31/2003

Global Id: T0606500233
Status: Open - Remediation
Status Date: 08/14/2003

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 03/31/2004

Global Id: T0606500233
Status: Open - Site Assessment
Status Date: 05/25/2004

Global Id: T0606500233
Status: Open - Verification Monitoring
Status Date: 03/17/2006

Global Id: T0606500233
Status: Completed - Case Closed
Status Date: 03/14/2008

RIVERSIDE CO. LUST:
Name: SHEARER'S SERV U SELF
Address: 323 IOWA AVE
City,State,Zip: RIVERSIDE, CA
Region: RIVERSIDE
Facility ID: 91308
Employee: Boltinghous-LOP
Site Closed: Referred to Water Board
Case Type: Drinking Water Aquifer affected
Facility Status: 0
Casetype Decode: An Aquifer used for Drinking Water supply has been contaminated.
Fstatus Decode: Not reported

HIST UST:
Name: SHEARERS SERV-UR-SELF
Address: 323 IOWA
City,State,Zip: RIVERSIDE, CA 92507
File Number: 0001F969
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F969.pdf
Region: STATE
Facility ID: 00000053279
Facility Type: Gas Station
Other Type: Not reported
Contact Name: ROBERT SHEARER
Telephone: 7146839913

SHEARERS SERV-UR-SELF (Continued) **U001576544**

Owner Name:	SHEARER'S SERV-UR-SELF
Owner Address:	323 IOWA
Owner City,St,Zip:	RIVERSIDE, CA 92507
Total Tanks:	0004
Tank Num:	001
Container Num:	1
Year Installed:	1957
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	1/4
Leak Detection:	Pressure Test
Tank Num:	002
Container Num:	2
Year Installed:	1957
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	1/4
Leak Detection:	Pressure Test
Tank Num:	003
Container Num:	3
Year Installed:	1957
Tank Capacity:	00004000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	1/4
Leak Detection:	Pressure Test
Tank Num:	004
Container Num:	0000000001
Year Installed:	1957
Tank Capacity:	00008000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	1/4
Leak Detection:	Pressure Test

Click here for Geo Tracker PDF:

M69 **SHEARER'S SERV U SELF** **LUST** **S101619608**
SW **323 IOWA AVE** **SWEEPS UST** **N/A**
1/4-1/2 **RIVERSIDE, CA 92507** **CA FID UST**
0.480 mi. **Cortese**
2535 ft. **Site 3 of 3 in cluster M** **HIST CORTESE**
CERS

Relative:
Lower

Actual:
916 ft.

LUST REG 8:

Name:	SHEARER'S SERV U SELF
Address:	323 IOWA AVE
City:	RIVERSIDE
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Pollution Characterization

SHEARER'S SERV U SELF (Continued) **S101619608**

Case Number:	083301831T
Local Case Num:	91308
Case Type:	Aquifer affected
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Remove Free Product - remove floating product from water table
Cross Street:	CENTER
Enf Type:	SEL
Funding:	Not reported
How Discovered:	Tank Test
How Stopped:	Not reported
Leak Cause:	Loose Fitting
Leak Source:	Piping
Global ID:	T0606500233
How Stopped Date:	4/1/1991
Enter Date:	4/12/1991
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	3/31/2003
Discover Date:	3/28/1991
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	8/19/1991
Date Pollution Characterization Began:	5/25/2004
Date Remediation Plan Submitted:	7/25/2002
Date Remedial Action Underway:	8/14/2003
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	4/12/1991
GW Qualifies:	=
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Yes
Oversite Program:	LUST
Latitude:	34.0149906
Longitude:	-117.3401104
MTBE Date:	7/15/1999
Max MTBE GW:	8500
MTBE Concentration:	9
Max MTBE Soil:	849
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	NOM
Staff Initials:	UNK
Lead Agency:	Regional Board
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported
Summary:	AS IF 8/26/99,THE CURRENT LEVELS ARE STILL ABOVE THE TOP OF SCREENED INTERVAL FOR WELLS MW-1, MW-3 THROUGH MW-8

SWEEPS UST:

Name:	SHEARER'S SERV-UR-SELF
Address:	323 IOWA AVE

SHEARER'S SERV U SELF (Continued) **S101619608**

City:	RIVERSIDE
Status:	Active
Comp Number:	53279
Number:	1
Board Of Equalization:	44-018348
Referral Date:	11-18-92
Action Date:	11-18-92
Created Date:	02-29-88
Owner Tank Id:	000206
SWRCB Tank Id:	33-000-053279-000001
Tank Status:	A
Capacity:	10000
Active Date:	11-18-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	4

Name:	SHEARER'S SERV-UR-SELF
Address:	323 IOWA AVE
City:	RIVERSIDE
Status:	Active
Comp Number:	53279
Number:	1
Board Of Equalization:	44-018348
Referral Date:	11-18-92
Action Date:	11-18-92
Created Date:	02-29-88
Owner Tank Id:	000206
SWRCB Tank Id:	33-000-053279-000002
Tank Status:	A
Capacity:	1000
Active Date:	11-18-92
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	Not reported

Name:	SHEARER'S SERV-UR-SELF
Address:	323 IOWA AVE
City:	RIVERSIDE
Status:	Active
Comp Number:	53279
Number:	1
Board Of Equalization:	44-018348
Referral Date:	11-18-92
Action Date:	11-18-92
Created Date:	02-29-88
Owner Tank Id:	000206
SWRCB Tank Id:	33-000-053279-000003
Tank Status:	A
Capacity:	4000
Active Date:	11-18-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

SHEARER'S SERV U SELF (Continued) **S101619608**

Name:	SHEARER'S SERV-UR-SELF
Address:	323 IOWA AVE
City:	RIVERSIDE
Status:	Active
Comp Number:	53279
Number:	1
Board Of Equalization:	44-018348
Referral Date:	11-18-92
Action Date:	11-18-92
Created Date:	02-29-88
Owner Tank Id:	000206
SWRCB Tank Id:	33-000-053279-000004
Tank Status:	A
Capacity:	8000
Active Date:	11-18-92
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	33000294
Regulated By:	UTNKA
Regulated ID:	00053279
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	7146839913
Mail To:	Not reported
Mailing Address:	323 IOWA AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	RIVERSIDE 92507
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

CORTESE:

Name:	SHEARER'S SERV U SELF
Address:	323 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606500233
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active

SHEARER'S SERV U SELF (Continued) **S101619608**

Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

HIST CORTESE:

edr_fname:	SHEARER'S SERV U SELF
edr_fadd1:	323
City,State,Zip:	RIVERSIDE, CA 92507
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	083301831T

CERS:

Name:	SHEARER'S SERV U SELF
Address:	323 IOWA AVE
City,State,Zip:	RIVERSIDE, CA 92507
Site ID:	208706
CERS ID:	T0606500233
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	SHARON BOLTINGHOUSE - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980

70
SSW
1/2-1
0.885 mi.
4672 ft.

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) **ENVIROSTOR** **S118756723**
1326 CITRUS STREET **VCP** **N/A**
RIVERSIDE, CA 92507

Relative:
Lower

Actual:
921 ft.

ENVIROSTOR:

Name:	RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER)
Address:	1326 CITRUS STREET
City,State,Zip:	RIVERSIDE, CA 92507
Facility ID:	33330009
Status:	Active
Status Date:	05/03/2016
Site Code:	401742
Site Type:	Voluntary Cleanup
Site Type Detailed:	Voluntary Cleanup
Acres:	1.5
NPL:	NO
Regulatory Agencies:	SMBRP

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Lead Agency: SMBRP
Program Manager: Amit Pathak
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 61
Senate: 31
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 34.00811
Longitude: -117.3404
APN: 247-140-006, 247-140-007, 247-140-014
Past Use: FOUNDRY
Potential COC: * CONTAMINATED SOIL * UNSPECIFIED OIL CONTAINING WASTE * OTHER INORGANIC SOLID WASTE * UNSPECIFIED ORGANIC LIQUID MIXTURE
Confirmed COC: 10097-NO 10196-NO 20011-NO 20017-NO
Potential Description: SOIL, SV
Alias Name: INLAND CONCRETE ENTERPRISES
Alias Type: Alternate Name
Alias Name: OLDCASTLE PRECAST, INC.
Alias Type: Alternate Name
Alias Name: RIVERSIDE FOUNDRY
Alias Type: Alternate Name
Alias Name: RIVERSIDE WELDING AND BLACKSMITH
Alias Type: Alternate Name
Alias Name: 247-140-006
Alias Type: APN
Alias Name: 247-140-007
Alias Type: APN
Alias Name: 247-140-014
Alias Type: APN
Alias Name: 401742
Alias Type: Project Code (Site Code)
Alias Name: 33330009
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 01/11/1983
Comments: FACILITY IDENTIFIED ID FROM OLD PHONE BOOK SEARCH -1957-69 IRON FOUNDRY

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 05/20/2016
Comments: VCA fully executed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 06/16/2016
Comments: Pre HARP Completed.

Completed Area Name: PROJECT WIDE

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/26/2016
Comments: Annual Cost Estimate Letter, dated 9/26/16, sent to RP via email and regular mail.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/06/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/04/2018
Comments: FY 1819 Estimate: $14,972

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/10/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/25/1994
Comments: Site screening/file review indicate NFA for DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 05/20/1987
Comments: PRELIM ASSESS DONE MFG CAST IRON MANHOLE COVERS. KERSOSENE GASOLINE_AND A BLACK PRIMER USED U/G TANK REMOVED IN 1986, POST SAMPLING INDIC NO PROB. REF TO ENF FOR POSS RECYL AND IMPROP STORAGE. HSEKEEP PROB & STAINED SOIL IN WORK AREA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/30/1986
Comments: SITE SCREENING DONE PA RECOM BASED ON POSSIBLE IMPROPER STORAGE

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 11/24/2015
Comments: DTSC conducted site screening and referred this site to the Santa Anna RWQCB

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 02/01/2017
Comments: Completed and approved.

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 08/07/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 08/29/2017
Comments: Concurred with comments and e-mail Response

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 09/22/2017
Comments: Visited the Site.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

VCP:
Name: RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER)
Address: 1326 CITRUS STREET
City,State,Zip: RIVERSIDE, CA 92507
Facility ID: 33330009
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 1.5
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Amit Pathak
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 401742
Assembly: 61
Senate: 31
Special Programs Code: Voluntary Cleanup Program
Status: Active
Status Date: 05/03/2016
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 34.00811 / -117.3404
APN: 247-140-006, 247-140-007, 247-140-014
Past Use: FOUNDRY
Potential COC: 10097, 10196, 20011, 20017
Confirmed COC: 10097-NO,10196-NO,20011-NO,20017-NO

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Potential Description:	SOIL, SV
Alias Name:	INLAND CONCRETE ENTERPRISES
Alias Type:	Alternate Name
Alias Name:	OLDCASTLE PRECAST, INC.
Alias Type:	Alternate Name
Alias Name:	RIVERSIDE FOUNDRY
Alias Type:	Alternate Name
Alias Name:	RIVERSIDE WELDING AND BLACKSMITH
Alias Type:	Alternate Name
Alias Name:	247-140-006
Alias Type:	APN
Alias Name:	247-140-007
Alias Type:	APN
Alias Name:	247-140-014
Alias Type:	APN
Alias Name:	401742
Alias Type:	Project Code (Site Code)
Alias Name:	33330009
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	01/11/1983
Comments:	FACILITY IDENTIFIED ID FROM OLD PHONE BOOK SEARCH -1957-69 IRON FOUNDRY

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Voluntary Cleanup Agreement
Completed Date:	05/20/2016
Comments:	VCA fully executed.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Pre-HARP Form
Completed Date:	06/16/2016
Comments:	Pre HARP Completed.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	09/26/2016
Comments:	Annual Cost Estimate Letter, dated 9/26/16, sent to RP via email and regular mail.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	09/06/2017
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	09/04/2018
Comments:	FY 1819 Estimate: $14,972

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/10/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/25/1994
Comments: Site screening/file review indicate NFA for DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 05/20/1987
Comments: PRELIM ASSESS DONE MFG CAST IRON MANHOLE COVERS. KERSOSENE GASOLINE_AND A BLACK PRIMER USED U/G TANK REMOVED IN 1986, POST SAMPLING INDIC NO PROB. REF TO ENF FOR POSS RECYL AND IMPROP STORAGE. HSEKEEP PROB & STAINED SOIL IN WORK AREA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/30/1986
Comments: SITE SCREENING DONE PA RECOM BASED ON POSSIBLE IMPROPER STORAGE

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 11/24/2015
Comments: DTSC conducted site screening and referred this site to the Santa Anna RWQCB

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 02/01/2017
Comments: Completed and approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 08/07/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 08/29/2017
Comments: Concurred with comments and e-mail Response

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 09/22/2017
Comments: Visited the Site.

RIVERSIDE OLDCASTLE PRECAST/FOUNDRY (FORMER) (Continued) **S118756723**

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

71
NNE
1/2-1
0.976 mi.
5153 ft.

TEXACO **Notify 65** **U000032929**
22045 BARTON ROAD **N/A**
COLTON, CA 92324

Relative:
Higher

Actual:
990 ft.

NOTIFY 65:

Name:	TEXACO
Address:	22045 BARTON ROAD
City,State,Zip:	COLTON, CA 92324-5001
Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Issue Date:	Not reported
Incident Description:	Not reported

72
SSW
1/2-1
0.981 mi.
5179 ft.

LILY-TULIP CO (OFF SITE DISPOSAL AREA) **ENVIROSTOR** **S109286671**
800 IOWA AVENUE **DEED** **N/A**
RIVERSIDE, CA 92502 **LDS**
ENF
CIWQS
CERS

Relative:
Lower

Actual:
925 ft.

ENVIROSTOR:

Name:	LILY-TULIP CO (OFF SITE DISPOSAL AREA)
Address:	800 IOWA AVENUE
City,State,Zip:	RIVERSIDE, CA 92502
Facility ID:	33490044
Status:	Refer: Other Agency
Status Date:	10/25/1994
Site Code:	Not reported
Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	* Mmonroy
Division Branch:	Cleanup Cypress
Assembly:	61
Senate:	31
Special Program:	* CERC2
Restricted Use:	NO

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 34.00707
Longitude: -117.3380
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: * Pesticides - Rinse Waters * Pesticides - Wastes From Production * DETERGENT & SOAP * UNSPECIFIED AQUEOUS SOLUTION * UNSPECIFIED SOLVENT MIXTURES * WASTE OIL & MIXED OIL * PAPER SLUDGE/PULP
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: FORT HOWARD
Alias Type: Alternate Name
Alias Name: 33490044
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/25/1994
Comments: Site screening/file review indicates NFA for DTSC.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 06/27/1988
Comments: PRELIM ASSESS DONE RWQCB RESCINDED CLEANUP AND ABATEMENT ORDER IN 1987 COMPANY FULFILLED REQUIRE- MENTS NO OFFSITE DISPOSAL PITS. RECOMMENDATION SITE INSPECTION LOW PRIORITY

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 03/24/1987
Comments: SITE SCREENING DONE DIVISION OF OWENS ILLINOIS. MORE INFO NEEDED

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 02/28/1983
Comments: FACILITY IDENTIFIED ID FROM RWQCB DISCH TO LINED EVAPO-TRANSPORATION PIT ONSITE. HIGH CONCENTRTN OF PHENOLS,BORON PRESENT. DISP AREA IS OFF SITE-E OF 71, S OF CAJALCO RE,N OF WERICK RD. ON TBM NO.27 & 37,RIVERSIDE COUNTY.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

DEED:

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

Name: SWEETHEART CUP COMPANY
Address: 800 IOWA AVENUE
City,State,Zip: RIVERSIDE, CA
Envirostor ID: SLT8R1894068
Area: Not reported
Sub Area: Not reported
Site Type: LANDFILL
Status: * OPEN
Agency: SWRCB
Covenant Uploaded: Y
Deed Date(s): 09/04/2008
File Name: Geotracker Land Use/Deed Restrictions

LDS:

Name: BRINE FAC,LILY-TULIP DIV
Address: 800 IOWA
City,State,Zip: RIVERSIDE, CA

Global Id: L10001353083
Latitude: 34.00643
Longitude: -117.3369
Case Type: Land Disposal Site
Status: Completed - Case Closed
Status Date: 11/02/2009
Lead Agency: SANTA ANA RWQCB (REGION 8)
Caseworker: KDP
Local Agency: Not reported
RB Case Number: 8 332014004
LOC Case Number: Not reported
File Location: Not reported
Potential Media Affect: Not reported
EDR Link ID: L10001353083
Potential Contaminants of Concern: Not reported
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Name: SWEETHEART CUP COMPANY
Address: 800 IOWA AVENUE
City,State,Zip: RIVERSIDE, CA

Global Id: SLT8R1894068
Latitude: 34.01208
Longitude: -117.3388
Case Type: Land Disposal Site
Status: Open
Status Date: 01/01/1965
Lead Agency: SANTA ANA RWQCB (REGION 8)
Caseworker: Not reported
Local Agency: Not reported
RB Case Number: SLT8R189
LOC Case Number: Not reported
File Location: Not reported
Potential Media Affect: Not reported
EDR Link ID: SLT8R1894068
Potential Contaminants of Concern: Not reported

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

Site History: Not reported

Click here to access the California GeoTracker records for this facility:

ENF:

Name:	BRINE FAC,LILY-TULIP DIV
Address:	800 IOWA
City,State,Zip:	RIVERSIDE, CA
Region:	8
Facility Id:	210423
Agency Name:	Not reported
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Not reported
# Of Agencies:	Not reported
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Enf Action
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	Not reported
Program Category1:	Not reported
Program Category2:	LNDISP
# Of Programs:	Not reported
WDID:	Not reported
Reg Measure Id:	Not reported
Reg Measure Type:	Not reported
Region:	Not reported
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

Status:	Not reported
Status Date:	Not reported
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	Not reported
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Not reported
Enforcement Id(EID):	224910
Region:	8
Order / Resolution Number:	84-134
Enforcement Action Type:	Clean-up and Abatement Order
Effective Date:	11/08/1984
Adoption/Issuance Date:	Not reported
Achieve Date:	1/1/1987
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 8 332014004
Description:	PROVIDE SECONDARY CONTAINMENT AND REMOVE SLUDGE PUMPS.
Program:	LNDISP
Latest Milestone Completion Date:	1/1/1987
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

Name:	BRINE FAC,LILY-TULIP DIV
Address:	800 IOWA
City,State,Zip:	RIVERSIDE, CA
Region:	8
Facility Id:	210423
Agency Name:	Not reported
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Not reported
# Of Agencies:	Not reported
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Enf Action
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	Not reported
Program Category1:	Not reported
Program Category2:	LNDISP
# Of Programs:	Not reported
WDID:	Not reported
Reg Measure Id:	Not reported
Reg Measure Type:	Not reported
Region:	Not reported
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Not reported
Status Date:	Not reported
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	Not reported
Individual/General:	Not reported
Fee Code:	Not reported
Direction/Voice:	Not reported
Enforcement Id(EID):	223625
Region:	8
Order / Resolution Number:	87-038
Enforcement Action Type:	Clean-up and Abatement Order
Effective Date:	02/05/1987
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

EPL Issuance Date:	Not reported
Status:	Historical
Title:	Enforcement - 8 332014004
Description:	RESCINDING 84-134
Program:	LNDISP
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0
Initial Assessed Amount:	0
Liability $ Amount:	0
Project $ Amount:	0
Liability $ Paid:	0
Project $ Completed:	0
Total $ Paid/Completed Amount:	0

CIWQS:

Name:	BRINE FAC,LILY-TULIP DIV
Address:	800 IOWA
City,State,Zip:	RIVERSIDE, CA
Agency:	Sweetheart Cup
Agency Address:	10100 Reisterstown Road, Owings Mills, MD 21117
Place/Project Type:	Other
SIC/NAICS:	Not reported
Region:	8
Program:	LNDISP
Regulatory Measure Status:	Historical
Regulatory Measure Type:	WDR
Order Number:	97-03913
WDID:	8 332014004
NPDES Number:	Not reported
Adoption Date:	6/6/1997
Effective Date:	06/06/1997
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	0.008
Major/Minor:	Not reported
Complexity:	C
TTWQ:	2
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	Not reported
Longitude:	Not reported

CERS:

Name:	BRINE FAC,LILY-TULIP DIV
Address:	800 IOWA
City,State,Zip:	RIVERSIDE, CA
Site ID:	233141
CERS ID:	L10001353083
CERS Description:	Land Disposal Site

Affiliation:

Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	KEITH PERSON - SANTA ANA RWQCB (REGION 8)
Entity Title:	Not reported
Affiliation Address:	3737 MAIN STREET, SUITE 500
Affiliation City:	RIVERSIDE

LILY-TULIP CO (OFF SITE DISPOSAL AREA) (Continued) **S109286671**

Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Count: 1 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
RIVERSIDE	S121653223	MAIN & GARNER BUSINESS PARK	SEC OF GARNER RD & MAIN ST	92501	CIWQS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: N/A
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: N/A
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: N/A
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 87

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/18/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/18/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/18/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/18/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/15/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 06/18/2020
Number of Days to Update: 30

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 05/15/2020
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/24/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 05/15/2020
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/24/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 87

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/10/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/15/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 02/01/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/23/2020
Next Scheduled EDR Contact: 11/01/2020
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 74

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 05/20/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/06/2020
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 79

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/23/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 86

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/31/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/18/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/13/2020
Date Data Arrived at EDR: 05/18/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 86

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/05/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 80

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/18/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 79

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 03/01/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/15/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 01/31/2020
Date Data Arrived at EDR: 05/13/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/15/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 34

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 70

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/13/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/25/2019
Date Data Arrived at EDR: 10/25/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 82

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 42
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/04/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/24/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/21/2020
Number of Days to Update: 6

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/07/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/21/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 77

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/03/2020
Date Data Arrived at EDR: 03/03/2020
Date Made Active in Reports: 05/28/2020
Number of Days to Update: 86

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/27/2020
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/28/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 76
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 74
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/04/2020
Date Data Arrived at EDR: 06/05/2020
Date Made Active in Reports: 08/17/2020
Number of Days to Update: 73

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/24/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/19/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 14

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 06/16/2020
Date Made Active in Reports: 08/28/2020
Number of Days to Update: 73

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/18/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 04/07/2020
Date Made Active in Reports: 04/15/2020
Number of Days to Update: 8

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/14/2020
Date Data Arrived at EDR: 05/15/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 73

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 73

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/18/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 74

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/06/2020
Date Data Arrived at EDR: 07/07/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/07/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/12/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/28/2020
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/10/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 08/21/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 08/27/2020
Number of Days to Update: 6
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 08/20/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/06/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019
Date Data Arrived at EDR: 01/07/2020
Date Made Active in Reports: 03/09/2020
Number of Days to Update: 62
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 07/01/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/11/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 04/09/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 08/02/2020
Next Scheduled EDR Contact: 10/18/2020
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/01/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 16

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 06/01/2020
Number of Days to Update: 13

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/17/2020
Date Data Arrived at EDR: 06/18/2020
Date Made Active in Reports: 09/02/2020
Number of Days to Update: 76

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 04/01/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/06/2020
Number of Days to Update: 77

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 04/16/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/08/2020
Number of Days to Update: 79

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/07/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/23/2020
Number of Days to Update: 77

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/01/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 78

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/19/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 26

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 08/26/2020
Number of Days to Update: 113

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/14/2020
Number of Days to Update: 77

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 01/31/2020
Date Made Active in Reports: 04/09/2020
Number of Days to Update: 69

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2020
Date Data Arrived at EDR: 07/10/2020
Date Made Active in Reports: 09/28/2020
Number of Days to Update: 80

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/13/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 78

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/13/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/25/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42
Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/25/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/25/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/25/2020
Date Data Arrived at EDR: 04/14/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 78
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/27/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 10/02/2019
Number of Days to Update: 64

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 02/25/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 1

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 05/15/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/10/2020
Date Made Active in Reports: 08/24/2020
Number of Days to Update: 75

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/10/2020
Date Data Arrived at EDR: 03/11/2020
Date Made Active in Reports: 05/20/2020
Number of Days to Update: 70

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 03/10/2020
Date Data Arrived at EDR: 03/11/2020
Date Made Active in Reports: 05/20/2020
Number of Days to Update: 70

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/17/2020
Number of Days to Update: 78

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/24/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/25/2020
Date Data Arrived at EDR: 02/26/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 71

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 87

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/11/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/01/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 04/22/2020
Date Data Arrived at EDR: 04/24/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 13

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 09/16/2020
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/07/2020
Date Data Arrived at EDR: 07/08/2020
Date Made Active in Reports: 09/25/2020
Number of Days to Update: 79

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/01/2020
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/04/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 04/15/2020
Number of Days to Update: 70

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 77

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 73

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 05/14/2020
Date Data Arrived at EDR: 05/15/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 73

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/26/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 77

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/26/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 77

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/23/2020
Date Data Arrived at EDR: 06/29/2020
Date Made Active in Reports: 09/15/2020
Number of Days to Update: 78

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 79

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/12/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/10/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/02/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAGE PARK
21660 MAIN STREET
GRAND TERRACE, CA 92313

TARGET PROPERTY COORDINATES

Latitude (North):	34.020457 - 34° 1' 13.65''
Longitude (West):	117.332281 - 117° 19' 56.21''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	469321.2
UTM Y (Meters):	3764279.5
Elevation:	943 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5620416 SAN BERNARDINO SOUTH, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

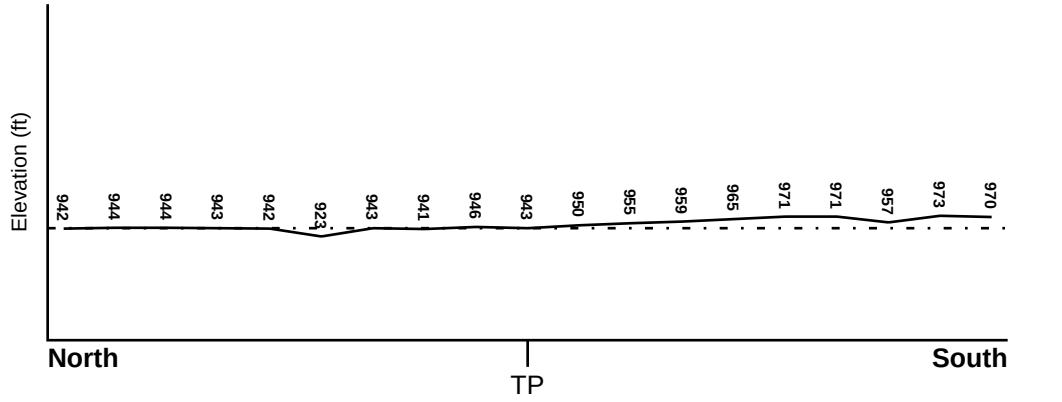
TOPOGRAPHIC INFORMATION

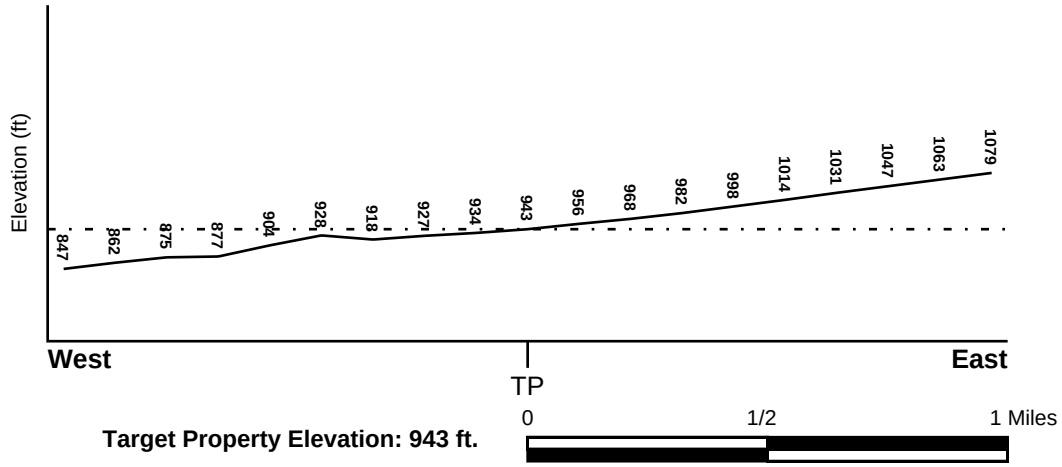
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 943 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C8689H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C0065G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
10	1/2 - 1 Mile SW	WNW
12	1/2 - 1 Mile WSW	Not Reported
2G	1/2 - 1 Mile SW	WNW
3G	1/2 - 1 Mile WSW	Not Reported

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

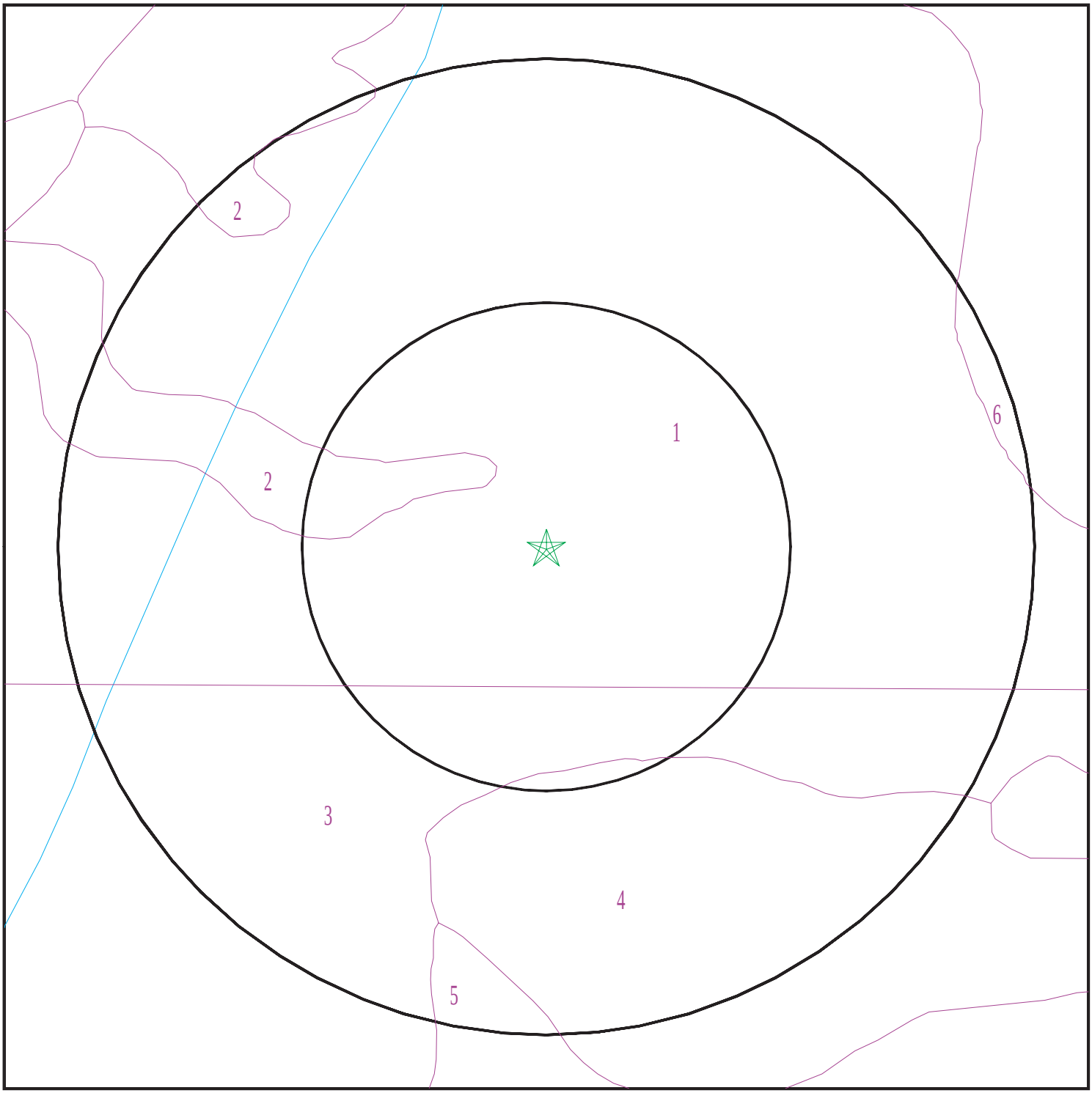
Era:	Paleozoic
System:	Pennsylvanian
Series:	Upper Paleozoic
Code:	uPze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 6212139.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Cage Park	CLIENT:	Alta Environmental
ADDRESS:	21660 Main Street Grand Terrace CA 92313	CONTACT:	Eric Fraske
LAT/LONG:	34.020457 / 117.332281	INQUIRY #:	6212139.2s
		DATE:	October 01, 2020 9:29 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
2	9 inches	29 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
3	29 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
4	44 inches	59 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Saugus

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:
2	7 inches	40 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:
3	40 inches	44 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 4 Min: 1.4	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 4

Soil Component Name: ARLINGTON

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
2	11 inches	50 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
3	50 inches	59 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
4	59 inches	70 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6

Soil Map ID: 5

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
3	42 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 6

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
2	16 inches	50 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6
3	50 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000139826	1/8 - 1/4 Mile SE
7	USGS40000139807	1/4 - 1/2 Mile SE
B13	USGS40000139757	1/2 - 1 Mile SW
15	USGS40000139913	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

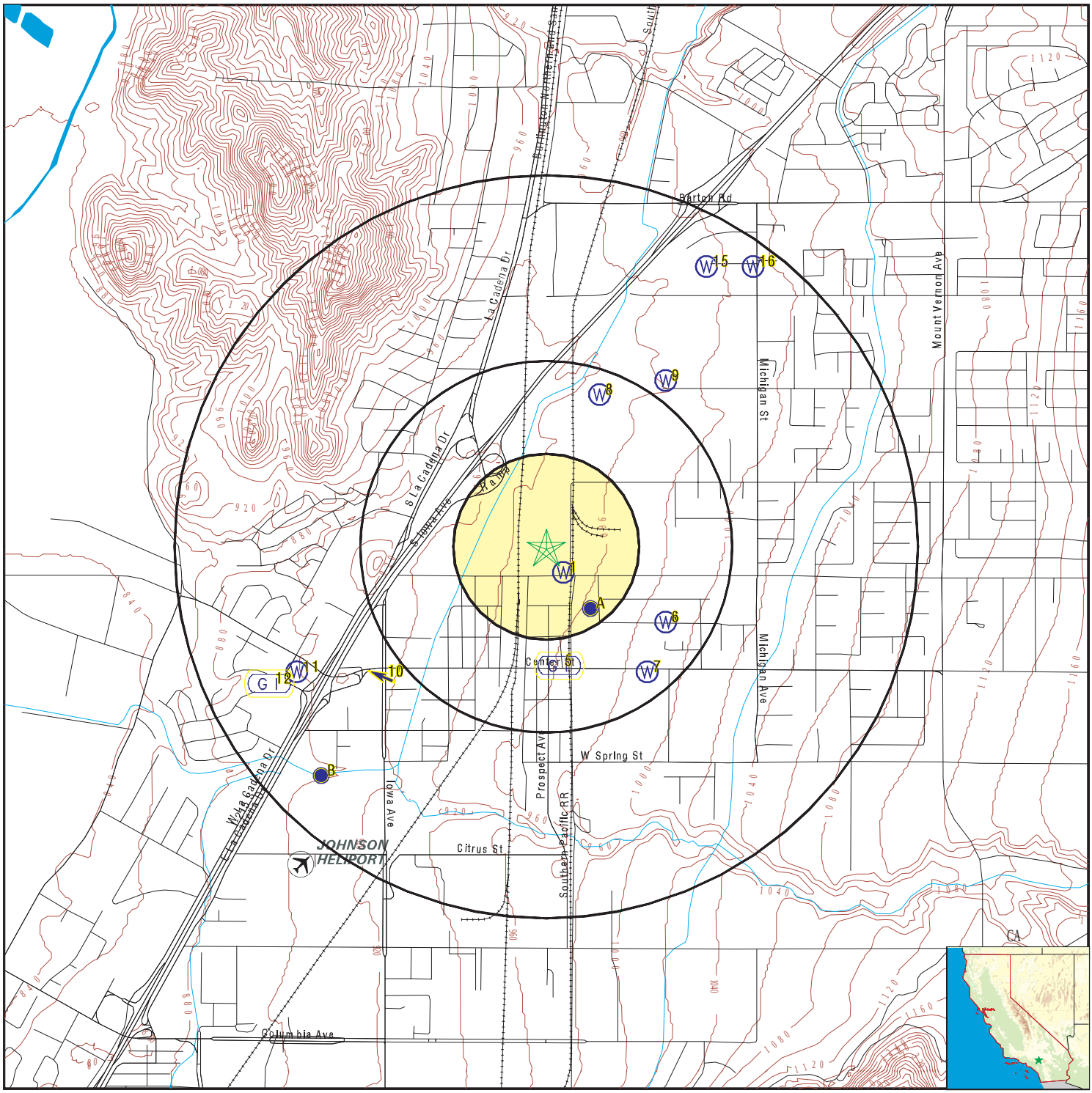
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	2455	0 - 1/8 Mile SE
A3	2459	1/8 - 1/4 Mile SSE
A4	CADWR8000006396	1/8 - 1/4 Mile SE
6	2460	1/4 - 1/2 Mile ESE
8	2454	1/4 - 1/2 Mile NNE
9	2453	1/2 - 1 Mile NE
11	2456	1/2 - 1 Mile WSW
B14	2457	1/2 - 1 Mile SW
16	2452	1/2 - 1 Mile NE

PHYSICAL SETTING SOURCE MAP - 6212139.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Cage Park	CLIENT: Alta Environmental
ADDRESS: 21660 Main Street Grand Terrace CA 92313	CONTACT: Eric Fraske
LAT/LONG: 34.020457 / 117.332281	INQUIRY #: 6212139.2s DATE: October 01, 2020 9:29 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SE
0 - 1/8 Mile
Higher | **CA WELLS** | **2455**

Seq:	2455	Prim sta c:	02S/04W-06R01 S
Frds no:	3610057010	County:	36
District:	13	User id:	TAN
System no:	3610057	Water type:	G
Source nam:	WELL RN 07 - STANDBY	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	340110.0	Longitude:	1171950.0
Precision:	3	Status:	SR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610057	System nam:	Riverside Highland Water Co
Hqname:	Not Reported	Address:	1450 WASHINGTON ST
City:	COLTON	State:	CA
Zip:	92324	Zip ext:	Not Reported
Pop serv:	14542	Connection:	3873
Area serve:	GRAND TERR/HIGHGROVE-RIVERSIDE		

Sample date:	06-OCT-16	Finding:	11.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	12-JUL-16	Finding:	9.9
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	06-APR-16	Finding:	8.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	06-JAN-16	Finding:	1.2
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		

Sample date:	06-JAN-16	Finding:	2.48
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	06-JAN-16	Finding:	8.38
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	06-JAN-16	Finding:	1.97
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	06-JAN-16	Finding:	0.3
Chemical:	URANIUM MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	06-JAN-16	Finding:	1.42
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	06-JAN-16	Finding:	9.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	07-JAN-15	Finding:	310.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	260.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	7.7
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	800.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	300.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	92.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	17.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	61.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	4.6
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	55.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	69.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	07-JAN-15	Finding:	0.6
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	07-JAN-15	Finding:	0.68
Chemical:	LANGELIER INDEX AT SOURCE TEMP.	Report units:	Not Reported
Dlr:	0.		
Sample date:	07-JAN-15	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	07-JAN-15	Finding:	12.5
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported

Dlr:	0.		
Sample date:	07-JAN-15	Finding:	540.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	06-OCT-14	Finding:	27.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	03-OCT-13	Finding:	27.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	10-JUL-13	Finding:	27.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	07-JAN-13	Finding:	13.4
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	07-JAN-13	Finding:	2.01
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	07-JAN-13	Finding:	1.51
Chemical:	URANIUM COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	07-JAN-13	Finding:	1.1
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	05-JAN-12	Finding:	180.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	200.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	7.5
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	580.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	55.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	9.6
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	05-JAN-12	Finding:	44.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	3.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	28.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	53.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	05-JAN-12	Finding:	0.8
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	05-JAN-12	Finding:	0.1
Chemical:	LANGELIER INDEX AT SOURCE TEMP.	Report units:	Not Reported
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	11.8
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	05-JAN-12	Finding:	330.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		

A2
SE
1/8 - 1/4 Mile
Higher

FED USGS **USGS40000139826**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	002S004W08D004S	Type:	Well
Description:	Not Reported	HUC:	18070203
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	494	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

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A3
SSE
1/8 - 1/4 Mile
Higher

CA WELLS **2459**

Seq:	2459	Prim sta c:	02S/04W-08D04 S
Frds no:	3310031048	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	HIGHGROVE WELL 03 - MONITORING SITE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	340104.0	Longitude:	1171947.3

Precision:	1	Status:	MW
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		

A4
SE
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR8000006396**

State Well #:	02S04W08D003S	Station ID:	46721
Well Name:	Highgrove 3	Well Use:	Observation
Well Type:	Single Well	Well Depth:	494
Basin Name:	Riverside-Arlington	Well Completion Rpt #:	100582

5
South
1/4 - 1/2 Mile
Higher

AQUIFLOW **51004**

Site ID:	083302350T
Groundwater Flow:	Not Reported
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	50 ft
Date:	07/27/1997

6
ESE
1/4 - 1/2 Mile
Higher

CA WELLS **2460**

Seq:	2460	Prim sta c:	02S/04W-08E01 S
Frds no:	3310031047	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	HIGHGROVE WELL 01 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	340103.9	Longitude:	1171933.8
Precision:	1	Status:	IR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

7
SE **FED USGS** **USGS40000139807**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	002S004W08E001S	Type:	Well
Description:	Not Reported	HUC:	18070203
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	443	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

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8
NNE **CA WELLS** **2454**
1/4 - 1/2 Mile
Higher

Seq:	2454	Prim sta c:	02S/04W-05E02 S
Frds no:	3310031096	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	VAN BUREN WELL 02	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	340135.6	Longitude:	1171944.0
Precision:	1	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		

Sample date:	25-JAN-18	Finding:	5.4
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	06-OCT-17	Finding:	5.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	28-JUL-17	Finding:	4.9
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	06-APR-17	Finding:	4.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	14-MAR-17	Finding:	4.7
Chemical:	NITRATE (AS N)	Report units:	MG/L

Dlr:	0.4		
Sample date:	10-MAR-17	Finding:	0.53
Chemical:	TETRACHLOROETHYLENE	Report units:	UG/L
Dlr:	0.5		
Sample date:	21-OCT-16	Finding:	4.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-SEP-16	Finding:	4.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	26-MAY-16	Finding:	0.58
Chemical:	TETRACHLOROETHYLENE	Report units:	UG/L
Dlr:	0.5		
Sample date:	25-MAY-16	Finding:	0.56
Chemical:	TETRACHLOROETHYLENE	Report units:	UG/L
Dlr:	0.5		
Sample date:	12-MAY-16	Finding:	4.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	12-MAY-16	Finding:	180.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	55.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	9.8
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	41.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	3.2
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	27.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	53.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	12-MAY-16	Finding:	0.51
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	12-MAY-16	Finding:	160.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		

Sample date:	12-MAY-16	Finding:	4.6
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	12-MAY-16	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	4.2
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	12-MAY-16	Finding:	0.56
Chemical:	TETRACHLOROETHYLENE	Report units:	UG/L
Dlr:	0.5		
Sample date:	12-MAY-16	Finding:	340.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	1.1
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	4.8
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	12-MAY-16	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	190.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	8.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	3.
Chemical:	ODOR THRESHOLD @ 60 C	Report units:	TON
Dlr:	1.		
Sample date:	12-MAY-16	Finding:	540.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	29-OCT-15	Finding:	3.8
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	29-OCT-15	Finding:	3.
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L

Dlr:	0.		
Sample date:	29-OCT-15	Finding:	4.5
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	29-OCT-15	Finding:	20.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	29-OCT-15	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-15	Finding:	3.6
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	02-APR-15	Finding:	3.
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-15	Finding:	3.1
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	02-APR-15	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	27-MAR-15	Finding:	20.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	21-NOV-14	Finding:	3.2
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	21-NOV-14	Finding:	21.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	21-NOV-14	Finding:	3.7
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	21-NOV-14	Finding:	3.
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-NOV-14	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-APR-14	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-APR-14	Finding:	4.1
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	03-APR-14	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	04-OCT-13	Finding:	0.58
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	04-OCT-13	Finding:	150.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	03-OCT-13	Finding:	140.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	170.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	180.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	55.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	9.9
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	42.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	3.
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	27.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	51.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	03-OCT-13	Finding:	0.59
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	03-OCT-13	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	3.5
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	03-OCT-13	Finding:	300.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L

Dlr:	0.		
Sample date:	03-OCT-13	Finding:	0.83
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	4300.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	03-OCT-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	7.9
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	2.
Chemical:	ODOR THRESHOLD @ 60 C	Report units:	TON
Dlr:	1.		
Sample date:	03-OCT-13	Finding:	530.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	530.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	7.8
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	190.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	180.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	54.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	9.8
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	42.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	23-MAY-13	Finding:	3.1
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	28.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	54.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	23-MAY-13	Finding:	0.52
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	23-MAY-13	Finding:	150.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	23-MAY-13	Finding:	4.9
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	23-MAY-13	Finding:	340.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	0.79
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	0.14
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	23-MAY-13	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	4300.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	17-APR-13	Finding:	5.3
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	17-APR-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-13	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-13	Finding:	3.3
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	17-JAN-13	Finding:	2.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L

Dlr:	0.		
Sample date:	17-JAN-13	Finding:	4.2
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	17-JAN-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-DEC-12	Finding:	3.7
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-DEC-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-DEC-12	Finding:	3.
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-DEC-12	Finding:	3.8
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	12-OCT-12	Finding:	2.7
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-OCT-12	Finding:	3.5
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	12-OCT-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-AUG-12	Finding:	3.6
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	02-AUG-12	Finding:	3.3
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	02-AUG-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-AUG-12	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		

Sample date:	17-MAY-12	Finding:	0.13
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	17-MAY-12	Finding:	1.
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	330.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3.1
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	17-MAY-12	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	4.9
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	17-MAY-12	Finding:	160.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	17-MAY-12	Finding:	0.58
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	17-MAY-12	Finding:	54.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	17-MAY-12	Finding:	29.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3.2
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	42.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	10.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	58.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	180.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	180.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L

Dlr:	0.		
Sample date:	17-MAY-12	Finding:	150.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	8.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	520.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3800.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	04-APR-12	Finding:	3.5
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	04-APR-12	Finding:	2.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	04-APR-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

9
NE
1/2 - 1 Mile
Higher

CA WELLS 2453

Seq:	2453	Prim sta c:	02S/04W-05E01 S
Frds no:	3310031095	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	VAN BUREN WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	340137.8	Longitude:	1171933.9
Precision:	1	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		
Sample date:	25-JAN-18	Finding:	7.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	25-JAN-18	Finding:	0.8
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	25-JAN-18	Finding:	0.43
Chemical:	RADIUM 226 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-JAN-18	Finding:	0.84
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	0.72
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	4.1e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	19-OCT-17	Finding:	7.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	10-AUG-17	Finding:	0.66
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	28-JUL-17	Finding:	6.4
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	28-JUL-17	Finding:	0.63
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	06-APR-17	Finding:	0.69
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	06-APR-17	Finding:	5.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	09-MAR-17	Finding:	4.5
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	27-OCT-16	Finding:	0.66
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	27-OCT-16	Finding:	5.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-SEP-16	Finding:	5.3
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	01-JUL-16	Finding:	0.58
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	34.
Chemical:	CHLORIDE	Report units:	MG/L

Dlr:	0.		
Sample date:	12-MAY-16	Finding:	55.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	12-MAY-16	Finding:	0.54
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	12-MAY-16	Finding:	180.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	12-MAY-16	Finding:	4.9
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	12-MAY-16	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	2.5
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	12-MAY-16	Finding:	380.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	1.2
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	0.17
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	12-MAY-16	Finding:	0.59
Chemical:	TOTAL TRIHALOMETHANES	Report units:	UG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	5.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	12-MAY-16	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	8.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	3.3
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	12-MAY-16	Finding:	44.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	11.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	60.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	200.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	5.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	12-MAY-16	Finding:	590.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	170.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	12-MAY-16	Finding:	210.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	29-OCT-15	Finding:	4.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	29-OCT-15	Finding:	2.8
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	29-OCT-15	Finding:	5.2
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	29-OCT-15	Finding:	20.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	29-OCT-15	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-JUL-15	Finding:	21.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	30-JUL-15	Finding:	5.4
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	30-JUL-15	Finding:	3.1
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L

Dlr:	0.		
Sample date:	30-JUL-15	Finding:	3.5
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	30-JUL-15	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-15	Finding:	4.7
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	17-APR-15	Finding:	3.3
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-15	Finding:	4.9
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	17-APR-15	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	23-OCT-14	Finding:	3.8
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	23-OCT-14	Finding:	3.1
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	23-OCT-14	Finding:	4.5
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	23-OCT-14	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	4.1
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	02-APR-14	Finding:	3.3
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-APR-14	Finding:	5.6
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	02-APR-14	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	3.9
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	03-OCT-13	Finding:	3.3
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	03-OCT-13	Finding:	4.4
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	03-OCT-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	9.6
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	3600.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	23-MAY-13	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	0.26
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	23-MAY-13	Finding:	0.72
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	330.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	5.
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	23-MAY-13	Finding:	160.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	23-MAY-13	Finding:	0.58
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	23-MAY-13	Finding:	48.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	23-MAY-13	Finding:	520.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	7.7
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L

Dlr:	0.		
Sample date:	23-MAY-13	Finding:	190.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	170.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	54.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	42.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	3.1
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	23-MAY-13	Finding:	30.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	17-APR-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-13	Finding:	3.1
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	17-APR-13	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-APR-13	Finding:	3.5
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	17-JAN-13	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-JAN-13	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-JAN-13	Finding:	3.1
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	17-JAN-13	Finding:	3.8
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-DEC-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	14-DEC-12	Finding:	3.9
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	14-DEC-12	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-OCT-12	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	12-OCT-12	Finding:	3.7
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	12-OCT-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-AUG-12	Finding:	3.2
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	02-AUG-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-AUG-12	Finding:	2.6
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	320.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	0.97
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	0.19
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	17-MAY-12	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	2600.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	17-MAY-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	2.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	5.2
Chemical:	VANADIUM	Report units:	UG/L

Dlr:	3.		
Sample date:	17-MAY-12	Finding:	180.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	17-MAY-12	Finding:	0.61
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	17-MAY-12	Finding:	47.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	17-MAY-12	Finding:	26.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3.
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	41.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	9.2
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	53.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	170.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	180.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	150.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	8.
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	490.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	17-MAY-12	Finding:	3.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	04-APR-12	Finding:	2.8
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	04-APR-12	Finding:	2.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	04-APR-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

10
SW
1/2 - 1 Mile
Lower

Site ID:	083301831T
Groundwater Flow:	WNW
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	60
Date:	06/09/1999

AQUIFLOW **50804**

11
WSW
1/2 - 1 Mile
Lower

CA WELLS **2456**

Seq:	2456	Prim sta c:	02S/04W-07C01 S
Frds no:	3301369001	County:	33
District:	63	User id:	33C
System no:	3301369	Water type:	G
Source nam:	WELL 01	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	340056.0	Longitude:	1172035.0
Precision:	2	Status:	AR
Comment 1:	255 STEVENS RD RIVERSIDE	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3301369	System nam:	La Cadena Mutual Water Co
Hqname:	Not Reported	Address:	270 STEVENS AVE
City:	RIVERSIDE	State:	CA
Zip:	92506	Zip ext:	Not Reported
Pop serv:	25	Connection:	4
Area serve:	Not Reported		

12
WSW
1/2 - 1 Mile
Lower

Site ID:	083300131T
Groundwater Flow:	Not Reported
Shallow Water Depth:	50’
Deep Water Depth:	70’
Average Water Depth:	Not Reported
Date:	01/08/1987

AQUIFLOW **66418**

B13
SW
1/2 - 1 Mile
Lower

FED USGS **USGS40000139757**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	002S004W07L001S	Type:	Well
Description:	Not Reported	HUC:	18070203
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		

Formation Type:	Cenozoic Erathem	Aquifer Type:	Unconfined single aquifer
Construction Date:	1929	Well Depth:	402
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	2	Level reading date:	2004-06-10
Feet below surface:	115.9	Feet to sea level:	Not Reported
Note:	The site was being pumped.		
Level reading date:	2000-04-05	Feet below surface:	96
Feet to sea level:	Not Reported	Note:	The site was being pumped.

B14
SW
1/2 - 1 Mile
Lower

CA WELLS 2457

Seq:	2457	Prim sta c:	02S/04W-07L01 S
Frds no:	3310031015	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	ELECTRIC STREET WELL - BLENDED	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	340041.9	Longitude:	1172031.2
Precision:	1	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		

Sample date:	01-MAR-18	Finding:	9.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	01-FEB-18	Finding:	9.9
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	05-JAN-18	Finding:	0.16
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		

Sample date:	05-JAN-18	Finding:	12.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

Sample date:	05-JAN-18	Finding:	0.42
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

Sample date:	05-JAN-18	Finding:	7.4
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		

Sample date:	05-JAN-18	Finding:	9.7
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	06-DEC-17	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-NOV-17	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	06-OCT-17	Finding:	9.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	06-OCT-17	Finding:	14.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	06-OCT-17	Finding:	0.15
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	06-OCT-17	Finding:	0.48
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	07-SEP-17	Finding:	9.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	11-AUG-17	Finding:	9.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	21-JUL-17	Finding:	0.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-JUL-17	Finding:	0.11
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-JUL-17	Finding:	11.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	21-JUL-17	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	12-MAY-17	Finding:	9.8
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	13-APR-17	Finding:	1.4
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	13-APR-17	Finding:	13.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L

Dlr:	1.		
Sample date:	13-APR-17	Finding:	0.34
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	13-APR-17	Finding:	9.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	21-MAR-17	Finding:	9.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	17-MAR-17	Finding:	7.e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	26-JAN-17	Finding:	0.3
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	26-JAN-17	Finding:	8.9
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	26-JAN-17	Finding:	11.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	26-JAN-17	Finding:	1.1
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-OCT-16	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-SEP-16	Finding:	13.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-SEP-16	Finding:	9.6
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-SEP-16	Finding:	9.8e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	22-SEP-16	Finding:	1.2
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-SEP-16	Finding:	0.32
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	05-AUG-16	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	05-AUG-16	Finding:	7.e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	08-JUL-16	Finding:	220.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	10.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUL-16	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	1.
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	540.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	4.2e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	08-JUL-16	Finding:	4.4
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	08-JUL-16	Finding:	220.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	08-JUL-16	Finding:	0.56
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	08-JUL-16	Finding:	88.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	08-JUL-16	Finding:	72.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	4.3
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	58.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	18.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	100.
Chemical:	CALCIUM	Report units:	MG/L

Dlr:	0.		
Sample date:	08-JUL-16	Finding:	320.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	10.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUL-16	Finding:	270.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	7.6
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-JUL-16	Finding:	910.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	280.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	77.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	12.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUN-16	Finding:	330.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	100.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	19.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	4.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	61.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	940.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	7.6
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		

Sample date:	08-JUN-16	Finding:	1.4
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	12.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUN-16	Finding:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	1.1
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	600.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	15.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	08-JUN-16	Finding:	0.38
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	08-JUN-16	Finding:	4.9
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	08-JUN-16	Finding:	230.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	08-JUN-16	Finding:	0.51
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	08-JUN-16	Finding:	94.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	08-JUN-16	Finding:	230.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	4.4
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	13000.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-DEC-15	Finding:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	0.15
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU

Dlr:	0.1		
Sample date:	22-DEC-15	Finding:	58.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	22-DEC-15	Finding:	1.2
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	990.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	7.6
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	240.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	300.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	13.
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	22-DEC-15	Finding:	360.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	110.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	20.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	64.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	1.7
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	75.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	99.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	22-DEC-15	Finding:	0.51
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		

Sample date:	22-DEC-15	Finding:	240.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	22-DEC-15	Finding:	4.1
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	22-DEC-15	Finding:	0.31
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	22-DEC-15	Finding:	16.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	22-DEC-15	Finding:	630.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	25-MAR-15	Finding:	1.3
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	25-MAR-15	Finding:	46.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	25-MAR-15	Finding:	5.4e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	25-MAR-15	Finding:	14.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	25-MAR-15	Finding:	0.31
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	09-DEC-14	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	09-DEC-14	Finding:	10.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	09-DEC-14	Finding:	0.27
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	09-DEC-14	Finding:	1.5
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	14-NOV-14	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	10-OCT-14	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L

Dlr:	2.		
Sample date:	18-SEP-14	Finding:	44.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	18-SEP-14	Finding:	12.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	18-SEP-14	Finding:	0.33
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-SEP-14	Finding:	6.6
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	18-SEP-14	Finding:	0.33
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	07-AUG-14	Finding:	45.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	09-JUL-14	Finding:	5.8
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	09-JUL-14	Finding:	0.33
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	09-JUL-14	Finding:	12.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	09-JUL-14	Finding:	44.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	09-JUL-14	Finding:	0.34
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	30-MAY-14	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	18-APR-14	Finding:	0.34
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-APR-14	Finding:	0.32
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	18-APR-14	Finding:	44.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	18-APR-14	Finding:	5.3e-002
Chemical:	DIBROMOCHLOROPROPANE (DBCP)	Report units:	UG/L
Dlr:	1.e-002		
Sample date:	18-APR-14	Finding:	13.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	18-APR-14	Finding:	7.4
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	27-MAR-14	Finding:	0.45
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	27-MAR-14	Finding:	0.3
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	27-MAR-14	Finding:	58.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	27-MAR-14	Finding:	17.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	05-SEP-13	Finding:	15.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	05-SEP-13	Finding:	2.43
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	05-SEP-13	Finding:	45.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	07-AUG-13	Finding:	44.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	12-JUL-13	Finding:	44.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	19-JUN-13	Finding:	12.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	19-JUN-13	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	19-JUN-13	Finding:	1.84
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	19-JUN-13	Finding:	7.84
Chemical:	GROSS ALPHA	Report units:	PCI/L

Dlr:	3.		
Sample date:	24-MAY-13	Finding:	0.978
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	24-MAY-13	Finding:	13.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	24-MAY-13	Finding:	8.57
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	24-MAY-13	Finding:	45.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	12-APR-13	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	12-APR-13	Finding:	580.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	12-APR-13	Finding:	11.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	12-APR-13	Finding:	2.49
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JAN-13	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	21-DEC-12	Finding:	13.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	21-DEC-12	Finding:	2.01
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	21-DEC-12	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	21-DEC-12	Finding:	7.66
Chemical:	GROSS ALPHA	Report units:	PCI/L
Dlr:	3.		
Sample date:	30-NOV-12	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	11-OCT-12	Finding:	43.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	07-SEP-12	Finding:	7.8
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	9600.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	07-SEP-12	Finding:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	0.11
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	07-SEP-12	Finding:	42.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	07-SEP-12	Finding:	1.3
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	590.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	12.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	07-SEP-12	Finding:	200.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	07-SEP-12	Finding:	2.2
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	07-SEP-12	Finding:	0.52
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	07-SEP-12	Finding:	90.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	07-SEP-12	Finding:	68.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	4.5
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	60.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	19.
Chemical:	MAGNESIUM	Report units:	MG/L

Dlr:	0.		
Sample date:	07-SEP-12	Finding:	100.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	340.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	280.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	230.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	910.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	07-SEP-12	Finding:	2.4
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	02-AUG-12	Finding:	40.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	06-JUL-12	Finding:	110.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	300.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	250.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	21.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	65.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	4.7
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	70.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	370.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	06-JUL-12	Finding:	990.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	7.9
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	12000.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	06-JUL-12	Finding:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	0.27
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	06-JUL-12	Finding:	53.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	06-JUL-12	Finding:	1.4
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	630.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	17.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	06-JUL-12	Finding:	240.
Chemical:	BORON	Report units:	UG/L
Dlr:	100.		
Sample date:	06-JUL-12	Finding:	0.54
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	06-JUL-12	Finding:	100.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	19-APR-12	Finding:	2.66
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	19-APR-12	Finding:	48.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	19-APR-12	Finding:	14.
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

15
NNE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000139913**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	002S004W05C001S	Type:	Well
Description:	Not Reported	HUC:	18070203
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	266
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

16
NE
1/2 - 1 Mile
Higher | **CA WELLS** | **2452**

Seq:	2452	Prim sta c:	02S/04W-05C01 S
Frds no:	3310031012	County:	33
District:	14	User id:	WAT
System no:	3310031	Water type:	G
Source nam:	DEBERRY	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	340153.1	Longitude:	1171918.4
Precision:	1	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310031	System nam:	Riverside, City Of
Hqname:	Not Reported	Address:	3900 MAIN STREET
City:	RIVERSIDE	State:	CA
Zip:	92522	Zip ext:	Not Reported
Pop serv:	245000	Connection:	58586
Area serve:	RIVERSIDE		
Sample date:	25-JAN-17	Finding:	3.5
Chemical:	ARSENIC	Report units:	UG/L
Dlr:	2.		
Sample date:	16-JUN-16	Finding:	3.6
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	16-JUN-16	Finding:	1.2
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	16-JUN-16	Finding:	1.4
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	26-DEC-13	Finding:	0.12

Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	26-DEC-13	Finding:	2.
Chemical:	ODOR THRESHOLD @ 60 C	Report units:	TON
Dlr:	1.		
Sample date:	07-SEP-12	Finding:	260.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	3.
Chemical:	GROSS ALPHA MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	06-JUL-12	Finding:	1.4
Chemical:	URANIUM (PCI/L)	Report units:	PCI/L
Dlr:	1.		
Sample date:	06-JUL-12	Finding:	2.5
Chemical:	GROSS ALPHA COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		

1G
South
1/4 - 1/2 Mile
Lower

Site ID:	083302350T
Groundwater Flow:	Not Reported
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	50 ft
Date:	07/27/1997

AQUIFLOW **51004**

2G
SW
1/2 - 1 Mile
Lower

Site ID:	083301831T
Groundwater Flow:	WNW
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	60
Date:	06/09/1999

AQUIFLOW **50804**

3G
WSW
1/2 - 1 Mile
Lower

Site ID:	083300131T
Groundwater Flow:	Not Reported
Shallow Water Depth:	50’
Deep Water Depth:	70’
Average Water Depth:	Not Reported
Date:	01/08/1987

AQUIFLOW **66418**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92313	4	0

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN BERNARDINO COUNTY, CA

Number of sites tested: 18

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.678 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

Appendix C

Regulatory Agency Records

Eric Fraske

From: Debra Thomas <dthomas@grandterrace-ca.gov>
Sent: Wednesday, October 14, 2020 2:32 PM
To: Eric Fraske
Subject: RE: Records Request

Good Afternoon Mr. Fraske,

The City of Grand Terrace is in receipt of your Public Records Request which was received on October 1, 2020 for the following records:

"Building and safety records associated with the property located at 21660 Main Street, Grand Terrace, CA."

We are treating your request as a request for public agency information in accordance with the California Government Code Section 6250 and following the California Public Records Act, which requires that public agencies make reasonably identified, non-exempt public records available for inspection or provide copies upon payment of the direct cost of duplication.

Pursuant to Government Code Section 6253(c), we have determined that the City does not possess any records responsive to your request.

The City's Building & Safety Department is responsible for making this determination. Thank you for your request.

Debra L. Thomas, CMC
City Clerk, City of Grand Terrace
22795 Barton Road
Grand Terrace, CA 92313
p: 909.824.6621 x230
f: 909.824.6623

From: Eric Fraske <Eric.Fraske@nv5.com>
Sent: Thursday, October 1, 2020 3:34 PM
To: Debra Thomas <dthomas@grandterrace-ca.gov>
Subject: Records Request

Hello,

Please find the attached records request for building and safety department records for a property located at 21660 Main Street in Grand Terrace, CA. The APN is 1167-151-77.

Thanks,

Eric Fraske | Senior Engineer III | **NV5** | Site Assessment and Remediation
3777 Long Beach Boulevard, Annex Building | Long Beach, CA 90807 | P: 562.495.5777 | C: 562.544.3910
eric.fraske@nv5.com | www.altaenviron.com | www.nv5.com | Electronic Communications Disclaimer

SAN BERNARDINO COUNTY FIRE PROTECTION DISTRICT

620 South "E" Street ● San Bernardino, CA 92415-0153 ● (909) 386-8401 ● Fax (909) 386-8460

Office of the Fire Marshal
Hazardous Materials Division
sbcfire.org

Daniel R. Munsey
Fire Chief/Fire Warden

Michael A. Horton
Fire Marshal/Deputy Fire Warden

October 7, 2020

20100103 Grand Terrace NRL Alta/NV5

ALTA/NV5
3777 LONG BEACH BLVD., ANNEX BLDG.
LONG BEACH, CA 90807

ATTENTION: **ERIC FRASKE**

SUBJECT: **CERTIFIED RECORD SEARCH FINDINGS**
21660 MAIN STREET, GRAND TERRACE, CALIFORNIA
APN#: 1167-151-77-0000

This is to confirm that the OFM Hazardous Materials Division (HMD) has searched its records for any file(s) pertaining to the subject property, as described in your request, and finds that no records exist for the above site description(s).

Records maintained by OFM-HMD date back to mid-1980's. Records searched include:

- facilities with hazardous waste generator permits, hazardous materials handler permits, underground storage tank permits, universal waste permits, tiered permits, EPCRA facilities, RMP facilities, Cal ARP facilities, and/or waste recycling generators, including inactive and/or out of business records, as well as non-permitted facility actions;
- logs of permits issued for the removal, installation, and/or modification of underground storage tanks;
- records and databases pertaining to illicit dumping, spill reports and release notifications, and complaints;
- incidents responded to by the hazardous materials emergency response team;
- and sites undergoing remediation for contaminated soil and/or groundwater.

Donna Juday

DONNA JUDAY
Office Specialist
Office of the Fire Marshal
Hazardous Materials Division

10/06/20
2020-390
NO RECORDS FOUND. JH

385 N Arrowhead Ave, 2nd Floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323
www.SBCounty.gov
www.SBCounty.gov/dph/dehs

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

REQUEST TO INSPECT/REPRODUCE PUBLIC RECORDS

Return to any of the following offices:
385 N. Arrowhead Ave. 2nd Floor, San Bernardino 92415-0160
15900 Smoke Tree St., Ste. 131, Hesperia 92345
8575 Haven Ave., Ste. 130, Rancho Cucamonga 91730

TO BE COMPLETED BY REQUESTER			
INFORMATION FOR RECORDS REQUESTED			
Facility Name: (Business or Apartment Complex name)			
Location Address: 21660 Main Street	**City:** Grand Terrace	**State:** CA	**Zip:** 92313
Case/File Number: (If known) Unknown	**Inspector:** (If known) Unknown		
Indicate time frame of information requested: (month/year or date of inspection)			
From: 1900 **To:** Present	**From:** **To:**	**From:** **To:**	
Specific information requested: (File, inspection report, complaint, etc.)			
All environmental health records associated with the property located at 21660 Main Street in Grand Terrace, CA 92313. APN for the property is 1167-151-77			
NOTE: EACH REQUESTER AND/OR FILE MUST HAVE A SEPARATE FORM COMPLETED. FOR A LIST REQUEST, PLEASE CALL (800) 442-2283.			
FEES			
Copy Fee: $.10 Per Page			
Certified Copies: Additional $.22 Per Page			
REQUESTER INFORMATION			
Requester Name: Alta Environmental (Include affiliation, i.e. business name, law office, owner, private citizen, employee, etc.)			
Requester Address: 3777 Long Beach Blvd, Annex Building	**City:** Long Beach	**State:** CA	**Zip:** 90803
E-mail Address: (Preferred method of delivery) eric.fraske@nv5.com			
Phone Number: (To notify when copies/files are ready) 562-544-3910			
OFFICE USE ONLY			
PROGRAM	**DATE**		
PAID $	**# PGS**		
RECEIPT #	**REC'D BY**		

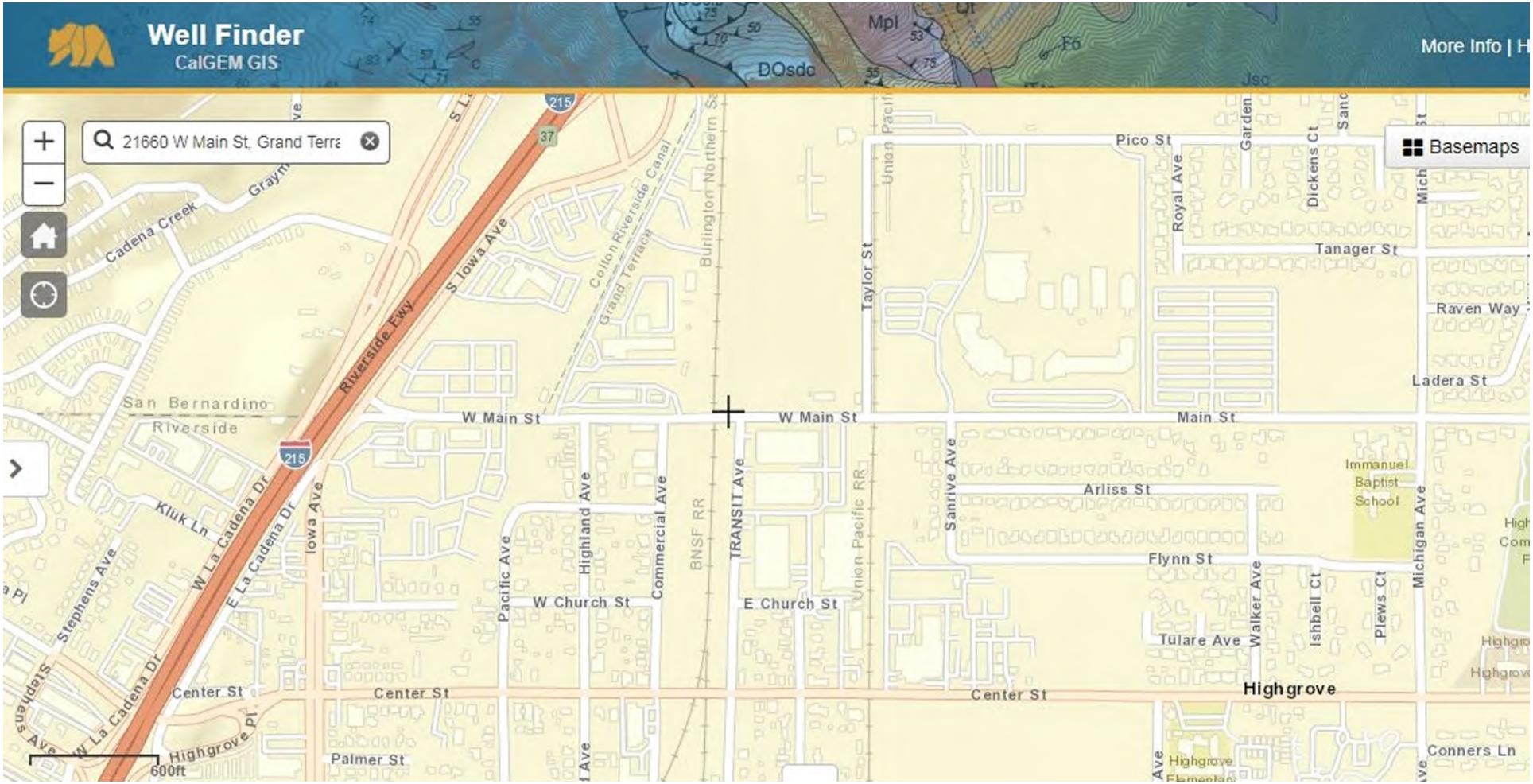
U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map

October 27, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine


Well Finder
CalGEM GIS
More Info | H
21660 W Main St, Grand Terra
Basemaps
Cadena Creek
Riverside Fwy
S Iowa Ave
Colton Riverside Canal
Grand Terrace
Burlington Northern
Union Pacific
Taylor St
Pico St
Royal Ave
Garden
Dickens Ct
Tanager St
Raven Way
Ladera St
San Bernardino
Riverside
W Main St
W Main St
Main St
Arliss St
Sanrive Ave
Immanuel Baptist School
Flynn St
Michigan Ave
Walker Ave
Ishbell Ct
Plews Ct
Tulare Ave
Highgrove
Conners Ln
Highgrove Elementary
Kluk Ln
W La Cadena Dr
E La Cadena Dr
Iowa Ave
Stephens Ave
Pacific Ave
Highland Ave
Commercial Ave
BNSF RR
TRANSIT Ave
Union Pacific RR
W Church St
E Church St
Center St
Center St
Center St
Highgrove Pl
Palmer St
600ft
DOsdc
Mpl
Fo
Jsc

HALEY ALDRICH

www.haleyaldrich.com

SECOND QUARTER 2020 GROUNDWATER MONITORING REPORT FORMER KJ PLATING FACILITY 21750 MAIN STREET GRAND TERRACE, CALIFORNIA

by
Haley & Aldrich, Inc.
Costa Mesa, California

for
KJ Plating, Inc.
Grand Terrace, California

File No. 128544-009
August 2020

HALEY & ALDRICH, INC.
3187 Red Hill Ave
Suite 155
Costa Mesa, CA 92626
714.371.1800

26 August 2020
File No. 128544-009

California Department of Toxic Substances Control
Brownfields and Environmental Restoration Program
5796 Corporate Avenue
Cypress, California 90630

Attention: Ms. Irena Edwards

Subject: Second Quarter 2020 Groundwater Monitoring Report
Former KJ Plating Facility
21750 Main Street
Grand Terrace, California

Dear Ms. Edwards:

Haley & Aldrich, Inc, is submitting this Second Quarter 2020 Groundwater Monitoring Report (Report) on behalf of KJ Plating, Inc., for the former KJ Plating Facility located at 21750 Main Street, in Grand Terrace, California.

Please feel free to contact either of the undersigned should you have questions or require additional information regarding this Report.

Sincerely yours,
HALEY & ALDRICH, INC.

Kelly Hoggan, PG 9026 (CA)
Senior Technical Specialist - Geologist

Anita Broughton, EIT, CIH
Principal Consultant

c: KJ Plating, Inc.; Attn: Ms. Jean Franks
Mr. Jim Gourley

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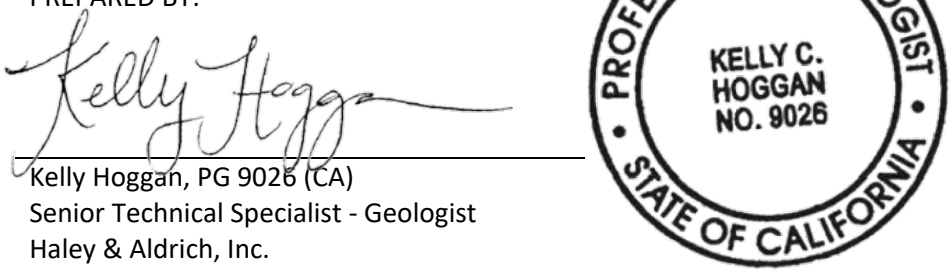
HALEY & ALDRICH, INC.
3187 Red Hill Ave
Suite 155
Costa Mesa, CA 92626
714.371.1800

SIGNATURE PAGE FOR

SECOND QUARTER 2020 GROUNDWATER MONITORING REPORT
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

PREPARED FOR
KJ PLATING, INC.
GRAND TERRACE, CALIFORNIA

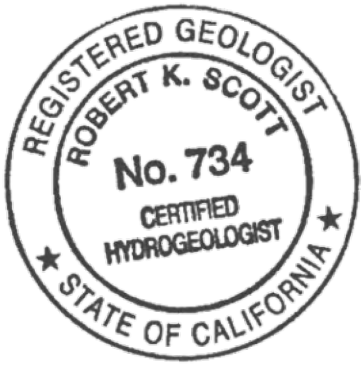
PREPARED BY:



Kelly Hoggan, PG 9026 (CA)
Senior Technical Specialist - Geologist
Haley & Aldrich, Inc.

REVIEWED AND APPROVED BY:

Anita Broughton, EIT, CIH
Principal Consultant
Haley & Aldrich, Inc.



Robert K Scott, PG, CHg, QISP
Senior Associate Hydrogeologist
Haley & Aldrich, Inc.

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1. Introduction

Haley & Aldrich, Inc., (Haley & Aldrich) is submitting the Second Quarter 2020 Groundwater Monitoring Report (Report) to the California Department of Toxic Substances Control (DTSC) on behalf of KJ Plating, Inc., for the former KJ Plating Facility located at 21750 Main Street, in Grand Terrace, California (Site). The groundwater monitoring and sampling activities were performed in accordance with the DTSC-approved "Removal Action Workplan" (RAW) alternative (Haley & Aldrich, 2011).

The selected RAW alternative was approved by the DTSC in their letter dated 20 January 2012 and includes the maintenance of a low technology cap, groundwater well installation and monitoring, and the preparation of an implementation plan for a land use covenant (LUC) that also restricts future Site redevelopment to commercial/industrial land uses. The selected RAW alternative was identified as an effective means for reducing the amount of rainwater and irrigation water infiltrating through soil impacted with constituents of concern (COCs) to groundwater and was implemented in 2012. The COCs were identified as nickel, copper, total chromium, and hexavalent chromium.

This Report summarizes the second quarter 2020 groundwater monitoring and sampling activities conducted in accordance with the requirements set forth in the RAW, the "Groundwater Monitoring Plan" dated 1 June 2012 approved by the DTSC on 10 July 2012, and the DTSC letter dated 11 January 2018. The groundwater monitoring activities described in this Report occurred on 29 June 2020.

As recommended in the "First Quarter 2020 Groundwater Monitoring and Well Installation Report," each of the four wells were also analyzed for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B because samples from the drums containing purged groundwater from the development of MW-7 contained VOCs (Haley & Aldrich, 2020). Sampling and analysis were performed during this sampling event to verify the possible presence of VOCs in one or more of the monitoring wells.

This Report includes the following sections:

- Site description;
- Groundwater monitoring activities and results;
- Groundwater sampling activities and results;
- Findings and conclusions; and
- Activities planned for third quarter 2020.

2. Site Description

The Site is located at 21750 Main Street, in Grand Terrace, California, as shown on Figure 1. The Site is rectangular, fenced, paved, and comprises approximately 1.5 acres. The former on-Site KJ Plating Facility structures and parking areas were located on the southern half of the Site.

The Site is located at the northeastern corner of Main Street and Taylor Street near the southern boundary of the City of Grand Terrace, situated between the cities of San Bernardino and Riverside, California. The Site is bounded on the east and north by the Grand Terrace High School (formerly High School No. 3), on the west by a former city park now closed and the former Southern California Edison (SCE) Highgrove Generating Facility, which is also closed, and on the south by industrial and residential properties (Figure 2). The Riverside Freeway (Interstate 215) is located approximately ½ mile west, and the Moreno Valley Freeway (Freeway 60) is located approximately 3 miles south of the Site.

2.1 SITE BACKGROUND

KJ Plating owned and operated the former on-Site metal plating facility from 1973 until 1999, when operations were terminated. Prior to KJ Plating, Riverside Plating operated the facility from at least 1966. Prior to 1966, the Site was part of a citrus orchard. Pre-demolition asbestos, lead-based paint, and equipment surveys were completed at the Site in early 2008, and the on-Site buildings were removed in late 2008.

The Site investigation activities are being conducted under DTSC oversight. The RAW summarizes additional information related to previous Site activities, including the "Supplemental Site Investigation Report" (SSI Report) with an updated Human Health Risk Assessment ([HHRA]; Haley & Aldrich, 2010a) and the "Supplemental Site Investigation Addendum," which includes a summary of the chemical transport modeling conducted to assess potential future hexavalent chromium impacts to groundwater quality (Haley & Aldrich, 2010b).

The COCs at the Site are metals, specifically copper, nickel, total chromium, and hexavalent chromium. During previous investigations, soil samples were analyzed for California Code of Regulations (CCR) Title 22 Metals, and although other metals were detected, hexavalent chromium was identified as the primary COC because of its mobility and toxicity characteristics. Based on the results of the updated HHRA presented in the SSI Report, the residual metal impacts at the Site do not pose significant health risks to future on-Site commercial/industrial receptors. In a 7 January 2011 letter, the DTSC concurred with the findings and conclusions of the SSI Report and indicated that no further soil characterization was required at the Site.

The RAW was submitted to the DTSC In 2011 and approved by DTSC in a letter dated 20 January 2012. The approved selected RAW alternative included installing a surface cover (cap) on the entire Site to limit the infiltration of precipitation that may mobilize subsurface residual hexavalent chromium, operating and maintaining the cap, abandoning dry monitoring wells MW-1A, MW-2, and MW-3, installing three replacement monitoring wells, MW-4, MW-5, and MW-6, and groundwater monitoring. The RAW also restricted future Site redevelopment to commercial/industrial land uses through a LUC, which was recorded with the County of San Bernardino on 27 March 2013. The RAW required that replacement monitoring wells MW-4, MW-5, and MW-6 be monitored semiannually for an initial period of five years after their installation. It further stated that once the five-year groundwater monitoring

program had been completed, the DTSC would conduct a five-year review to assess the status of the groundwater condition and evaluate whether the monitoring program could be discontinued. The initial RAW implementation activities were summarized in the "Cap Completion and Well Installation Report" dated 21 November 2012 (Haley & Aldrich, 2012b).

The five-year groundwater monitoring program was completed in April 2017, and the "Tenth Semi-Annual Groundwater Monitoring Report" was submitted on 30 June 2017 (Haley & Aldrich, 2017b). DTSC requested in their letter dated 11 January 2018 that the semiannual groundwater monitoring program should continue and the frequency be revised to quarterly until an understanding of the groundwater conditions beneath the Site had been obtained (DTSC, 2018). The groundwater monitoring program has been conducted on a quarterly frequency since first quarter 2018.

Based on their review of the "Third Quarter 2018 Groundwater Monitoring Report" (Haley & Aldrich, 2019a), DTSC requested that the current groundwater monitoring network be evaluated to assess potential data gaps associated with the recorded changes in water level elevations and groundwater flow directions over time. A "Groundwater Monitoring Program Evaluation Report" was submitted to DTSC on 28 March 2019 (Haley & Aldrich, 2019b). It was proposed that one groundwater monitoring well be installed at a still to be determined location along the western edge of the property. Since the previously collected transducer data only provided groundwater elevation data over one year, it was recommended that additional transducer data be collected to provide another set of seasonal data. The two years of transducer data would then be used to provide a greater level of certainty for ascertaining the predominant flow direction, which could then be used to help identify the proposed location of the additional on-Site groundwater monitoring well. On 30 August 2019, an "Addendum to Groundwater Monitoring Program Evaluation Report" (Haley & Aldrich, 2019c) was submitted to the DTSC with the additional transducer and groundwater elevation data collected from December 2018 through June 2019. In the "Third Quarter 2019 Groundwater Monitoring Report" dated 12 November 2019 (Haley & Aldrich, 2019d), an additional groundwater monitoring well (MW-7) was proposed to be installed along the western edge of the Site to provide a monitoring location when the groundwater flow is toward the northwest. DTSC approved the MW-7 location in their letter dated 12 December 2019 (DTSC, 2019), and the well screen was reduced from 35 feet to 30 feet as requested by the DTSC in a phone conversation between Haley & Aldrich and Greg Neal of DTSC on 10 March 2020. Monitoring well MW-7 was installed during the first quarter 2020, and the construction activities were summarized in the "First Quarter 2020 Groundwater Monitoring and Well Installation Report" (Haley & Aldrich, 2020).

2.2 REGIONAL SETTING

The Site is located south of the San Gabriel and San Bernardino Mountains, in the southern segment of the San Bernardino Valley. The San Gabriel Mountains are west-trending ranges structurally controlled, in part, by faulting. The Site is located approximately 3½ miles east of the Jurupa Mountains, which are primarily composed of impermeable bedrock, and approximately 1 mile west of the Box Spring Mountains. The Loma Hills are located about 2/3 of a mile northwest of the Site. The nearest active fault to the Site is the northwest trending San Jacinto Fault, which occurs approximately 3¼ miles to the northeast.

2.2.1 Regional Geology

The surface geology in the area around the Site has been described as Pleistocene alluvial fan deposits (fanglomerate) and well-indurated older decomposed clay-rich alluvium (Fife, et al., 1976). The unconsolidated deposits in the vicinity of the Site extend to a depth of approximately 350 to 400 feet below ground surface (bgs), where they overlie granitic bedrock. Regionally, the area around the Site slopes to the southwest (U.S. Geological Survey 7.5-minute Topographic Series, San Bernardino South, California Quadrangle Map, 1980).

The Site sits in the northeast part of the Riverside-Arlington groundwater sub-basin. This sub-basin is bounded by impermeable granitic rocks of the Box Springs Mountains to the southeast, Arlington Mountain to the south, La Sierra Heights and Mount Rubidoux to the northwest, and the Jurupa Mountains to the north. The northeast boundary of the sub-basin is formed by the Rialto-Colton fault, and a portion of the sub-basin northern boundary is a groundwater divide beneath the City of Bloomington (California Department of Water Resources, 2003). Surface water drainage in the Site vicinity follows the topography, generally toward the southwest.

2.2.2 Regional Hydrogeology

The Site lies at the confluence of groundwater flow from a local source at the Pigeon Pass Valley in the Box Springs Mountains to the southeast and from the Santa Ana River Valley, a major regional source, to the north. Groundwater flow in the sub-basin in the vicinity of the Site has typically been to the south to southwest (Wildermuth Environmental, 2001, Kendall-Adams, 2002c), but appears to shift to the west-northwest, possibly in response to production from nearby production wells (see Section 2.2.2.1 below). Shifts in groundwater flow from southwest to northwest are, in part, likely based on the convergence of groundwater flow from the southeast and north, resulting in a flatter gradient that allows groundwater gradient to shift more easily than in other parts of the sub-basin. Additional information regarding nearby municipal wells and local groundwater flow directions is provided in the sections below and in the "Groundwater Monitoring Program Evaluation Report" submitted to the DTSC on 28 March 2019 (Haley & Aldrich, 2019b).

2.2.2.1 Nearby Wells

Historically, the alluvial fan deposits of the sub-basin have been drilled and used to supply agricultural and municipal water in the region. In March 2019, Haley & Aldrich performed an updated production well search to identify currently active production wells within a 1-mile radius of the Site. According to information obtained from the Western Municipal Water District, which provided verified extraction rates from production wells between 2013 and 2017, the following five active wells were identified within a 1-mile radius of the Site (Haley & Aldrich, 2019b).

- Two City of Riverside, Van Buren municipal wells (Van Buren #1 and #2), located approximately ½ mile north and north-northeast of the Site;
- Riverside Highland Water Company (RHWC) RN #6, a municipal well located approximately ¾ mile northeast of the Site;
- Elsinore Valley Municipal Water District (Temescal) Palm Avenue irrigation well, located approximately 1 mile north of the Site; and

- City of Riverside Electric Street municipal well, located approximately 1 mile southwest of the Site.

The nearest production well is RHWC production water well RN #7 (State Well No. 2S4W06R01), which is screened from 80 to 380 feet bgs. Well RN #7 is located on the northwestern corner of the intersection of Main Street and Taylor Street, approximately 100 feet west of the southwestern corner of the Site (Figures 2 and 3). RHWC's Distribution Superintendent Craig Gudgeon indicated on 22 April 2019 that there is reportedly no plan to use RN #7 in the near future, given the relatively high nitrate concentrations measured in groundwater pumped from this well.

Other boring logs from the surrounding wells, which include currently inactive production wells at the former California Electric Power Company/SCE property northwest of the Site and active production wells operated by the RHWC, indicate that groundwater in the Site vicinity is commonly pumped from an unconfined/semi-confined groundwater basin at depths historically ranging from between about 90 and 300 feet bgs (range of screen intervals).

2.2.2.2 Groundwater Flow Direction

Regionally, groundwater flow is naturally to the south-southwest (Wildermuth Environmental, 2001; Kendall-Adams, 2002c). However, the groundwater flow direction at the Site has varied from northwest to southeast. Given the observed variability, the monitoring wells were resurveyed in May 2016. Pressure transducers were also installed in the three on-Site monitoring wells to provide a more thorough record of groundwater elevations and flow direction. Based on the differences in elevations from the 2012 survey to the 2016 survey, more emphasis is being placed on the data collected after the wells were resurveyed. Pressure transducer data and groundwater level measurement data collected from May 2016 to present indicate that when RN #7 is not pumping, the groundwater flow direction at the Site varies from northwest to south-southwest. This is likely due to the confluence of groundwater flow from a local source at the Pigeon Pass Valley in the Box Springs Mountains to the southeast and from the Santa Ana River Valley, a major regional source to the north. Additionally, flow direction may be influenced by nearby pumping wells. However, based on pressure transducer data collected at the Site, the only confirmed influence is from formerly active well RN #7. When RN #7 is pumping, the data show the groundwater elevations in on-Site wells decrease, the groundwater gradient steepens, and the flow direction becomes more westerly, towards RN #7. As the pumping is stopped, the groundwater levels rebound and the groundwater gradient begins to decrease, returning to its pre-pumping flow direction (Haley & Aldrich, 2017a).

Predicting future groundwater gradients in the upper groundwater at the Site is difficult. The natural gradient of the sub-basin, which for the most part is indicated by the surface topography, is to the southwest. The gradient at the Site is very flat when RN #7 is not pumping; the groundwater flow direction varies between northwest to southwest, and the gradient is typically less than 0.0015 foot per foot (ft/ft). Relatively small changes in production rates from nearby wells, reusing currently inactive wells, or changes in groundwater recharge could result in changes in groundwater flow direction beneath the Site.

2.3 SITE GEOLOGY AND SOIL TYPES

Monitoring wells MW-4 through MW-6 were installed while implementing the RAW and were drilled to total depths of 177.5 feet bgs (MW-4 and MW-5) and 176 feet bgs (MW-6; Haley & Aldrich, 2012b). Monitoring well MW-7 was installed in March 2020 and drilled to a total depth of 189 feet bgs (Haley & Aldrich, 2020). A deep boring, HAPLB-5, was advanced to 130 feet bgs while implementing the Supplemental Site Investigation (Haley & Aldrich, 2010a). Findings from these continuously cored monitoring wells and soil boring along with a review of boring logs from other on-Site borings advanced to shallower depths and previous on-Site groundwater monitoring wells, indicate that the upper 60 feet of soil at the Site consists mostly of silt, silty sands, poorly graded and well graded sands, and some clayey sand/sandy clay. Soil from approximately 60 to 77 feet bgs consist of fat and lean clay inter-bedded with silty sand or clayey sand. Soil below 77 feet to 189 feet consists of mostly well graded and poorly graded sand with gravel. These findings are generally consistent with earlier investigation findings, as described within the May 2002 "Report of Findings Soil Borings, Sampling and Analysis" (Kendall/Adams Group, Inc., May 2002a, b).

2.4 SITE GROUNDWATER WELL NETWORK

Three groundwater monitoring wells, former MW-1A, MW-2, and MW-3, were abandoned in 2012 as part of the RAW implementation (Haley & Aldrich, 2012b), given the declining water table beneath the Site. Water level information obtained in January 2009 for RN #7 indicated a depth to groundwater of 134 feet bgs. On-Site groundwater depths were reported to range from approximately 90 feet bgs to 127 feet bgs between 1990 and 2002. Depth to groundwater data collected at the former wells from February 2000 through May 2002 indicated a declining water table such that the water table dropped below the screen depth (bottom of screened intervals were 131.28 feet bgs at groundwater water monitoring well MW-1A, 128.72 feet bgs at MW-2, and 135.6 feet bgs at MW-3), thus resulting in groundwater becoming too deep to sample within the wells by May 2002.

Groundwater was measured at approximately 155 to 157 feet bgs when installing monitoring wells MW-4, MW-5, and MW-6 in September 2012. An additional monitoring well, MW-7, was installed in March 2020 following the evaluation of the groundwater well network, as requested by DTSC. The well locations and construction details are shown on Figure 3 and summarized in Table I; groundwater gauging data from 2012 to present are summarized in Table II.

3. Groundwater Monitoring Activities and Results

A summary of the groundwater monitoring activities and the associated results is presented below.

3.1 GROUNDWATER MONITORING ACTIVITIES

The details of this groundwater monitoring event are as follows:

- Groundwater monitoring was conducted on 29 June 2020 by a trained environmental professional in accordance with the "Groundwater Monitoring Plan" (Haley & Aldrich, 2012a).
- Prior to removing the transducers and purging and sampling the wells, the depth to groundwater was measured in each well from the surveyed mark at the top of each well casing to the nearest 0.01 foot using an electronic water level meter. Groundwater levels were recorded on the field logs included in Appendix A. Groundwater elevation data are presented in Table II.
- The data-logging pressure transducers and barologger, which measures the barometric pressure, were retrieved from monitoring wells MW-4 through MW-7 after depth to water readings were taken. The data were downloaded from the instruments during the June 2020 sampling event, the memory was cleared, and they were redeployed in the wells after the groundwater sampling was completed. Prior to redeploying the pressure transducers, the battery life in each of the instruments was checked and indicated near full battery strength.

3.2 GROUNDWATER MONITORING RESULTS

Given the variable groundwater flow direction over time, the groundwater wells were resurveyed on 9 May 2016 (Spring 2016 monitoring event) to verify the groundwater monitoring well elevations. At that time, the latitude, longitude, and elevation of each monitoring well were resurveyed by Calvada Surveying Inc., a California-licensed land surveyor (license number 7780). Groundwater gradients reported from May 2016 onwards were calculated using the 9 May 2016 survey data. Table I includes a summary of the surveys completed in 2012, 2016, and the recent survey for monitoring well MW-7 completed on 17 March 2020.

The 29 June 2020 depth to groundwater data as well as the data from previous events are presented in Table II. The depth to groundwater prior to sampling ranged from 160.49 feet bgs at groundwater monitoring well MW-7 to 163.73 feet bgs at MW-4. Water table elevations have generally shown seasonal variation with a general decreasing elevation trend since the monitoring wells were installed in 2012. Groundwater levels measured during this monitoring event were approximately 0.5 foot higher than the last quarterly monitoring event on 30 March 2020, and approximately 13 feet of water was present in the screen intervals of monitoring wells MW-4, MW-5, and MW-6 and approximately 24 feet within the screen interval of monitoring well MW-7. The manual depth to groundwater measurements collected at the Site during the second quarter 2020 monitoring activities indicate the estimated groundwater flow direction was to the west-southwest with a relatively flat gradient of 0.0009 ft/ft (Figure 4).

According to RHWC, RN #7 does not operate on a schedule. RHWC provided Haley & Aldrich a monthly well production summary table in May, June, and July 2020 summarizing pumping volumes at RN #7 and other RHWC wells during the second quarter 2020. Well production summaries indicated that RN #7 was not pumped from 1 April to 30 June 2020. RHWC had previously indicated that when RN #7 was actively pumping, the well pumped approximately 1,600 gallons of water per minute. Table III lists the dates of groundwater sampling since the on-Site wells were constructed, the corresponding on-Site groundwater gradient, and the pumping status of RN #7 during the identified on-Site groundwater monitoring activities.

Pressure transducers were installed in on-Site wells on 30 March 2020, and data were collected on 29 June 2020. Additional manual depth to groundwater measurements were collected on 28 April 2020. These manual measurements were also used to calculate the depth to water from the pressure transducer readings. Based on data collected from the pressure transducers, the groundwater flow direction was to the west-southwest during the second quarter as shown on Figure 5. Recorded groundwater elevations from the four on-Site monitoring wells, obtained from the pressure transducer data, have been plotted on a graph provided in Appendix B. The distances between the elevation contours become closer together in June 2020 as the groundwater levels decrease. The groundwater gradient begins to decrease, and the groundwater flow direction shifts slightly more to the west, as shown on Figure 5.

4. Groundwater Sampling Activities and Results

Based on elevated total chromium and hexavalent chromium results in 2016 and 2017, DTSC requested in their letter dated 11 January 2018 that the sampling frequency be increased to quarterly. This is the tenth quarterly monitoring event since the frequency change request.

4.1 GROUNDWATER SAMPLING ACTIVITIES

The details of this groundwater sampling event are as follows:

- Groundwater sampling was conducted on 29 June 2020 by a trained environmental professional in accordance with the "Groundwater Monitoring Plan" (Haley & Aldrich, 2012a).
- Each well was purged and sampled in general accordance with Haley & Aldrich's Operating Procedure OP3012 (Haley & Aldrich, 2012a) using a bladder pump with dedicated tubing, similar to previous monitoring events. Field readings were recorded on field logs. The field logs and equipment calibration documentation are included in Appendix A. Sampling activities are summarized as follows:
  - The sample tubing flowed through a Horiba U-53 field parameter measurement instrument and then into a department of Transportation (DOT)-approved 55-gallon drum.
  - The field parameter instrument measured temperature, pH, electrical conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential. The instrument was calibrated in accordance with the manufacturer's specifications prior to field use.
  - Low-stress or minimal drawdown sampling ("Low-Flow Sampling") was used to purge and sample each well. The pump was set to pump at a rate that did not result in more than 0.2 foot of drawdown. During purging, field parameters were measured and recorded approximately every 3 to 5 minutes from the flow-through cell. Groundwater samples were not collected until after pH, electrical conductivity, and dissolved oxygen readings had stabilized to within 10 percent of each consecutive reading.
  - The samples were collected by disconnecting the sample tubing from the flow-through cell and collecting a sample directly from the tubing. The groundwater for each sample was field-filtered through a new in-line 0.45 micrometer water filter prior to collecting one 250 milliliter (mL) low density polyethylene sample bottle containing nitric acid preservative for CCR Title 22 Metals analysis and a 125-mL sample bottle for hexavalent chromium. Three 40-mL glass volatile organic analysis vials were also collected without a filter for analysis of VOCs as recommended in the "First Quarter 2020 Groundwater Monitoring and Well Installation Report" (Haley & Aldrich, 2020).
- Sampling equipment that contacted groundwater was cleaned prior to sampling and after each use with de-ionized water and non-phosphate soap, followed by a potable water rinse and finally with de-ionized water.
- One quality assurance duplicate sample set was collected from MW-4.
- Samples were labeled, sealed in a plastic bag, then placed and kept in an ice-filled cooler until their arrival at Eurofins Calscience LLC, a California-certified Environmental Laboratory in Garden

Grove, California. The samples were transported under standard chain of custody protocol and received by the laboratory on the day the samples were collected. The laboratory report is included in Appendix C.

- Purge water generated during sampling activities was contained in a California DOT-approved 55-gallon drum. The drum was sealed, labeled, and temporarily stored on-Site pending off-Site disposal.

4.2 GROUNDWATER SAMPLING RESULTS

Groundwater samples were collected from the four on-Site monitoring wells: MW-4, MW-5, MW-6, and MW-7. The samples were analyzed for CCR Title 22 Metals and hexavalent chromium following EPA Methods 6010B/7470A and 218.6, respectively, and VOCs by EPA Method 8260B. The analytical results for metals in groundwater samples collected during this monitoring event are shown in Table III. VOC analytical results are summarized in Table IV. A summary of the analytical results is as follows:

- Antimony, beryllium, cadmium, cobalt, copper, mercury, nickel, selenium, silver, thallium, vanadium, and zinc were not detected at concentrations greater than the laboratory detection limit.
- Barium and molybdenum were not detected at concentrations greater than their respective California Department of Public Health Maximum Contaminant Level (MCL).
- Arsenic was detected at estimated ("J" flagged) concentrations greater than the MCL of 0.01 milligrams per liter (mg/L) at MW-5 (0.032 J mg/L) and MW-6 (0.019 J mg/L). Arsenic has only been detected in one previous event.
- Lead was detected at estimated concentrations greater than the MCL of 0.015 mg/kg in each of the wells. Lead concentrations ranged from 0.0212 J to 0.0288 J mg/L. This was the first sampling event in which lead was detected in groundwater samples. These lead results appear anomalous, as each result was reported as an estimated concentration in a narrow concentration range, lead has been reported as less than the detection limit in groundwater samples collected from each well during each of the previous sampling events, and based on historical on-Site data, lead was not identified as a COC.
- Chromium and hexavalent chromium were detected at concentrations greater than the MCL for total chromium of 0.05 mg/L at MW-4 and MW-6.
  - Total chromium and hexavalent chromium were detected above the reporting limit in each of the four wells and above the MCL of 0.050 mg/L for total chromium in monitoring wells MW-4 and MW-6. The total chromium concentrations were reported in the sample collected at MW 4 at a concentration of 0.133/0.134 mg/L (primary and duplicate samples), MW-5 at a concentration of 0.0128 J mg/L, MW-6 at a concentration of 0.895 mg/L, and MW-7 at a concentration of 0.0231 J mg/L (see Figure 6).
  - Hexavalent chromium was reported in the sample and sample duplicate collected at MW-4, both at a concentration of 0.15 mg/L, at MW-5 at a concentration of 0.012 mg/L, at MW-6 at a concentration of 1.1 mg/L, and at MW-7 at a concentration of 0.024 mg/L. The total chromium concentrations detected in each well were primarily hexavalent (Figure 6).

- VOCs were not detected at concentrations greater than their respective laboratory detection limits except for chloroform. Chloroform was not detected at concentrations greater than its MCL of 80 micrograms per liter (µg/L). The concentrations were reported in a narrow range of from an estimated concentration of 0.89 to 1.2 µg/L, slightly greater than the laboratory detection limit (Table IV). Chloroform is a suspected laboratory contaminant or may be present from irrigation water distribution, as it can be present from water chlorination.

The charts presented in Appendix D depict the hexavalent chromium concentrations measured in the four on-Site monitoring wells since November 2012.

5. Findings and Conclusions

The findings from the current reporting period are described below.

5.1 SECOND QUARTER 2020 GROUNDWATER MONITORING

The groundwater flow direction at the Site was to the west-southwest during the June 2020 sampling event. This is consistent with the range of on-Site flow directions observed since 2016 after the wells were resurveyed and pumping in RN #7 was limited or not being pumped (northwest to southwest).

The shift in groundwater flow direction from the southwest in the first quarter of 2020 to the west-southwest in second quarter 2020 was consistent with the observed flow variability at the Site since 2016 when RN #7 was not pumping (see Section 2.2). Changes in groundwater flow direction are likely due in part to the convergence of groundwater flow from the southeast and north, resulting in a flatter gradient that allows the groundwater gradient to shift more easily than in other parts of the sub-basin (Haley & Aldrich, 2019b).

5.2 SECOND QUARTER 2020 GROUNDWATER SAMPLING

Groundwater samples were collected from the four on-Site monitoring wells: MW-4, MW-5, MW-6, and MW-7. Hexavalent chromium was detected in each of the four wells at concentrations of 0.15/0.15 mg/L (MW-4 primary and duplicate samples), 0.012 mg/L (MW-5), 1.1 mg/L (MW-6), and 0.024 mg/L (MW-7). Total chromium was detected in each of the four wells at concentrations of 0.133/0.134 mg/L (MW-4 primary and duplicate samples), 0.0128 mg/L (MW-5), 0.895 mg/L (MW-6), and 0.0231 mg/L (MW-7). Hexavalent chromium and total chromium concentrations were greater than the MCL for total chromium of 0.050 mg/L in samples collected from MW-4 and MW-6. However, the same analytes detected in MW-5 and MW-7 were below their respective MCL. Arsenic and lead were also detected at estimated concentrations greater than the MCL for the second and first monitoring event, respectively. These lead results appear anomalous as each result was reported as an estimated concentration in a narrow concentration range, lead has been reported as less than the detection limit in groundwater samples collected from each well during each of the previous sampling events, and based on historical on-Site data, lead was not identified as a COC.

VOCs were not detected at concentrations greater than the laboratory detection limit in each of the four wells except for chloroform. The chloroform concentrations were reported in a narrow range of from an estimated concentration of 0.89 to 1.2 µg/L, slightly greater than the laboratory detection limit. Chloroform is a suspected laboratory contaminant or may be present from irrigation water distribution, as it can be present from water chlorination. The VOCs detected in the drums that contained purge water from well development of MW-7 included 1,1,1-trichloroethane, 1,1-dichlorethene, cis-1,2-dichloroethene, and trichloroethene. These VOCs were not detected in the groundwater monitoring well samples collected from the four monitoring wells.

6. Activities Planned for Third Quarter 2020

The activities outlined below are planned for the third quarter 2020:

- Third quarter 2020 groundwater monitoring and sampling activities: These activities will be conducted in September 2020 in accordance with Haley & Aldrich's KJ Plating "Groundwater Monitoring Plan" dated 1 June 2012 and approved by the DTSC on 10 July 2012. Haley & Aldrich will prepare and submit the Third Quarter 2020 Groundwater Monitoring Report to the DTSC within 45 days of receiving the groundwater analytical data from the laboratory.
- VOCs Analysis: Groundwater samples will be collected and analyzed for VOCs by EPA Method 8260B from each of the four on-Site monitoring wells in September 2020. The VOCs detected in the purge water from well MW-7 were not detected in the on-Site wells during the June 2020 sampling event. It is suspected that chloroform, reported in a narrow concentration range close to the laboratory detection limit, is present due to laboratory contamination or in chlorinated water used for irrigation purposes. If VOCs are not detected during the September 2020 sampling event, it will be recommended that the VOCs be removed from future groundwater sample analysis.
- Metals Analysis: Of the metals analyzed for, only total and hexavalent chromium concentrations have routinely been detected in groundwater samples from on-Site wells. If other metals are not detected at concentrations greater than their MCLs during the September 2020 sampling event, it will be proposed that the only metals included in future groundwater sampling events be total and hexavalent chromium.

References

1. California Department of Toxic Substances Control, 2011. Approval of the Supplemental Site Investigation Report for Former K/J Plating Facility Located at 21750 Main Street, City of Grand Terrace, California. 7 January 2011.

2. California Department of Toxic Substances Control, 2012a. Approval of the Removal Action Workplan for the Former K/J Plating Facility Located at 21750 Main Street, City of Grand Terrace, California. 20 January 2012.

3. California Department of Toxic Substances Control, 2012b. Review of Response to Comments for the "Groundwater Monitoring Plan, Former K/J Plating Facility, Grand Terrace, California." 10 July 2012.

4. California Department of Toxic Substances Control, 2018. Review of the Tenth Semi-Annual Groundwater Monitoring Report, Former KJ Plating Facility, 21750 Main Street, Grand Terrace, California. 11 January 2018.

5. California Department of Toxic Substances Control, 2019. Review of Third Quarter 2018 Groundwater Monitoring Report, Former KJ Plating Facility, 21750 Main Street, Grand Terrace, California. 10 January 2019.

6. California Department of Toxic Substances Control, 2019. Approval for Third Quarter 2019 Groundwater Monitoring Report, Former K/J Plating Facility, 21750 Main Street, Grand Terrace, California (Site Code: 401477). 12 December 2019.

7. California Department of Water Resources. 2003. Bulletin 118 California's Groundwater. State of California. October 2003.

8. Fife, D.L., Rogers, D.A., Chase, G.W., Chapman, R.H., and Sprotte, E.C., 1976, Geologic Hazards in Southwestern San Bernardino County, California: California Division of Mines and Geology, Special Report 113, 40 p., plates 1:48,000. Dated 1976.

9. Haley & Aldrich, Inc. 2010a. Supplemental Site Investigation Report, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 4 August 2010.

10. Haley & Aldrich, Inc. 2010b. Supplemental Site Investigation Addendum, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 29 October 2010.

11. Haley & Aldrich, Inc. 2011. Removal Action Workplan, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 16 June 2011.

12. Haley & Aldrich, Inc. 2012a. Groundwater Monitoring Plan, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 1 June 2012.

13. Haley & Aldrich, Inc. 2012b. Cap Completion and Well Installation Report, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 21 November 2012.

14. Haley & Aldrich, Inc. 2017a. Ninth Semi-annual Groundwater Monitoring Report – Fall 2016, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 16 March 2017.

15. Haley & Aldrich, Inc. 2017b. Tenth Semi-annual Groundwater Monitoring Report – Spring 2017, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 30 June 2017.

16. Haley & Aldrich, Inc. 2019a. Third Quarter 2018 Groundwater Monitoring Report, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California." 10 January 2019.

17. Haley & Aldrich, Inc. 2019b. Groundwater Monitoring Program Evaluation Report, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 28 March 2019.

18. Haley & Aldrich, Inc. 2019c. Addendum to Groundwater Monitoring Program Evaluation Report, Former KJ Plating Facility, 21750 Main Street Grand Terrace, California. 30 August 2019.

19. Haley & Aldrich, Inc. 2019d. Third Quarter 2019 Groundwater Monitoring Report, Former KJ Plating Facility, 21750 Main Street, Grand Terrace, California. 12 November 2019.

20. Haley & Aldrich, Inc. 2020. First Quarter 2020 Groundwater Monitoring and Well Installation Report, Former KJ Plating Facility, 21750 Main Street, Grand Terrace, California. 15 June 2020.

21. Kendall/Adams Group, Inc. 2002a. Volume One. Report of Findings. Soil Boring, Sampling and Analyses. KJ Plating 21750 Main Street Grand Terrace, California. May 2002.

22. Kendall/Adams Group, Inc. 2002b. Volume Two - Appendices. Laboratory Reports and Boring Logs for Soil Boring, Sampling and Analyses. KJ Plating 21750 Main Street Grand Terrace, California. May 2002.

23. Kendall/Adams Group, Inc. 2002c. Groundwater Investigation Status Report No. 2. Summary of Offsite Well Research Findings. Results of Site-Specific Water Level Monitoring and Compilation of Groundwater Monitoring Data. February 2001 through May 2002. KJ Plating 21750 Main Street Grand Terrace, California. 30 July 2002.

24. U.S. Geological Survey 7.5-minute Topographic Series, San Bernardino South, California Quadrangle Map, 1980

25. Western – San Bernardino Watermaster, 2016. Volume 1 – 2015, Verified Extractions from the San Bernardino Basin Area for Calendar Years 1959-1963 & 2011-2015. 1 August 2016.

26. Wildermuth Environmental Inc. 2001. Reconnaissance-Level Investigations – Riverside/Colton Basins Water Resources Management Program, Final Report. July 2001.

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TABLES

TABLE I

SUMMARY OF WELL LOCATION AND CONSTRUCTION DETAILS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Well No.	Survey Date	Latitude	Longitude	Top of Casing (ft amsl)	Casing Dia. (inches)	Casing Type	Conductor Casing Type	Slot Size (inch)	Total Depth	Top of Screen	Bottom of Screen	Screen Length	Top of Filter Pack	Bottom of Filter Pack	Length of Filter Pack
									Feet Below Ground Surface						
MW-4	10/22/2012	34.02026872	-117.33057303	955.14	4	SCH 80 PVC	None	0.020	177.5	147	177	30	144	178	34
	5/9/2016	34.0202703	-117.3305747	954.78											
MW-5	10/22/2012	34.01953229	117.33093626	953.73	4	SCH 80 PVC	None	0.020	177.5	147	177	30	141	178	37
	5/9/2016	34.0195337	-117.3309386	952.90											
MW-6	10/22/2012	34.01951314	-117.33062376	953.79	4	SCH 80 PVC	None	0.020	176	145.5	175.5	30	142	177	35
	5/9/2016	34.0195152	-117.3306261	953.40											
MW-7	3/30/2020	34.01991590	-117.33084000	951.46	4	SCH 80 PVC	None	0.020	185.8	155	185	30	152	189	37

Notes:

1. 2012 survey was completed by Joseph E. Bonadiman & Assoc. Inc.; elevation accuracy is within +/- 0.05 millimeters
2. 2016 and 2020 surveys were completed by Cal Vada Surveying, Inc.; elevation accuracy is within +/- 3 millimeters

TABLE II

SUMMARY OF GROUNDWATER GAUGING DATA
FORMER KJ PLATING FACILIT
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Well	Date	Groundwater Elevation (feet msl)	Depth to Water (feet below reference elevation)	Reference Elevation (feet msl)
MW-4	11/2/2012	796.51	158.63	955.14
	12/7/2012	796.31	158.83	955.14
	4/30/2013	796.08	159.06	955.14
	10/28/2013	790.03	165.11	955.14
	4/3/2014	793.01	162.13	955.14
	10/30/2014	788.11	167.03	955.14
	4/16/2015	791.72	163.42	955.14
	10/23/2015	790.59	164.55	955.14
	5/9/2016	794.06	160.72	954.78
	10/28/2016	788.35	166.43	954.78
	1/27/2017	790.25	164.53	954.78
	4/21/2017	792.60	162.18	954.78
	3/9/2018	784.01	170.77	954.78
	6/15/2018	783.42	171.36	954.78
	10/30/2018	782.56	172.22	954.78
	12/20/2018	783.52	171.26	954.78
	3/21/2019	787.36	167.42	954.78
	6/19/2019	789.50	165.28	954.78
	9/25/2019	787.77	167.01	954.78
	12/10/2019	786.56	168.22	954.78
	3/30/2020	790.58	164.20	954.78
	6/29/2020	791.05	163.73	954.78
MW-5	11/2/2012	797.32	156.41	953.73
	12/7/2012	796.83	156.90	953.73
	4/30/2013	796.49	157.24	953.73
	10/28/2013	789.65	164.08	953.73
	4/3/2014	792.79	160.94	953.73
	10/30/2014	787.78	165.95	953.73
	4/16/2015	791.32	162.41	953.73
	10/23/2015	791.15	162.58	953.73
	5/9/2016	793.99	158.91	952.90
	10/28/2016	788.48	164.42	952.90
	1/27/2017	790.16	162.74	952.90
	4/21/2017	792.65	160.25	952.90
	3/9/2018	784.02	168.88	952.90
	6/15/2018	783.50	169.40	952.90

TABLE II
SUMMARY OF GROUNDWATER GAUGING DATA
FORMER KJ PLATING FACILIT
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Well	Date	Groundwater Elevation (feet msl)	Depth to Water (feet below reference elevation)	Reference Elevation (feet msl)
MW-5 (cont.)	10/30/2018	782.49	170.41	952.90
	12/20/2018	783.37	169.53	952.90
	3/21/2019	787.04	165.86	952.90
	6/19/2019	789.25	163.65	952.90
	9/25/2019	787.65	165.25	952.90
	12/10/2019	786.36	166.54	952.90
	3/30/2020	790.27	162.63	952.90
	6/29/2020	790.82	162.08	952.90
MW-6	11/2/2012	797.16	156.63	953.79
	12/7/2012	796.46	157.33	953.79
	4/30/2013	796.14	157.65	953.79
	10/28/2013	789.85	163.94	953.79
	4/3/2014	792.84	160.95	953.79
	10/30/2014	787.80	165.99	953.79
	4/16/2015	792.58	161.21	953.79
	10/23/2015	790.80	162.99	953.79
	5/9/2016	794.08	159.32	953.40
	10/28/2016	788.54	164.86	953.40
	1/27/2017	790.26	163.14	953.40
	4/21/2017	792.71	160.69	953.40
	3/9/2018	786.22	167.18	953.40
	6/15/2018	783.63	169.77	953.40
	10/30/2018	782.65	170.75	953.40
	12/20/2018	783.48	169.92	953.40
	3/21/2019	787.17	166.23	953.40
	6/19/2019	789.37	164.03	953.40
	9/25/2019	787.79	165.61	953.40
	12/10/2019	786.53	166.87	953.40
	3/30/2020	790.41	162.99	953.40
	6/29/2020	790.97	162.43	953.40
MW-7	3/30/2020	790.46	161.00	951.46
	6/29/2020	790.97	160.49	951.46

Notes:
feet msl = feet above mean sea level

TABLE III
SUMMARY OF METALS ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location Sample Date	Sample Type	Depth to Groundwater (ft bgs)	RN#7 Operating?	Groundwater Gradient Direction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium VI (Hexavalent)	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MCL					0.006	0.01	1	0.004	0.005	0.05	0.05	-	1.3*	0.015*	0.002	-	0.1	0.05	-	0.002	-	-
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-4																						
11/02/2012	Primary	158.63	No	East-Northeast	**0.045**	< 0.01	**0.053**	< 0.003	< 0.003	< 0.0002	< 0.003	< 0.003	**0.009**	< 0.005	< 0.0002	**0.013**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0046**	**0.087**
04/30/2013	Primary	159.06	No	East	< 0.005	< 0.01	**0.057**	< 0.003	< 0.003	**0.0014**	**0.0038**	< 0.003	< 0.005	< 0.005	< 0.0002	**0.017**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0063**	**0.016**
04/30/2013	Duplicate	159.06	No	East	< 0.005	< 0.01	**0.066**	< 0.003	< 0.003	**0.0013**	**0.0033**	< 0.003	< 0.005	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0066**	**0.037**
10/28/2013	Primary	165.11	Yes	West-Southwest	< 0.005	< 0.01	**0.075**	< 0.003	< 0.003	**0.00081**	< 0.003	< 0.003	**0.0067**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.01
04/03/2014	Primary	162.13	Yes	West-Southwest	**0.0076**	< 0.01	**0.081**	< 0.003	< 0.003	**0.0013**	**0.0036**	< 0.003	**0.012**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.007**	< 0.01
10/30/2014	Primary	167.03	Yes	South-Southwest	< 0.01	< 0.01	**0.082**	< 0.003	< 0.003	**0.0012**	< 0.003	< 0.003	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0038**	< 0.01
04/16/2015	Primary	163.42	No	West-Northwest	< 0.01	< 0.01	**0.083**	< 0.003	< 0.003	**0.0026**	**0.0035**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.011**	< 0.025
10/26/2015	Primary	164.55	No	East-Northeast	< 0.01	< 0.01	**0.074**	< 0.003	< 0.003	**0.003**	**0.0045**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0038**	< 0.025
05/09/2016	Primary	160.72	No	West-Northwest	< 0.01	**0.016**	**0.092**	< 0.003	< 0.003	**0.018**	**0.025**	< 0.003	**0.013**	< 0.005	< 0.0002	**0.0096**	< 0.005	< 0.01	**0.005**	< 0.015	**0.0042**	< 0.025
05/09/2016	Duplicate	160.72	No	West-Northwest	< 0.01	**0.015**	**0.092**	< 0.003	< 0.003	**0.025**	**0.025**	< 0.003	**0.018**	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	**0.0041**	< 0.015	**0.0042**	< 0.025
10/28/2016	Primary	166.43	No	Northwest	< 0.01	< 0.01	**0.099**	< 0.003	< 0.003	**1.4**	**1.2**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
01/27/2017	Primary	164.53	No	West-Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.093**	**0.12**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0055**	< 0.025
01/27/2017	Primary	164.53	No	West-Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.18**	**0.21**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0059**	**0.035**
01/27/2017	Duplicate	164.53	No	West-Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.1**	**0.12**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0055**	< 0.025
04/21/2017	Primary	162.18	No	Northwest	< 0.01	< 0.01	**0.086**	< 0.003	< 0.003	**0.37**	**0.34**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0041**	< 0.025
03/09/2018	Primary	170.77	No	Northwest	< 0.015	< 0.01	**0.105**	< 0.01	< 0.01	**0.016**	**0.0157**	< 0.01	< 0.01	< 0.01	< 0.0005	< 0.01	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	**0.0161**
06/15/2018	Primary	171.36	No	Northwest	< 0.015	< 0.01	**0.0956**	< 0.01	< 0.01	**0.06**	**0.058**	< 0.01	< 0.01	< 0.01	< 0.0005	**0.0125**	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	< 0.01
10/30/2018	Primary	172.22	No	West-Northwest	< 0.01	< 0.01	**0.095**	< 0.003	< 0.003	**0.0081**	**0.012**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	**0.0068**	< 0.01	< 0.003	< 0.015	< 0.003	**0.059**
12/20/2018	Primary	171.26	No	West	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.0088**	**0.0096**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
12/20/2018	Duplicate	171.26	No	West	< 0.01	< 0.01	**0.11**	**0.047**	< 0.003	**0.0088**	**0.012**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	**0.0054**	< 0.01	< 0.003	< 0.015	**0.0035**	**0.082**
03/21/2019	Primary	167.42	No	Southwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.07**	**0.067**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/19/2019	Primary	165.28	No	Southwest	< 0.01	< 0.01	**0.097**	< 0.003	< 0.003	**0.047**	**0.059**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
09/25/2019	Primary	167.01	No	West-Northwest	< 0.01	< 0.01	**0.089**	< 0.003	< 0.003	**0.27**	**0.27**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0032**	< 0.015	**0.0065**	< 0.025
09/25/2019	Duplicate	167.01	No	West-Northwest	< 0.01	< 0.01	**0.088**	< 0.003	< 0.003	**0.26**	**0.27**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0037**	< 0.015	**0.0067**	< 0.025
12/10/2019	Primary	168.22	No	West	< 0.01	< 0.01	**0.095**	< 0.003	< 0.003	**0.078**	**0.079**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.006**	< 0.015	< 0.003	< 0.025
03/30/2020	Primary	164.20	No	Southwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.068**	**0.074**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0042**	< 0.015	< 0.003	< 0.025
06/29/2020	Primary	163.73	No	West-Southwest	< 0.1	< 0.1	**0.09**	< 0.01	< 0.01	**0.15**	**0.133**	< 0.05	< 0.05	**0.025 J**	< 0.0005	< 0.05	< 0.05	< 0.1	< 0.01	< 0.05	< 0.01	< 0.25
06/29/2020	Duplicate	163.73	No	West-Southwest	< 0.1	< 0.1	**0.091**	< 0.01	< 0.01	**0.15**	**0.134**	< 0.05	< 0.05	**0.028 J**	< 0.0005	**0.00625 J**	< 0.05	< 0.1	< 0.01	< 0.05	< 0.01	< 0.25

TABLE III
SUMMARY OF METALS ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location Sample Date	Sample Type	Depth to Groundwater (ft bgs)	RN#7 Operating?	Groundwater Gradient Direction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium VI (Hexavalent)	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MCL					0.006	0.01	1	0.004	0.005	0.05	0.05	-	1.3*	0.015*	0.002	-	0.1	0.05	-	0.002	-	-
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-5																						
11/02/2012	Primary	156.41	No	East-Northeast	**0.0062**	< 0.01	**0.089**	< 0.003	< 0.003	**0.00031**	< 0.003	< 0.003	**0.0086**	< 0.005	< 0.0002	**0.0099**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0054**	**0.047**
11/02/2012	Duplicate	156.41	No	East-Northeast	< 0.005	< 0.01	**0.097**	< 0.003	< 0.003	**0.00031**	< 0.003	< 0.003	**0.0087**	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0052**	**0.042**
04/30/2013	Primary	157.24	No	East	< 0.005	< 0.01	**0.073**	< 0.003	< 0.003	< 0.0002	< 0.003	< 0.003	< 0.005	< 0.005	< 0.0002	**0.048**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	**0.037**
10/30/2013	Primary	164.08	Yes	West-Southwest	< 0.005	< 0.01	**0.098**	< 0.003	< 0.003	**0.0012**	**0.0033**	< 0.003	**0.0084**	< 0.005	< 0.0002	**0.006**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.01
04/03/2014	Primary	160.94	Yes	West-Southwest	**0.021**	< 0.01	**0.11**	< 0.003	< 0.003	**0.021**	**0.03**	< 0.003	**0.018**	< 0.005	< 0.0002	**0.01**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0062**	**0.018**
04/03/2014	Duplicate	160.94	Yes	West-Southwest	**0.0059**	< 0.01	**0.11**	< 0.003	< 0.003	**0.021**	**0.027**	< 0.003	**0.011**	< 0.005	< 0.0002	**0.009**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0061**	**0.011**
10/30/2014	Primary	165.95	Yes	South-Southwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.0014**	< 0.003	< 0.003	< 0.005	< 0.005	< 0.0002	**0.01**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	**0.01**
10/30/2014	Duplicate	165.95	Yes	South-Southwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.0014**	< 0.003	< 0.003	< 0.005	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	**0.013**
04/16/2015	Primary	162.41	No	West-Northwest	< 0.01	< 0.01	**0.12**	< 0.003	< 0.003	**0.0083**	**0.0078**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0099**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0098**	< 0.025
04/16/2015	Duplicate	162.41	No	West-Northwest	< 0.01	< 0.01	**0.13**	< 0.003	< 0.003	**0.0079**	**0.0085**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	< 0.003	< 0.015	**0.01**	< 0.025
10/23/2015	Primary	162.58	No	East-Northeast	< 0.01	< 0.01	**0.15**	< 0.003	< 0.003	**0.013**	**0.015**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.01**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0032**	< 0.025
05/09/2016	Primary	158.91	No	West-Northwest	< 0.01	**0.012**	**0.14**	< 0.003	< 0.003	**0.0057**	**0.007**	< 0.003	**0.011**	< 0.005	< 0.0002	**0.013**	< 0.005	< 0.01	**0.0049**	< 0.015	**0.0036**	< 0.025
10/28/2016	Primary	164.42	No	Northwest	< 0.01	< 0.01	**0.12**	< 0.003	< 0.003	**0.028**	**0.031**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0063**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
01/27/2017	Primary	162.74	No	West-Northwest	< 0.01	< 0.01	**0.13**	< 0.003	< 0.003	**0.0083**	**0.011**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0089**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
04/21/2017	Primary	160.25	No	Northwest	< 0.01	< 0.01	**0.13**	< 0.003	< 0.003	**0.028**	**0.029**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0092**	< 0.005	< 0.01	< 0.003	< 0.015	**0.0043**	< 0.025
03/09/2018	Primary	168.88	No	Northwest	< 0.015	< 0.01	**0.129**	< 0.01	< 0.01	**0.0029**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	**0.0119**	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	**0.0202**
06/15/2018	Primary	169.40	No	Northwest	< 0.015	< 0.01	**0.127**	< 0.01	< 0.01	**0.0028**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	**0.0199**	< 0.01	**0.017**	< 0.005	< 0.015	< 0.01	< 0.01
10/30/2018	Primary	170.41	No	West-Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	< 0.002	**0.0031**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	**0.027**
10/30/2018	Duplicate	170.41	No	West-Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	< 0.004	**0.0034**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	**0.034**
12/20/2018	Primary	169.53	No	West	< 0.01	< 0.01	**0.13**	< 0.003	< 0.003	**0.0024**	< 0.003	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0078**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/21/2019	Primary	165.86	No	Southwest	< 0.01	< 0.01	**0.15**	< 0.003	< 0.003	**0.0064**	**0.0063**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.011**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/19/2019	Primary	163.65	No	Southwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	< 0.02	**0.0089**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0086**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
09/25/2019	Primary	165.25	No	West-Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.0094**	**0.011**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0057**	< 0.025
12/10/2019	Primary	166.54	No	West	< 0.01	< 0.01	**0.13**	< 0.003	< 0.003	**0.15**	**0.14**	< 0.003	< 0.009	< 0.005	< 0.0002	**0.0086**	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/30/2020	Primary	162.63	No	Southwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.034**	**0.036**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/29/2020	Primary	162.08	No	West-Southwest	< 0.1	**0.032 J**	**0.0983**	< 0.01	< 0.01	**0.012**	**0.0128 J**	< 0.05	< 0.05	**0.0212 J**	< 0.0005	**0.00875 J**	< 0.05	< 0.1	< 0.01	< 0.05	< 0.01	< 0.25

TABLE III
SUMMARY OF METALS ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location Sample Date	Sample Type	Depth to Groundwater (ft bgs)	RN#7 Operating?	Groundwater Gradient Direction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium VI (Hexavalent)	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MCL					0.006	0.01	1	0.004	0.005	0.05	0.05	-	1.3*	0.015*	0.002	-	0.1	0.05	-	0.002	-	-
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-6																						
11/02/2012	Primary	156.63	No	East-Northeast	< 0.005	< 0.01	**0.075**	< 0.003	< 0.003	**0.00057**	< 0.003	< 0.003	**0.0087**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.006**	**0.05**
04/30/2013	Primary	157.65	No	East	< 0.005	< 0.01	**0.095**	< 0.003	< 0.003	**0.00079**	**0.004**	< 0.003	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.011**	**0.018**
10/30/2013	Primary	163.94	Yes	West-Southwest	**0.0096**	< 0.01	**0.08**	< 0.003	< 0.003	**0.00093**	**0.003**	< 0.003	**0.013**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.01
10/30/2013	Duplicate	160.95	Yes	West-Southwest	**0.0057**	< 0.01	**0.087**	< 0.003	< 0.003	**0.00095**	< 0.003	< 0.003	**0.0096**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0031**	< 0.01
04/03/2014	Primary	160.95	Yes	West-Southwest	**0.0083**	< 0.01	**0.089**	< 0.003	< 0.003	**0.00088**	**0.0049**	< 0.003	**0.014**	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0071**	< 0.01
10/30/2014	Primary	165.99	Yes	South-Southwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.00097**	< 0.003	< 0.003	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0034**	**0.012**
04/16/2015	Primary	161.21	No	West-Nortwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.0018**	< 0.003	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0097**	< 0.025
10/23/2015	Primary	162.99	No	East-Northeast	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.0014**	**0.0038**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0055**	< 0.025
10/23/2015	Duplicate	162.99	No	East-Northeast	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.0015**	**0.0035**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	**0.014**	< 0.003	< 0.015	**0.0048**	< 0.025
05/09/2016	Primary	159.32	No	West-Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.0017**	**0.0035**	< 0.003	**0.013**	< 0.005	< 0.0002	**0.0055**	< 0.005	< 0.01	**0.0048**	< 0.015	**0.0044**	< 0.025
10/28/2016	Primary	164.86	No	Northwest	< 0.01	< 0.01	**0.11**	**0.004**	**0.004**	**0.0014**	**0.01**	**0.004**	**0.016**	**0.0061**	< 0.0002	**0.0067**	**0.0069**	**0.012**	< 0.003	< 0.015	< 0.003	**0.048**
10/28/2016	Duplicate	164.86	No	Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.0012**	< 0.003	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
01/27/2017	Primary	163.14	No	West-Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	< 0.008	**0.0034**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0047**	< 0.025
04/21/2017	Primary	160.69	No	Northwest	< 0.01	< 0.01	**0.11**	< 0.003	< 0.003	**0.086**	**0.097**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0053**	< 0.025
04/21/2017	Duplicate	160.69	No	Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.088**	**0.09**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	**0.0047**	< 0.025
03/09/2018	Primary	167.18	No	Northwest	< 0.015	< 0.01	**0.107**	< 0.01	< 0.01	**0.0012**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	< 0.01	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	< 0.01
03/09/2018	Duplicate	167.18	No	Northwest	< 0.015	< 0.01	**0.105**	< 0.01	< 0.01	**0.0012**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	< 0.01	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	**0.0194**
06/15/2018	Primary	169.77	No	Northwest	< 0.015	< 0.01	**0.0974**	< 0.01	< 0.01	**0.0015**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	< 0.01	< 0.01	**0.0224**	< 0.005	< 0.015	< 0.01	< 0.01
06/15/2018	Duplicate	169.77	No	Northwest	< 0.015	< 0.01	**0.0959**	< 0.01	< 0.01	**0.0017**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0005	< 0.01	< 0.01	< 0.015	< 0.005	< 0.015	< 0.01	< 0.01
10/30/2018	Primary	170.75	No	West-Northwest	< 0.01	< 0.01	**0.089**	< 0.003	< 0.003	< 0.002	< 0.003	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
12/20/2018	Primary	169.92	No	West	< 0.01	< 0.01	**0.12**	< 0.003	< 0.003	**0.0015**	< 0.003	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/21/2019	Primary	166.23	No	Southwest	**0.02**	< 0.01	**0.12**	< 0.003	< 0.003	**2**	**1.9**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/21/2019	Duplicate	166.23	No	Southwest	**0.027**	< 0.01	**0.12**	< 0.003	< 0.003	**2**	**1.9**	**0.0034**	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/19/2019	Primary	164.03	No	Southwest	**0.086**	< 0.01	**0.099**	< 0.003	< 0.003	**2.5**	**3.1**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/19/2019	Duplicate	164.03	No	Southwest	**0.089**	< 0.01	**0.097**	< 0.003	< 0.003	**2.5**	**3.1**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
09/25/2019	Primary	165.61	No	West-Northwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.47**	**0.5**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0043**	< 0.015	**0.0071**	< 0.025
12/10/2019	Primary	166.87	No	West	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.023**	**0.025**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0035**	< 0.015	< 0.003	< 0.025
12/10/2019	Duplicate	166.87	No	West	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.022**	**0.024**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/30/2020	Primary	162.99	No	Southwest	< 0.01	< 0.01	**0.1**	< 0.003	< 0.003	**0.34**	**0.35**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	**0.0035**	< 0.015	< 0.003	< 0.025
06/29/2020	Primary	162.43	No	West-Southwest	< 0.1	**0.019 J**	**0.0966**	< 0.01	< 0.01	**1.1**	**0.895**	< 0.05	< 0.05	**0.0288 J**	< 0.0005	**0.0108 J**	< 0.05	< 0.1	< 0.01	< 0.05	< 0.01	< 0.25

TABLE III
SUMMARY OF METALS ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location Sample Date	Sample Type	Depth to Groundwater (ft bgs)	RN#7 Operating?	Groundwater Gradient Direction	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium VI (Hexavalent)	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
	MCL				0.006	0.01	1	0.004	0.005	0.05	0.05	-	1.3*	0.015*	0.002	-	0.1	0.05	-	0.002	-	-
	Units				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-7																						
03/30/2020	Primary	161.00	No	Southwest	< 0.01	< 0.01	**0.063**	< 0.003	< 0.003	**0.01**	**0.011**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
03/30/2020	Duplicate	161.00	No	Southwest	< 0.01	< 0.01	**0.063**	< 0.003	< 0.003	**0.0097**	**0.011**	< 0.003	< 0.009	< 0.005	< 0.0002	< 0.005	< 0.005	< 0.01	< 0.003	< 0.015	< 0.003	< 0.025
06/29/2020	Primary	160.49	No	West-Southwest	< 0.1	< 0.1	**0.0774**	< 0.01	< 0.01	**0.024**	**0.0231 J**	< 0.05	< 0.05	**0.0265 J**	< 0.0005	**0.00836 J**	< 0.05	< 0.1	< 0.01	< 0.05	< 0.01	< 0.25

Notes and Abbreviations:
1. < #: Result is not detected above reporting limit.
2. Results in **bold** are detected.
3. mg/L: milligrams per Liter
* Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule.
- Compound does not have an MCL
Shaded results exceed the MCL

TABLE IV

SUMMARY OF VOCs ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location		MW-4	MW-4 (Dup)	MW-5	MW-6	MW-7
Sample Date	California	06/29/2020	06/29/2020	06/29/2020	06/29/2020	06/29/2020
Sample Name	MCL	MW-4-062920	MW-4-062920-02	MW-5-062920	MW-6-062920	MW-7-062920
Volatile Organic Compounds (µg/L)						
1,1,1,2-Tetrachloroethane	-	< 2	< 2	< 2	< 2	< 2
1,1,1-Trichloroethane	200	< 1	< 1	< 1	< 1	< 1
1,1,2,2-Tetrachloroethane	1	< 1	< 1	< 1	< 1	< 1
1,1,2-Trichloroethane	-	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	5	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethene	6	< 1	< 1	< 1	< 1	< 1
1,1-Dichloropropene	-	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichlorobenzene	-	< 1	< 1	< 1	< 1	< 1
1,2,3-Trichloropropane	-	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene	5	< 1	< 1	< 1	< 1	< 1
1,2,4-Trimethylbenzene	-	< 1	< 1	< 1	< 1	< 1
1,2-Dibromo-3-chloropropane (DBCP)	-	< 10	< 10	< 10	< 10	< 10
1,2-Dibromoethane (Ethylene Dibromide)	0.05	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	600	< 1	< 1	< 1	< 1	< 1
1,2-Dichloroethane	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	5	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	-	< 1	< 1	< 1	< 1	< 1
1,3-Dichlorobenzene	-	< 1	< 1	< 1	< 1	< 1
1,3-Dichloropropane	-	< 1	< 1	< 1	< 1	< 1
1,4-Dichlorobenzene	5	< 1	< 1	< 1	< 1	< 1
2,2-Dichloropropane	-	< 1	< 1	< 1	< 1	< 1
2-Butanone (Methyl Ethyl Ketone)	-	< 20	< 20	< 20	< 20	< 20
2-Chlorotoluene	-	< 1	< 1	< 1	< 1	< 1
2-Hexanone	-	< 10	< 10	< 10	< 10	< 10
2-Phenylbutane (sec-Butylbenzene)	-	< 1	< 1	< 1	< 1	< 1
4-Chlorotoluene	-	< 1	< 1	< 1	< 1	< 1
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	-	< 10	< 10	< 10	< 10	< 10
Acetone	-	< 20	< 20	< 20	< 20	< 20
Benzene	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromobenzene	-	< 1	< 1	< 1	< 1	< 1
Bromodichloromethane	-	< 1	< 1	< 1	< 1	< 1
Bromoform	-	< 5	< 5	< 5	< 5	< 5
Bromomethane (Methyl Bromide)	-	< 50	< 50	< 50	< 50	< 50
Carbon disulfide	-	< 10	< 10	< 10	< 10	< 10
Carbon tetrachloride	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	70	< 1	< 1	< 1	< 1	< 1
Chlorobromomethane	-	< 2	< 2	< 2	< 2	< 2
Chloroethane	-	< 5	< 5	< 5	< 5	< 5
Chloroform (Trichloromethane)	80	**0.89 J**	**0.93 J**	**1**	**1.2**	**1**
Chloromethane (Methyl Chloride)	-	< 10 *	< 10 *	< 10	< 10	< 10
cis-1,2-Dichloroethene	6	< 1	< 1	< 1	< 1	< 1
cis-1,3-Dichloropropene	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cymene (p-Isopropyltoluene)	-	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	-	< 2	< 2	< 2	< 2	< 2
Dibromomethane	-	< 1	< 1	< 1	< 1	< 1
Dichlorodifluoromethane (CFC-12)	-	< 5 *	< 5 *	< 5	< 5	< 5
Ethylbenzene	300	< 1	< 1	< 1	< 1	< 1
Isopropylbenzene (Cumene)	-	< 1	< 1	< 1	< 1	< 1

TABLE IV

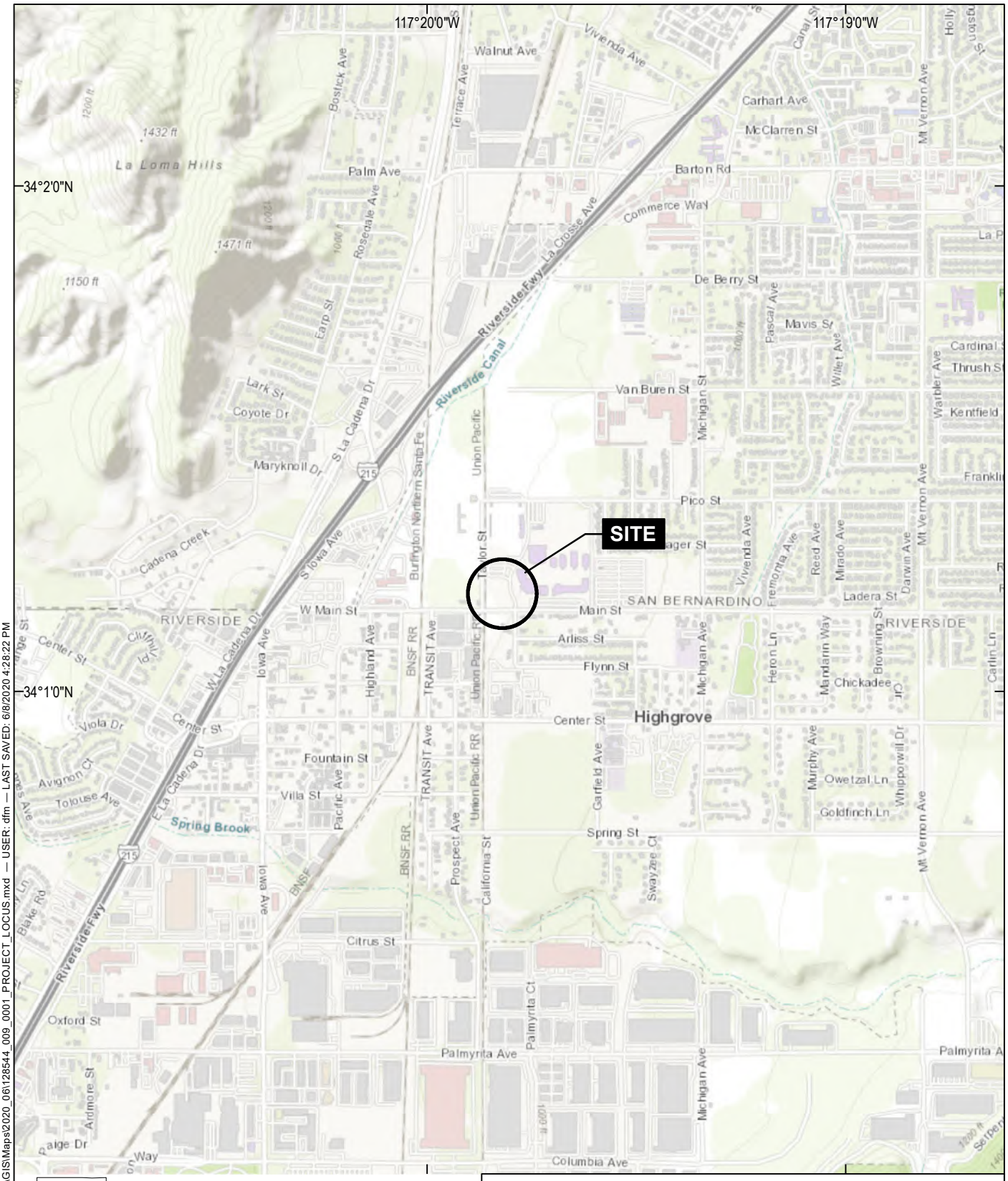
SUMMARY OF VOCs ANALYTICAL RESULTS
FORMER KJ PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

Location		MW-4	MW-4 (Dup)	MW-5	MW-6	MW-7
Sample Date	California	06/29/2020	06/29/2020	06/29/2020	06/29/2020	06/29/2020
Sample Name	MCL	MW-4-062920	MW-4-062920-02	MW-5-062920	MW-6-062920	MW-7-062920
Volatile Organic Compounds (µg/L)						
m,p-Xylenes	1750	< 2	< 2	< 2	< 2	< 2
Methyl Tert Butyl Ether	13	< 1	< 1	< 1	< 1	< 1
Methylene chloride	5	< 10	< 10	< 10	< 10	< 10
Naphthalene	-	< 10	< 10	< 10	< 10	< 10
n-Butylbenzene	-	< 1	< 1	< 1	< 1	< 1
n-Propylbenzene	-	< 1	< 1	< 1	< 1	< 1
o-Xylene	-	< 1	< 1	< 1	< 1	< 1
Styrene	100	< 1	< 1	< 1	< 1	< 1
tert-Butylbenzene	-	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	5	< 1	< 1	< 1	< 1	< 1
Toluene	150	< 1	< 1	< 1	< 1	< 1
trans-1,2-Dichloroethene	10	< 1	< 1	< 1	< 1	< 1
trans-1,3-Dichloropropene	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	5	< 1	< 1	< 1	< 1	< 1
Trichlorofluoromethane (CFC-11)	150	< 10	< 10	< 10	< 10	< 10
Trifluorotrichloroethane (Freon 113)	1200	< 10	< 10	< 10	< 10	< 10
Vinyl acetate	-	< 10	< 10	< 10	< 10	< 10
Vinyl chloride	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

1. < #: Result is not detected above reporting limit.
2. Results in **bold** are detected.
3. µg/L: micrograms per Liter

FIGURES



GIS FILE PATH: G:\128544 KJ Plating\002\GIS\Maps\2020_06\128544_009_0001_PROJECT_LOCUS.mxd — USER: dfm — LAST SAVED: 6/8/2020 4:28:22 PM

MAP SOURCE: ESRI
SITE COORDINATES: 34°1'12.2"N, 117°19'48.2"W

HALEY ALDRICH

FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
AUGUST 2020

FIGURE 1

GIS FILE PATH: G:\128544 KJ Plating\002\GIS\Maps\2020_06\128544_009_0002_SITE_PROPERTIES.mxd — USER: dfm — LAST SAVED: 4/12/2019 12:53:41 PM

NOTE:

1. RHWC: RIVERSIDE HIGHLAND WATER COMPANY
   PRODUCTION WATER - WELL RN-7

2. AERIAL IMAGE SOURCE : PICTOMETRY, NOVEMBER 2014.

N

0 150 300

SCALE IN FEET

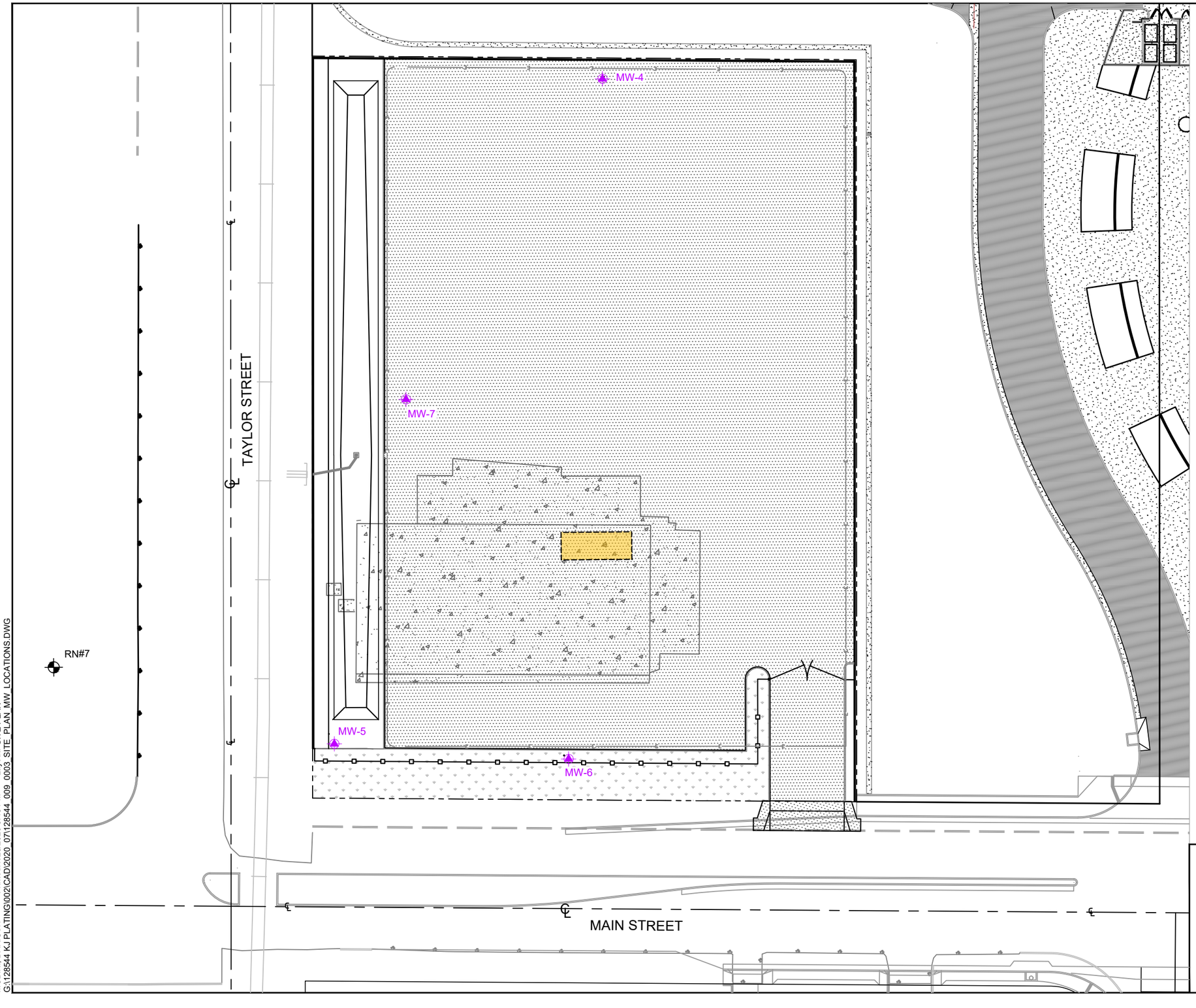
HALEY ALDRICH

FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

SITE AND SURROUNDING PROPERTIES

AUGUST 2020

FIGURE 2



LEGEND

- MW-6 — GROUNDWATER MONITORING WELLS
- RN#7 — PRODUCTION WELL RN#7, INACTIVE
- FENCE LINE
- FORMER BUILDING FOOTPRINT
- CONCRETE CAP
- LANDSCAPE AREA
- APPROXIMATE LOCATION OF FORMER PLATING LINE AREA WITH ELEVATED HEXAVALENT CHROMIUM CONCENTRATIONS IN SOIL

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. MAP REFERENCE: JOSEPH E. BONADIMAN & ASSOCIATES, INC., DATED FEBRUARY 2011.

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

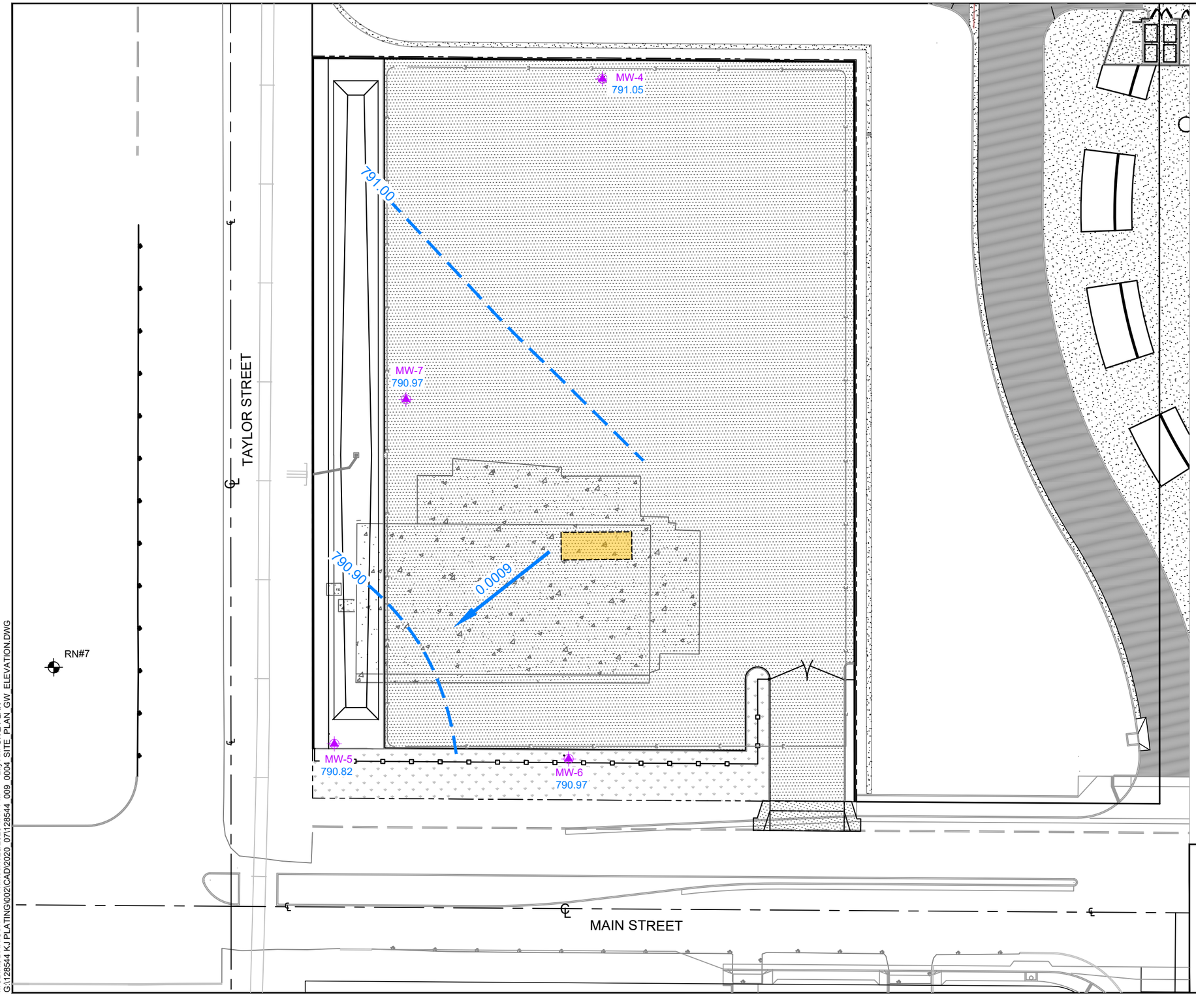
FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

SITE PLAN SHOWING GROUNDWATER MONITORING WELL LOCATIONS

SCALE: AS SHOWN
AUGUST 2020

FIGURE 3

MOBINI, DARIUSH Printed: 7/28/2020 3:48 PM Layout: SITE PLAN
G:\128544 KJ PLATING\002\CAD\2020_07\128544_009_0003_SITE_PLAN_MW_LOCATIONS.DWG



LEGEND

- MW-6 790.46 — GROUNDWATER MONITORING WELLS SHOWING GROUNDWATER ELEVATION
- RN#7 — PRODUCTION WELL RN#7, INACTIVE
- FENCE LINE
- FORMER BUILDING FOOTPRINT
- CONCRETE CAP
- LANDSCAPE AREA
- GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)
- 0.0009 — GROUNDWATER FLOW DIRECTION SHOWING GROUNDWATER GRADIENT (FEET/FOOT)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. MAP REFERENCE: JOSEPH E. BONADIMAN & ASSOCIATES, INC., DATED FEBRUARY 2011.

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

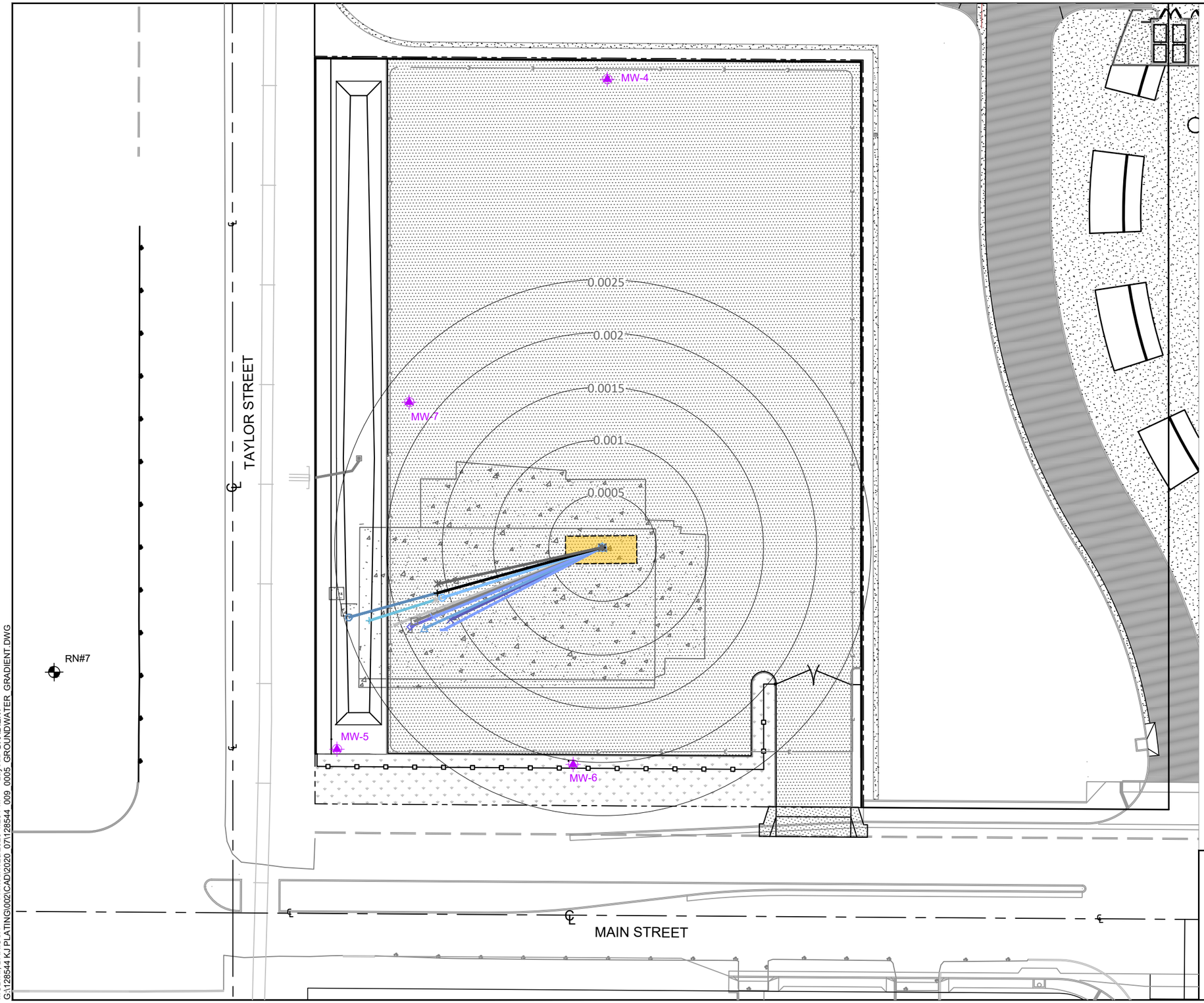
FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

SITE PLAN SHOWING GROUNDWATER ELEVATION CONTOURS - JUNE 2020

SCALE: AS SHOWN
AUGUST 2020

FIGURE 4

MOBINI, DARIUSH Printed: 7/28/2020 4:17 PM Layout: SITE PLAN
G:\128544 KJ PLATING\002\CAD\2020_07\128544_009_0004_SITE_PLAN_GW_ELEVATION.DWG



LEGEND

- MW-6 — GROUNDWATER MONITORING WELLS
- RN#7 — PRODUCTION WELL RN#7, INACTIVE
- FENCE LINE
- FORMER BUILDING FOOTPRINT
- CONCRETE CAP
- LANDSCAPE AREA
- APPROXIMATE LOCATION OF FORMER PLATING LINE AREA WITH ELEVATED HEXAVALENT CHROMIUM CONCENTRATIONS IN SOIL

GROUNDWATER GRADIENT DIRECTION AND MEASUREMENT DATE

- 3/30/2020
- 4/7/2020
- 4/14/2020
- 4/21/2020
- 4/28/2020
- 5/7/2020
- 5/14/2020
- 5/21/2020
- 5/28/2020
- 6/7/2020
- 6/14/2020
- 6/21/2020
- 6/29/2020

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. MAP REFERENCE: JOSEPH E. BONADIMAN & ASSOCIATES, INC., DATED FEBRUARY 2011.

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

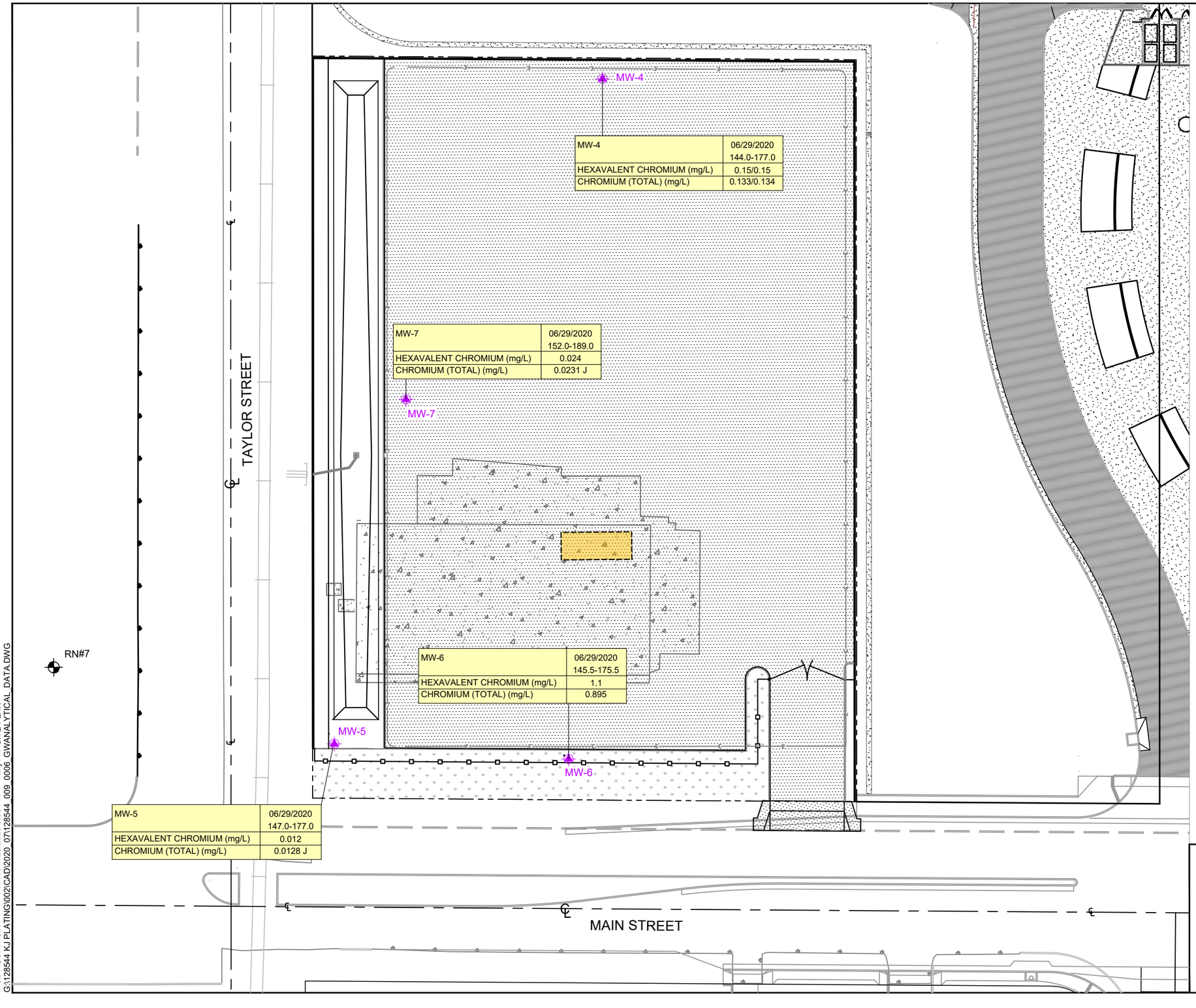
FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

SITE GROUNDWATER GRADIENT ROSE DIAGRAM - MARCH 2020 TO JUNE 2020

SCALE: AS SHOWN
AUGUST 2020

FIGURE 5

MOBINI, DARIUSH
G:\128544 KJ PLATING\002\CAD\2020_07\128544_009_0005_GROUNDWATER_GRADIENT.DWG
Printed: 7/28/2020 4:26 PM
Layout: GRADIENT



LEGEND

- MW-6 — GROUNDWATER MONITORING WELLS
- RN#7 — PRODUCTION WELL RN#7, INACTIVE
- FENCE LINE
- FORMER BUILDING FOOTPRINT
- CONCRETE CAP
- LANDSCAPE AREA

LOCATION NAME / DATE

MW-4	06/29/2020 144.0-177.0
HEXAVALENT CHROMIUM (mg/L)	0.15/0.15
CHROMIUM (TOTAL) (mg/L)	0.133/0.134

SCREEN INTERVAL, FT BGS

ANALYTE / ANALYTICAL RESULTS

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BGS = BELOW GRADE SURFACE.
3. / = DUPLICATE SAMPLES.
4. mg/L = MILLIGRAMS PER LITER.
5. J = ESTIMATED VALUE
6. MAP REFERENCE: JOSEPH E. BONADIMAN & ASSOCIATES, INC., DATED FEBRUARY 2011.

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

FORMER K/J PLATING FACILITY
21750 MAIN STREET
GRAND TERRACE, CALIFORNIA

SITE PLAN SHOWING GROUNDWATER MONITORING ANALYTICAL DATA - JUNE 2020

SCALE: AS SHOWN
AUGUST 2020

FIGURE 6

MOBINI, DARIUSH Printed: 7/28/2020 3:55 PM Layout: SITE PLAN
G:\128544 KJ PLATING\002\CAD\2020_07\128544_009_0006_GWANALYTICAL_DATA.DWG

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
9211 Oakdale Avenue
Chatsworth, California 91311

Edmund G. Brown Jr.
Governor

December 17, 2013

Mr. Randall Weidner
Southern California Edison
2244 Walnut Grove Avenue
Rosemead, California 91770

NO FURTHER ACTION/REMEDY COMPLETE DETERMINATION FOR SOUTHERN CALIFORNIA EDISON COMPANY, HIGHGORVE GENERATING STATION, 12600 TAYLOR STREET, GRAND TERRACE, CALIFORNIA 92374
EPA ID. NO. CAD 000 631 028

Dear Mr. Weidner:

The Department of Toxic Substances Control (DTSC) is hereby making the determination of No Further Action/Remedy Complete (NFA/RC) for the Southern California Edison, Highgrove Generating Station. The station is located at 12600 Taylor Street, in City of Grand Terrace, California. A public notice for the NFA/RC and corresponding draft Notice of Exemption (NOE) prepared in accordance with the California Environmental Quality Act (CEQA) was issued and a forty-five (45)-day public comment period was held from October 18, 2013 through December 5, 2013. DTSC received no written comments from the public.

In compliance with CEQA, DTSC has issued a NOE after its determination that the project will not cause a significant impact to the environment. The NOE has been filed with the State Clearinghouse, Office of Planning and Research.

Should you have any questions regarding this letter, please contact me at (818) 717-6609.

Sincerely,

Allan Plaza

Allan Plaza, P.E.
Unit Chief
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control

cc: Mr. Patrick Hamilton
Engineering Geologist
2715 Altamira Circle
West Covina, California 91792

Mr. Steve Rounds, P.E.
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Mr. Greg Neal, P.G.
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Ms. Shukla Roy-Semmen
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

COMMUNITY Notice

The mission of DTSC is to protect California's people and environment from harmful effects of toxic substances through the restoration of contaminated resources, enforcement, regulation and pollution prevention.

Information Available for Public Comment on Site Closure of the Former Southern California Edison Highgrove Generating Station, Grand Terrace CA

The Department of Toxic Substances Control (DTSC) is proposing to make a No Further Action/Remedy Complete (Site Closure) determination for the Former Southern California Edison Highgrove Generating Station (HGS). DTSC regulates the generation, storage, treatment, and disposal of hazardous waste in California. Details of the regulated closure, submitted by Southern California Edison (Edison), are available for public review and comment. The Site Closure information includes the investigations conducted and assessment of contamination related to past operations on the property which ensures that the environmental systems currently in place continue to be effective in protecting human health and the environment.

Former Southern California Edison Highgrove Generating Station located Between 215 Freeway and Grand Terrace High School

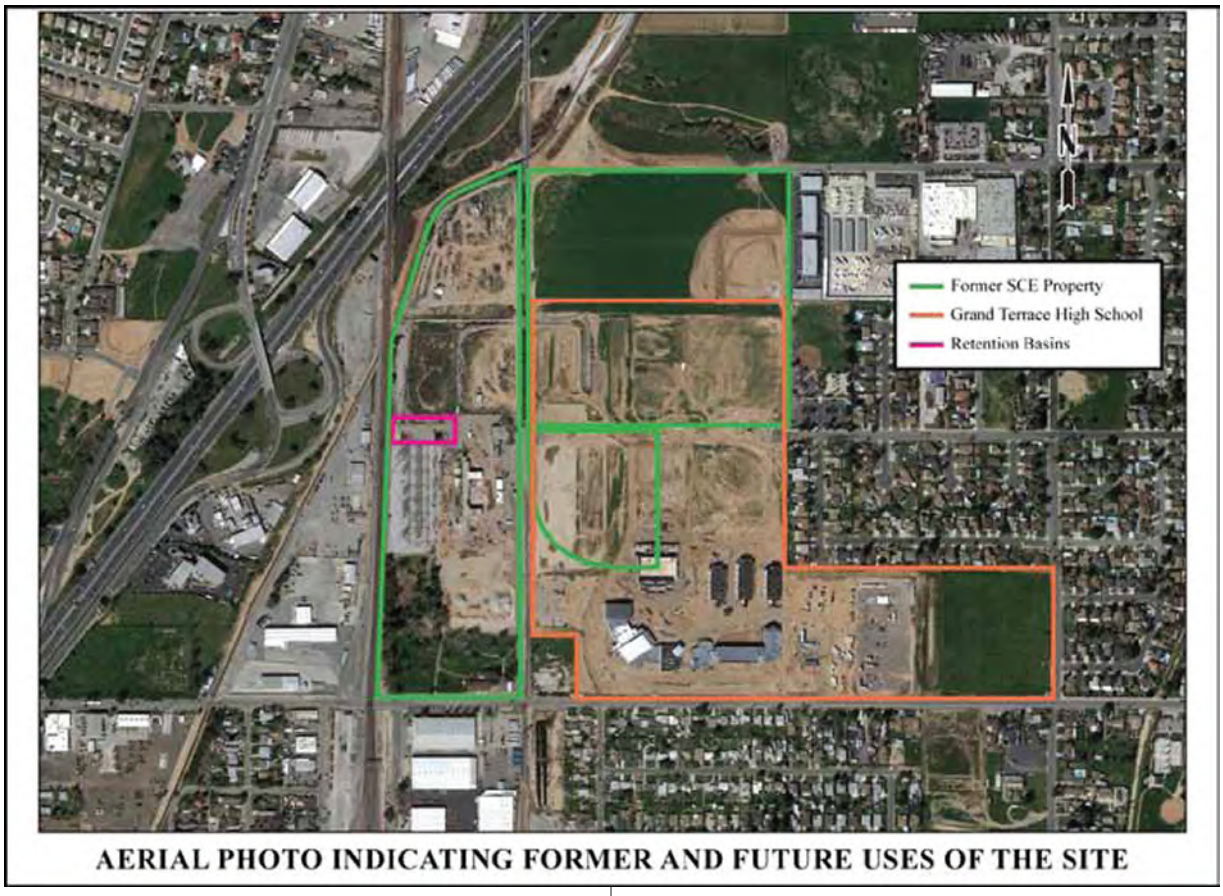
Public Comment Period

October 18, 2013 through December 5, 2013

The public is invited to review and comment on the proposed Site Closure of the Former Southern California Edison Highgrove Generating Station. The proposed Site Closure project documents are available for public review at the locations listed on page 3. Please submit written comments postmarked by December 5, 2013; or by email before the deadline date no later than 5:00 p.m. to:

Steve Rounds, DTSC Project Manager
9211 Oakdale Avenue,
Chatsworth, CA 91311,
(818) 717-6602
or e-mail:
steven.rounds@dtsc.ca.gov

A public meeting is scheduled for November 6, 2013, from 5:00 PM to 7:00 PM, in the City of Grand Terrace Community Meeting Room, located at 22795 Barton Road.



AERIAL PHOTO INDICATING FORMER AND FUTURE USES OF THE SITE

History and Operations at the Site

The former Southern California Edison Highgrove Generating Station (HGS) is located at 12700 Taylor Street, in Grand Terrace. The original parcel that Edison acquired as part of a 1964 merger with California Electric Power Company (CEPC) included not only the power plant, but also adjoining properties to the north and east, as shown in green on the above aerial photo. These adjoining properties have historically been used for agricultural purposes and a public park. The generating station was built in the early 1950s by CEPC and then operated by Edison following the merger. It was sold to Thermo Ecotek in 1998. Thermo Ecotek renamed it the Riverside Canal Power Company. Although Edison sold the plant, it retained responsibility for environmental liabilities associated with past facility operations and the adjoining properties. AES Corporation purchased the power plant from Thermo Ecotek in 2001. The adjoining properties were ultimately sold to the City of Grand Terrace.

Environmental Investigations

Edison conducted a number of environmental investigations within the original property boundaries in compliance with DTSC's environmental regulations.

These investigations included:

- 2006 Site Investigation Report for the Grand Terrace High School (shown in orange on aerial photo above) and agricultural parcels (shown in green, inside the area in orange,) to the east of HGS
- 2007 Closure Demonstration Report for the wastewater retention basins at HGS
- 2007 site investigation of the agricultural parcel to the northeast of HGS, and
- RCRA Facility Investigations at HGS, between 2008 and 2012.

The results of these investigations indicate there were no releases of hazardous substances that would adversely impact human health and the environment and that the former Edison site is acceptable for unrestricted use.

California Environmental Quality Act

In compliance with the California Environmental Quality Act (CEQA), DTSC has prepared a draft Notice of Exemption (NOE) for this project. The NOE states that the proposed closure will not have a significant negative effect on human health and the environment.

How You Can Participate

DTSC encourages interested community members to review the documents and submit comments during the public comment period **which begins October 18, 2013 and ends December 5, 2013.** The documents are available at the repositories listed in this Community Notice below. The Administrative Record for this facility, including the facility's environmental compliance record is available at the repositories listed below. Written public comments on the proposed Site Closure must be post-marked or e-mailed no later than **December 5, 2013** and sent to: Steve Rounds, DTSC Project Manager, at 9211 Oakdale Avenue, Chatsworth, CA 91311 or by e-mail to: *steven.rounds@dtsc.ca.gov.*

Next Steps

Before making a final decision, DTSC will consider and respond in writing to all public comments received during the public comment period. A copy of DTSC's Response to Comments document will be sent to all those who submit a public comment and provide their name, mailing or email address.

Once a final decision is made, DTSC will issue a No Further Action/Remedy Complete letter to Edison.

Where to Find Project Documents

The site-related documents are available for public review at the information repositories listed here. The administrative record, including the draft CEQA/NOE is also available at the DTSC Office in Chatsworth.

Grand Terrace Library
22795 Barton Road • Grand Terrace, CA 92313
(909) 783-0147
Hours of Operation

Monday	11AM-7PM
Tuesday	11AM-7PM
Wednesday	11AM-7PM
Thursday	10AM-6PM
Friday	10AM-6PM
Saturday	9AM-5PM
Sunday	Closed

Department of Toxic Substances Control
Regional Records Office
9211 Oakdale Avenue
Chatsworth, CA 91311
Contact:
Vivien Tutaan
(818) 717-6521
for appointment

Copies of key technical reports, fact sheets and other site-related information are also available online at DTSC's website: *www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001332.*

All documents made available to the public by the DTSC can be made available in an alternate format (i.e. Braille, large print, etc.) or in another language as appropriate, in accordance with state and federal law. Please contact Zenzi Poindexter for assistance.

DTSC Contacts for More Information

For more information about the proposed Site Closure, or to be added to the site mailing list please contact the following DTSC representatives:

Steve Rounds
DTSC Project Manager
9211 Oakdale Avenue
Chatsworth, CA 91311
(818) 717-6602
steve.rounds@dtsc.ca.gov

Zenzi Poindexter
DTSC Public Participation Specialist
9211 Oakdale Avenue
Chatsworth, CA 91311
(818) 717-6568
Toll-Free: (866) 495-5651 (press 3 then 3)
zenzi.poindexter@dtsc.ca.gov

For media related inquiries, please contact:

Russ Edmondson
Public Information Officer
(916)323-3372
redmondson@dtsc.ca.gov

Southern California Edison Highgrove Generating Station (HGS)
Grand Terrace, CA

If you use this form to send us your comments, please include your name and address.
All written comments must be postmarked no later than **December 5, 2013.** Please send this form to:

Steve Rounds
Department of Toxic Substances Control
9311 Oakdale Avenue
Chatsworth, CA 91311

You may also email this same information to: *steven.rounds@dtsc.ca.gov*

Name: _____

Address: _____

Affiliation (if any): _____

Phone number (optional): _____

Comments: (If you need more space, please feel free to use another sheet of paper)

_____

_____

_____

_____

_____

_____

_____

_____

_____

Our mailing lists are only used for keeping you informed of our activities. However, they are considered public records and, if requested, may be subject to release.

Department of Toxic Substances Control
Zenzi Poindexter
9211 Oakdale Avenue
Chatsworth, CA 91311

Community member name here
Address here
City, State 00000-0000

Inside: Information on SCE Former Highgrove Generating Station, Grand Terrace, California

For more information about the DTSC, please visit our web site at: *www.dtsc.ca.gov*

RCRA FACILITY INVESTIGATION REPORT

Former SCE Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California 92313

Terracon Project No. 60077051
September 14, 2009

Prepared for:

SOUTHERN CALIFORNIA EDISON COMPANY

For Submittal To:

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES
Chatsworth, California

Prepared by:

16662 Millikan Avenue
Irvine, California 92606

Terracon
16662 Millikan Avenue
Irvine, CA 92606
949-660-9718; fax: 949-660-9732

September 14, 2009

Ms. Christine Bucklin, P.G.
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, CA 91311

Re: RCRA Facility Investigation Report
Former SCE Highgrove Generating Station
12700 Taylor Street
Grand Terrace, CA 92313
EPA ID# CAD00631150

Dear Ms. Bucklin:

Terracon is pleased to submit this RCRA Facility Investigation Report for the above referenced site. Terracon performed the activities between January 15, 2008 and April 17, 2008 in accordance with the Final Work Plan approval dated December 20, 2007.
Please contact either of the undersigned at 949-660-9718 if you have any questions regarding this document.

Sincerely,

Terracon

Jinny Park, E.I.T.
Senior Staff Engineer

Jeff Brenner, P.G.
Environmental Department Manager

PROFESSIONAL GEOLOGIST
JEFFREY P BRENNER
No. 7134
Exp. 1/31/2011
STATE OF CALIFORNIA

cc: Steve Maghy, AES Highgrove, LLC/Riverside Canal Power Company

Former SCE Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California
Terracon Project No. 60077051

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

Former SCE Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California
Terracon Project No. 60077051

1.0 INTRODUCTION/BACKGROUND

Terracon Consultants, Inc. (Terracon) has prepared this RCRA (Resource Conservation and Recovery Act) Facility Investigation (RFI) Report for the former Southern California Edison (SCE) Highgrove Generating Station (HGS), located at 12700 Taylor Street, in the City of Grand Terrace, San Bernardino County, California. The facility is currently owned by the Riverside Canal Power Company (RCPC), a wholly owned subsidiary of the AES Corporation. RCPC decommissioned the plant in 2001 and plans to replace it with a more efficient, higher capacity generating station. The location of the former plant and the current configuration of the site are illustrated on Figure 1 and Figure 2, respectively.

As part of the closure process for the former Highgrove Generating Station, RCPC entered into a Corrective Action Consent Agreement (hereinafter referred to as the "Consent Agreement") with the State of California Environmental Protection Agency's Department of Toxic Substances Control (DTSC). Under the terms of the Consent Agreement, RCPC was required to perform additional investigation at the facility to determine the nature and extent of hazardous waste or hazardous waste constituents that may potentially exist in the subsurface environment due to past operations (Section 2). More specifically, the Consent Agreement (Sections 5, 6, and 7) required that, prior to performing this investigation, AES submit a RCRA Facility Assessment (RFA), a Current Conditions Report (CCR), and a RCRA Facilities Investigation (RFI) Work Plan to the DTSC for review and approval.

Based on a prior agreement between AES and the DTSC, and on the combined submittal option contained in the Consent Agreement (Section 8), the RFA and CCR documents were combined to form a single RFA/CCR document, though the RFI Work Plan remained a separate, stand-alone document. A draft copy of the combined RFA/CCR document was submitted to the DTSC on January 26, 2007. The Draft RFA/CCR provides details regarding the background, operational history, environmental setting, current status, and future development plans for the site.

A Final RFI Work Plan document was approved by the DTSC in November 2007. Details regarding the implementation of the RFI Work Plan are provided in the following sections of this report.

1.1 Site History

The former SCE HGS consists of a thermal power plant constructed in the 1950's that converted natural gas or fuel oil to electrical energy through combustion. HGS contains four,

small, “thermal” power plant units that have a total combined output capacity of 154 megawatts (MW). The units were built in pairs, with each pair of units sharing common control facilities. Power Units 1 and 2, each rated at 33 MW, began operation in 1951; Units 3 and 4, rated at 44 MW each, began commercial operation in 1954. The plant was originally designed to use both fuel oil and natural gas as a fuel, but the use of fuel oil was later discontinued due to changes in regulatory requirements associated with air quality.

Because of its relatively low output capacity, HGS was primarily used as a peaking facility and was only operated during periods of high demand. According to SCE, by the 1980s, the facility was typically operated an average of one or two days a year, but was maintained to provide peaking power when necessary. The research and development (R & D) area was added in the early 1980’s by SCE to evaluate and perform testing of alternative combustion and fueling projects. This included the evaluation of wood “gasification” methods as a means of fuel for the generation of electrical power. Thermo Ecotek purchased the plant from SCE in 1998 and created the Riverside Canal Power Company (RCPC) to operate the facility.

The facility was last operated during the California power crisis in the summer/autumn of 2000 (from August 25 to October 24, 2000), when SCE temporarily leased the plant from Thermo Ecotek to provide power. AES acquired Thermo Ecotek and the RCPC business unit that owned and operated the former SCE HGS in April 2001. Shortly after acquiring Thermo Ecotek and RCPC, AES performed a technical evaluation of the facility and determined that it would be too costly and inefficient to upgrade or maintain the plant. As a result, AES decommissioned the existing plant and drafted plans to build a newer, more efficient, higher capacity peaking facility in approximately the same location.

The facility has never been operated while under AES/RCPC ownership and AES/RCPC is actively conducting all of the steps required to obtain regulatory closure on the environmental issues related to the existing plant site. For a detailed description of the operational and regulatory issues related to the site, please refer to Sections 3.1 through 3.7 of the Draft RCRA Facility Assessment/Current Conditions Report (RFA/CCR).

1.2 RCRA Facility Assessment/Current Conditions Report (RFA/CCR)

On January 26, 2007, an RFA/CCR report was submitted to DTSC for review. This report identified the solid waste management units and areas of concern at the site where releases of hazardous constituents to the environment may have historically occurred and evaluated the environmental condition of the site. The report focused on the generating station property, tank farm property, the northern parcel, and the cage park property. A total of 63 separate features that represented areas of concern were observed throughout the site. Based on the findings,

however, no immediate corrective action to stabilize any ongoing releases and/or further migration of contaminants was necessary at the time of the report.

As outlined in Section 5.2 of the Draft RFA/CCR, more than twenty (20) environmental assessments and/or investigations have been conducted at the former SCE Highgrove Generating Station since 1986. During the course of these investigations, more than 100 soil samples have been collected from over 50 locations across the facility and analyzed for various chemical constituents of potential concern (COPCs) including, but not limited to, petroleum hydrocarbons, light oils, metals, PCBs, and solvents (VOCs & SVOCs). Based on the results of these investigations to date, COPCs have generally been detected in concentrations at or below their respective regulatory action levels in surface or near surface soil samples across the site. At those limited locations where COPCs have been detected in concentrations above the Federal EPA and California DTSC action levels, the affected soils have been removed from the site and transported to an appropriate disposal facility (Terracon, 2007).

In addition, a sampling and analysis plan was established from the findings of the RFA/CCR and led to the investigation described in this RFI Report.

1.3 Regional Topography

As illustrated in Figure 1, HGS is located within an uplifted alluvial valley known as the Riverside Mesa that lies between the La Loma Hills (approximately one-half mile to the northwest) and the Box Springs Mountains (approximately one and one-half miles to the east and southeast). Riverside Mesa is located is in close proximity to the current floodplain of the Santa Ana River, and may have once been contained entirely within its reach. Currently, the extent of the Santa Ana River floodplain can be observed as lying within approximately one and one-quarter miles northwest of the site (see Figure 1).

The regional aquifer system beneath the Riverside Mesa has been described as an approximately 400 foot thick sequence of alluvial sand and gravel deposits that lie on top of granitic basement rocks similar to those exposed in the local foothills and mountains. The regional aquifer is further described as being semi-confined due to the presence of a relatively thick aquitard composed of hard clay and clay-rich sand that has been observed at an average depth of 80 feet bgs, but has been observed between 30 and 110 feet bgs in the region.

Groundwater beneath the Riverside Mesa typically flows to the south/southwest as hard granitic rocks that comprise La Loma Hills and the Box Springs Mountains generally inhibit flow to the east and west. Though the Santa Ana River in the area is considered an influent or losing stream, groundwater outflow from the Riverside Mesa typically discharges towards the floodplain of the river where it flows south/southwesterly out of the Mesa. Groundwater

recharge to the aquifer in the Riverside Mesa area typically comes from infiltration of local rainfall, inflow from the Santa Ana River bed carrying snowmelt and rainfall from the San Bernardino Mountains, and release of bank storage along the northern portion of the floodplain from periods of high water flooding.

1.4 Regional Geology

Surface deposits in the area around the site have been described as Pleistocene alluvial fan deposits (fanglomerate) and well-indurated older decomposed clay-rich alluvium (Fife, and others, 1976). A foundation investigation was conducted on the site in 1945 by the Donald R. Warren Company. The results of the investigation indicated that the upper four feet of surface soil consists of loose sandy silt, underlain by what were described in the report as units of mainly hard sandstones and siltstones. The depth of the geotechnical investigation did not extend below 25 feet bgs.

Information obtained from several Caltrans borings located approximately 1,000 feet laterally from the site (to the north) indicated that the subsurface materials consist of fine sand, sandy silt and gravel to approximately 50 feet bgs, with the uppermost 10 to 15 feet of soil consisting of loose fine-grained sands. Underlying this layer, an approximately 30-foot thick interval of dense sand inter-bedded with layers of silt and clay was identified in the reports from the Caltrans borings. Below this inter-bedded interval lies a dense to very dense sand and gravel layer.

A driller's log from the No. 3 water supply well located in the eastern side of the site, (approximately 60 feet west of Taylor Street and 250 feet south of Pico Street) indicates that mainly sandy and gravelly soils were observed to a depth of 30 feet bgs, underlain by approximately 12 feet of hard, yellow to brown clay. Below the hard yellow clay, the underlying soils were described as clay with some sand down to 110 feet bgs. Below 110 feet bgs, the soil appears to be composed mainly of gravel to a depth of 342 feet bgs, below which lies a 60 foot layer of clay and weathered bedrock. The driller's log identifies the top surface of the hard bedrock at 426 feet bgs at that location.

1.5 Site Hydrogeology

Cage Park Pond, located within the southwestern extent of the facility property, consists of the only natural surface water body on site. Off site surface waters located in the vicinity of the facility include the Santa Ana River, Riverside Canal, and Gage Canal. The Santa Ana River is located 1¾ miles west of the site and is the Region's main surface water body, flowing southwest toward the Pacific Ocean, approximately 50 miles away. The Riverside Canal passes on the northwest side of the site. It is currently used primarily to convey non-potable water for agricultural use. The Gage Canal consists of an irrigation canal located approximately

0.5 mile from HGS, between the Santa Ana River and Riverside Canal. The Gage Canal supplies water to local citrus ranches and the groves of California Citrus State Historic Park.

Surface water drainage on site appears to flow from east to west towards Cage Park Pond and the Riverside Canal. Storm water drainage from Taylor Street and other off-site locations to the east predominantly flows west/southwest onto the site towards the Cage Park Pond. Three (3) storm water/surface water runoff outfalls are located on site and discharge into the Cage Park Pond and the Riverside Canal which eventually drains into the Santa Ana River.

The site is not located within the 100-year flood hazard zone as defined by the Federal Emergency Management Agency (FEMA). Although the hydrogeology beneath the site has not been specifically targeted in previous investigations at the facility, a general conceptual model of the hydraulic conditions below the site can be inferred from regional hydrogeologic framework and information obtained from previous drilling projects on site.

The facility contains four (4) operational groundwater production wells that were used to supply water to the plant for operations and general use. These wells are referred to as PW-1 through PW-4, though previous documentation for the facility refers to them as Well #1 through Well #4. In addition, three groundwater monitoring wells, MW-1, MW-2, and MW-3 were installed at the facility in 1998 as part of a site wide environmental site assessment project (Golder, 1998). Six more groundwater monitoring wells, HG-1 through HG-6, were installed in 2002 as part of a limited investigation focused on the east and west retention basins located in the north central portion of the facility (Hamilton, 2004). Additional information with respect to the production and groundwater monitoring wells is provided in the Draft RFA/CCR report (Terracon, 2007).

Based on information provided in the driller's logs from on site production wells, an aquitard composed of an approximately 12-foot thick interval of hard, yellow to brown clay is located from approximately 30 to 110 feet bgs. Below 110 feet bgs, the strata appear to consist mainly of sand, gravel, and cobbles to a depth of approximately 340 feet. This sandy gravel interval comprises the predominant aquifer for the basin and rests on a 60-foot thick clay layer that, in turn, overlies bedrock at about 420 feet bgs. A generalized lithologic description of the subsurface soil based on the driller's log for well #3 (PW-3) is illustrated on Figure 5. Additional information regarding the subsurface soil beneath the east and west retention basins is provided in Figure 6.

The aquifer underlying the site is semi-confined, with groundwater historically occurring at depths ranging from approximately 80 to 100 feet bgs. The uppermost 30-foot section of soil consists of clay with silt interbedded with sandy soil of varying density and degree of cementation that may potentially contain perched groundwater in some locations.

Groundwater levels were measured in monitoring wells MW-1, MW-2, and MW-3 shortly after their installation in 1998. The results of the measurements indicated that groundwater was generally flowing from north/northwest to the south/southeast beneath the site with an overall hydraulic gradient of approximately 0.002 feet/foot (ft/ft).

Groundwater monitoring wells HG-1 through HG-6 have been regularly monitored since their installation in 2002 (Hamilton, 2004). Data obtained from these wells during the first quarter of 2004 and first quarter of 2006 indicated that groundwater in the vicinity of the retention basins was generally flowing from the north/northeast to the south/southwest during those periods (Hamilton, 2004 and 2006). The resulting hydraulic gradient in the vicinity of the retention basins was calculated at approximately 0.00069 ft/ft and 0.00055 ft/ft during the first quarter of 2004 and first quarter of 2006, respectively.

2.0 SCOPE OF RCRA FACILITY INVESTIGATION

A total of 63 features of potential interest at the site were identified and described in the RFA/CCR report as described in Section 1.2. Based on historical operations and/or documented uses, 27 of these features were identified as solid waste management units (SWMUs), 30 were classified as areas of concern (AOCs), and six were determined to have little or no potential for environmental impact to the site. Based on an evaluation of historical information and analytical data from previous investigations, a total of 47 of the 63 features identified in the RFA/CCR report were investigated during this RFI. These features are listed in Table 1 and depicted in Figure 3.

Due to the restricted access issues associated with the site infrastructure 6 of the 63 Features were not investigated during this RFI. These features include:

- Feature 7 – Two 2,900-gallon Lube Oil ASTs for Units 1 and 2
- Feature 9 – Vaulted Lube Oil Reservoirs – Turbine Oil Tanks for Units 1 and 2
- Feature 10 – Two 2,900-gallon Lube Oil ASTs for Units 3 and 4
- Feature 14 - Vaulted Lube Oil Reservoir – Turbine Oil Tank for Unit 3
- Feature 15 - Vaulted Lube Oil Reservoir – Turbine Oil Tank for Unit 4
- Feature 22 – Hardinge Sand Filter

Prior to demolition, these features will be surveyed with a Global Positioning System (GPS) instrument, to establish precise location coordinates. After the facility has been demolished and the equipment/infrastructure has been removed, the survey coordinates will be used to determine the precise locations of the former features so subsurface investigation of those features can take place.

The remaining 10 features at the site were not investigated based on their low potential for impact to the environment and/or data from previous investigations indicating that no evidence for impact was observed.

The soil sampling approach focused on specific site features as identified in the RFA/CCR in an attempt to provide a thorough evaluation of the potential environmental impacts from past operations. Based on the nature and former uses at the particular site features, the constituents of potential concern (COPC) for the RFI soil sampling program included:

- Total petroleum hydrocarbons (TPH)
- Volatile organic compounds (VOCs)
- Semi-volatile organic compounds (SVOCs)
- Metals
- Hexavalent chromium
- Polychlorinated biphenyls (PCBs)
- Polycyclic aromatic hydrocarbons (PAHs), and
- pH

A list of features with the corresponding COPCs and laboratory analysis is included as Table 1. Groundwater sampling was not conducted as part of the RFI.

3.0 PRE-MOBILIZATION ACTIVITIES

Provided in the following subsections are details regarding the tasks performed prior to initiating the RFI sampling program, including the selection of RFI boring locations, permitting, and the underground utility survey.

3.1 Determination of Final RFI Sampling Locations

In an effort to ensure sufficient analytical coverage of the site features investigated under the RFI field program, SCE, AES, and Terracon project personnel solicited direct input from DTSC representatives regarding the locations, quantities, and potential analytical tests of the soil samples proposed under the RFI Work Plan. This collaborative approach was initiated during the preparation of the Draft RFI Work Plan and culminated in several site visits by DTSC personnel to assist in the final selection of the sampling locations that were incorporated into the approved Final RFI Work Plan document.

On July 18, 2007, Terracon, SCE, and AES representatives met with DTSC project geologists on site to determine the final RFI sampling locations based on the proposed sampling objectives for each of the site features. The final sample locations were selected and clearly marked during the

site visit based on accessibility issues and the ability to satisfy the sampling objectives for each feature.

Every attempt was made during the implementation of the field sampling event to collect the samples from as near as possible to the final, marked sampling locations determined during the joint site visit. However, due to impedances from underground utilities, difficult drilling conditions, or changes in surface conditions due to weather events, a few of the sample locations were moved slightly in the field during the actual sampling event. Deviations and/or modifications to the original sampling locations are summarized in the sections that follow.

3.2 Permitting

At the time of the project, the San Bernardino County Department of Environmental Health Services policies did not require permits for the advancement of soil borings for the purpose of collecting soil samples provided that the borings did not extend into groundwater. Because none of the proposed soil samples for this RFI effort were expected to require the advancement of a boring into groundwater, permits were not required for the RFI sampling program.

3.3 Location of Underground Utilities

Prior to initiation of any drilling or sampling activities, Terracon contacted Underground Services Alert (USA) to identify any underground utility lines at the site. In addition, GEOVision Geophysical Services (GEOVision), a State of California licensed Geophysical Contractor, was engaged to perform a geophysical survey of all the RFI boring locations in order to identify any utility and structural support locations that could potentially impede drilling activities.

The geophysical survey was performed on December 18 through December 21, 2007 using electromagnetic (EM) and ground-penetrating radar (GPR) techniques to identify potential underground utility lines and/or buried infrastructure material. All geophysical survey activities were performed by GEOVision geophysicists under the direct supervision of a Terracon field geologist.

At each sampling location, an area of approximately 5 feet by 5 feet was surveyed using the EM and GPR instrumentation. In those cases where linear features were identified, the features were often traced for several feet beyond the original sampling location to ensure that the intrusive activities did not encounter those lines. All potential utilities and anomalous readings indicated by the geophysical equipment were clearly marked on the ground and mapped by GEOVision field personnel. Copies of the geophysical maps were provided to Terracon and are included in Appendix A.

4.0 DRILLING AND SAMPLING PROGRAM

All drilling and sampling support services for this RFI sampling program were performed by Kehoe Testing and Engineering, a California-licensed C-57 drilling contractor. Soil borings were advanced using a 6600 model, truck-mounted direct-push technology (DPT) rig and a track-mounted limited access DPT rig.

The main drilling and sampling activities were completed between January 15, 2008 and January 30, 2008. Additional sampling for background metals samples was completed on April 17, 2008. Details regarding this additional background sampling are provided in Section 7.0. All drilling and sampling activities were performed under the direction of a California-licensed geologist.

4.1 Soil Boring Advancement and Sample Collection

During this investigation, a total of 98 soil borings were advanced across the site. Total depths for each boring ranged from 5 feet bgs to 35 feet bgs. The locations of these soil borings are indicated on Figure 2 with respective feature descriptions included in Table 1. Additional details regarding these feature descriptions can be found in both the RFA/CCR and the Final RFI Work Plan (November 30, 2007).

Continuous soil core samples were collected from each boring using acetate sleeves. The recovered soil cores were evaluated in the field to document soil lithology, color, moisture content and visual/olfactory evidence of impairment. A Rae Systems MiniRae 2000 photoionization detector (PID) was used to field-screen the soil cores in approximately 4-foot intervals in each boring. PID readings were not observed above ambient background concentrations for all of the soil samples that were screened. Soil samples were generally collected at depths of 0.5 feet bgs, 5 feet bgs, and then every 5 feet until total depth for each boring was achieved. However, in locations where refusal was encountered, these depths were adjusted accordingly. The predominant soil lithology encountered during the advancement of the borings generally consisted of interbedded silty sand, sandy silt, silt, and clayey silt. A hard clay layer was typically observed across the site at approximately 20 to 25 feet bgs and refusal was generally encountered at this depth. Boring logs are included as Appendix B.

4.2 Soil Sample Collection

Depending on the required analytical testing for a particular site feature, the soil samples were collected in 6-inch acetate sleeves, 8-ounce glass jars, or USEPA-approved piston core devices. Soil samples that required analysis for VOCs were collected in 5-gram EnCore® piston samplers in accordance with EPA sample preparation Method 5035. Samples for SVOC analysis were collected in 8-ounce glass jars with Teflon-coated lids; samples for all other

analyses were collected in 6-inch actetate liners that were sealed with Teflon wrap and plastic end caps.

All samples were promptly labeled, bagged, placed in ice on a cooler, logged on a chain of custody document, and prepared for transport to the analytical laboratory. Each sample was given a unique identifier using the following format:

HGRI-X-Y-Z

where HGRI represents this Highgrove RCRA Investigation, X represents the site RI Feature number, Y represents the sample location within the Feature, and Z represents the depth of the sample in feet below ground surface (bgs).

4.3 Laboratory Analytical Program

All of the soil samples analyzed during this RFI were submitted to Calscience Environmental Laboratories of Garden Grove, California, a California Department of Health Services (DHS) certified environmental laboratory and accredited by the National Environmental Laboratory Accreditation Program (NELAP) for all the analytical methods outlined below.

Analysis	Sample Type	Analytical Method
VOCs	Soil	EPA 5035/8260B
SVOCs	Soil	EPA 8270C
TPH-cc	Soil	EPA 8015B
Metals	Soil	EPA 6010B/7471A
pH	Soil	EPA 9045D
Chromium VI	Soil	EPA 7196A
PCBs	Soil	EPA 8082
PAHs	Soil	EPA 8310

4.4 Deviations from Final RFI Work Plan

Based on actual site conditions encountered during the implementation of the Final Work Plan, some minor deviations were made as described in this section. The most common deviation resulted from refusal or lack of access during the soil boring activities. Other deviations include the following changes, please refer to Figures 3 through 9:

- Sample location HGRI-55-1 was originally marked near the base of the Stormwater outfall intake along the western edge of Cage Park Pond (Outfall #001). However, due to overgrowth in vegetation, HGRI-55-1 was collected just above the intake, at the base of a tree on the western edge of the foot path that runs above the western edge of the Cage Park Pond. The original location at the base of the intake was ultimately found and relabeled as HGRI-55-2.
- Sample location HGRI-35-1 was originally intended to be located near the center of the northern portion of the pond, but recent rain events that occurred before and during the RFI sampling activities precluded access to the original location due to swampy conditions that developed within the pond basin. As such, sample location HGRI-35-1 was moved to the north central edge of the pond.
- Based on conversations with DTSC representatives, two additional sample locations were added to the Cage Park area to address potential contamination from runoff from the inactive K &J Plating facility located adjacent to Cage Park, just east of Taylor Street. To address this issue, sample locations HGRI-35-4 and HGRI-35-5 were marked in the base of the concrete swale that conveys runoff from Taylor Street into Cage Park Pond. In the field, a concrete core was made at the HGRI-35-5 location and soil samples were collected at approximately 1.0 and 2.5 feet bgs. Deeper samples could not be collected as drilling equipment could not be used in the swale and hand auger methods encountered refusal at approximately 2.5 feet bgs. In addition, the concrete in and around the swale at the HGRI-35-4 location could not be breached, therefore soil samples were not collected from HGRI-35-4.
- In an effort to obtain additional information regarding the potential for contaminant impact from the off-site plating facility, due to stormwater runoff, samples of the soil mounds that had accumulated in the base of the concrete swale over time were sampled. One sample was collected from a mound inside the center of the swale, near the original locate of HGRI-35-4, another sample was collected from a berm of soil that had been recently dredged from the center of the swale. These samples were collected with the intention of providing information regarding potential contaminant impacts from the offsite plating facility and were labeled as “Inside the Swale” and “Outside the Swale”, respectively.
- One of the sample locations in the Hazardous Waste Storage Area, HGRI-38-1 was moved slightly due to pooled water in the loading dock ramp where the original location was placed near the drain. Subsequently, HGRI-38-1 was moved approximately 3 feet up the ramp form its original location. In addition, drilling and sampling activities both locations for Feature 38 were proposed for a total depth of 25 feet bgs. Due to refusal encountered at both locations during drilling, HGRI-38-1 was advanced to a total depth of 15 feet bgs and HGRI-38-2 was advanced to 20 feet bgs due to difficult drilling at those respective depths.

- Soil samples for PCB analysis were not collected from location HGRI-44 as the transformer associated with that feature was active at the time and considered a potential risk for the safety of the sampling crew.
- Two sample locations were proposed for the chemical mixing tanks located in the Chemical Storage Room of Feature 8. However, because the concrete truck ramp for the elevated portions of the plant forms the ceiling for that room, adequate clearance for the limited access drill rig at HGRI-8-2 was not available and samples could not be collected from that location. In order to collect the samples manually, an attempt was made to core through the concrete floor to provide access to the soil. However, due to the thickness and reinforcement of the concrete flooring beneath the truck ramp, coring was only successful at HGRI-8-1. Once through the concrete, difficult conditions at HGRI-8-1 precluded advancement beyond approximately 1 foot bgs. As such, a soil sample was collect from 1 foot bgs at HGRI-8-1.
- After discussions with DTSC representatives regarding preliminary metals results for the RFI, additional samples for background metals concentrations were collected to improve the number of background samples for comparison. A total of 10 soil samples were collected from 0.5 and 5 feet bgs from five locations around the western edge of the switchyard and northeast portion of the site. The locations of these borings are illustrated in Figure 3. Additional discussion of the background sampling is provided in Section 6.4 below.

5.0 SAMPLE RESULTS

The following section provides a brief description of the analytical results from the RFI sampling at the former Highgrove facility. Summaries of the detected analytes are provided in Table 2 through Table 6. Full copies of the complete analytical laboratory reports, including executed chain-of-custody forms, are provided in Appendix C.

5.1 VOCs

A total of forty-one (41) soil samples were collected for VOC analysis by EPA Method 8260B from the following site Features:

- Lab Trailers in R & D Area (Feature 16)
- R & D Sump (Feature 21)
- New Oil Drum Storage Area (Feature 23)
- Painter's Storage Room (Feature 26)
- Hazardous Waste Storage Shed (Feature 38)
- Machine Shop (Feature 51)
- Chemical Drum Storage Pad (Feature 59)

Overall, a total of 11 VOCs were detected in twenty-six (26) of the forty-one (41) soil samples collected from the site features listed above. The VOCs detected include acetone, benzene, chloroform, ethylbenzene, methylene chloride, toluene, 1,2,4-trimethylbenzene (1,2,4-TMB), 1,3,5-trimethylbenzene (1,3,5-TMB), total xylenes, and methyl tert-butyl ether (MTBE).

Acetone was detected at a concentration of 100 μg/kg in the 0.5 feet bgs sample from HGRI-51-2, located just outside the Machine Shop. However, acetone was not detected at or above its laboratory reporting limit in any of the other samples collected at the site. Methylene chloride was detected in a total of 21 of the samples analyzed in concentrations ranging from 8.7 μg/kg to 12 μg/kg.

Benzene was detected at a concentration of 1.4 μg/kg in sample HGRI-23-2 (New Oil Drum Storage Area) at a depth of 5 feet bgs. Benzene was not detected at or above its laboratory reporting limit in any other samples collected at the site. In regards to the other BTEX compounds, toluene was detected in 6 samples in concentrations ranging from 0.99 μg/kg to 9.4 μg/kg, ethylbenzene in 2 samples in concentrations ranging from 1.1 μg/kg to 4.6 μg/kg, and total xylenes in 2 samples in concentrations ranging from 6.9 μg/kg to 31 μg/kg.

Chloroform was detected at a concentration of 1.1 μg/kg in sample HGRI-38-1 (Hazardous Waste Storage Shed) at a depth of 10 feet bgs, but was not detected at or above its laboratory reporting limit in any of the other samples analyzed for VOCs during this investigation.

Compounds 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were detected in sample HGRI-23-2 (New Oil Drum Storage Area) at a depth of 5 feet bgs at concentrations of 11 μg/kg and 3.6 μg/kg, respectively. However, these constituents were not detected at or above their laboratory reporting limits in any of the other samples analyzed for VOCs during this RFI.

MTBE was detected in sample HGRI-16-3 (Lab Trailers) at a depth of 5 feet bgs at a concentration of 2.7 μg/kg, but it was not detected at or above its laboratory reporting limit in any of the other samples analyzed for VOCs during the RFI sampling event.

A summary of VOC results is included in Table 2 and Appendix C. A discussion of the VOC results is provided in Section 6.1.

5.2 SVOCs

A total of 27 soil samples were collected for SVOCs analysis by EPA Method 8270B from the following site Features:

- Lab Trailers (Feature 16)
- Former Drum Storage Area (Feature 17)
- Painter's Storage Room (Feature 26)
- Hazardous Waste Storage Shed (Feature 38)
- Chemical Drum Storage Pad (Feature 59)

Of the 27 soil samples analyzed for SVOCs, only one compound, bis-(2-ethylhexyl) phthalate, was detected at or above the respective reporting limits. The bis-(2-ethylhexyl) phthalate was detected at a concentration of 1.8 milligrams per kilogram (mg/kg) in the soil sample from 10 feet bgs collected in the vicinity of the hazardous waste storage shed. No other SVOCs were detected at above their respective laboratory reporting limits at the site. Copies of the analytical laboratory results for SVOCs are included in Appendix C. A brief discussion of the SVOC results is provided in Section 6.6.

5.3 PCBs

A total of 16 soil samples were collected for analysis for PCBs by EPA Method 8082 from the following site Features:

- Cooling Tower Transformers (Feature 33)
- Main Transformer Area (Features 41 through 45, excluding 44)
- Substation Stormwater Drainage Areas (Feature 50)

PCBs were not detected at or above the laboratory reporting limits in any of the 16 samples analyzed during this RFI sampling event. Laboratory analytical reports for PCB analysis are included in Appendix C.

5.4 PAHs

A total of 8 soil samples were collected for analysis for polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8310 in the vicinity of the R & D sump area (Feature 21). PAHs were not detected at or above the laboratory reporting limits in any of the samples analyzed. Laboratory reports for PAH analysis are included in Appendix C.

5.5 TPH

A total of 106 soil samples were collected for analysis for TPH by EPA Method 8015M from the following site Features:

- Former 3,000-gallon Aboveground Storage Tank (AST) Foundation (Feature 2)
- 189,000-gallon Day Tank – AST (Feature 3)
- Pipe Vault (Feature 5)
- Centrifuge Sumps (Features 6 and 11)
- 8,000-gallon Light Oil AST (Feature 18)
- 235,000-gallon Day Tank - AST (Feature 19)
- R & D sump (Feature 21)
- New Oil Drum Storage Area (Feature 23)
- Stormwater Outfalls and Drainage Pond (Features 34, 35, 54, and 55)
- Hazardous Waste Storage Shed (Feature 38)
- Oil/Water Separator (Feature 49)
- Machine Shop (Feature 51)
- Transfer Tank/Unloading Stations (Feature 57)
- 39,000-gallon Fuel Oil Transfer Underground Storage Tank (UST) (Feature 58)
- Chemical Drum Storage Pad (Feature 59)
- Underground Pipelines (Feature 61)
- Light Oil ASTs (Feature 63)
- Sediment Samples from concrete swale in Cage Park

TPH compounds were detected in all the samples analyzed during the RFI sampling event. Overall, the total concentrations of C6 to C44 (gasoline to heavy oil fraction) hydrocarbon compounds ranged from less than 1.0 mg/kg to 1,500 mg/kg, though the majority of the results were reported less than 200 mg/kg. Most of the detections were reported for the C13 to C22 diesel range hydrocarbons. A summary of TPH concentrations in soil is included in both Table 3 and Appendix C. A detailed discussion of the TPH results is provided in Section 6.2 below.

5.6 Metals

A total of 195 soil samples collected in the vicinity of 27 of the onsite features were analyzed for 17 standard California Title 22 metals by EPA Method 6010B. A total of 15 metals were detected in the soil samples collected from each of the features investigated, including antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, vanadium, and zinc. Silver and thallium were not detected in any of the samples analyzed during the RFI sampling event.

The metals results are summarized in Table 4 and copies of the analytical laboratory reports are included in Appendix C.

Based on the initial metals results obtained by EPA Method 6010B, 15 soil samples were reanalyzed for arsenic by EPA Method 6020 in an effort to confirm the initial results. The arsenic results obtained by both analytical methods are provided in Table 4. Additionally, soil samples BG-1 through BG-5 were collected on April 17, 2008 from the five locations along the western edge of the switchyard and north eastern portion of the site were analyzed for all metals to provide additional information with respect to background arsenic concentrations for the site.

Additional detail and discussion of the metals results is provided in Sections 6.3 through 6.6.

5.7 Hexavalent Chromium

A total of 103 soil samples were collected for analysis for hexavalent chromium (chromium VI) by EPA Method 7196A from the following site Features:

- Bearing Cooling Water System (Feature 13)
- Cooling Towers (Features 29 through 32)
- Stormwater Outfall to Cage Park (Feature 34)
- Swale Areas (Feature 35)
- Chemical Waste Storage Pad (Feature 59)
- Sediment Samples from the concrete swale in Cage Park

Hexavalent chromium was detected in 3 of the 103 soil samples collected during the RFI sampling at concentrations ranging from 1.0 to 1.6 mg/kg. Two of these sample results were reported in the near surface samples (0.5 feet bgs), with the third reported in a sample from 15 feet bgs. With the exception of these three soil samples (two located in the cooling tower area and one beneath the chemical drum storage pad), chromium VI was not detected at or above the laboratory reporting limit for that compound in any of the other 100 soil samples collected. A summary of chromium VI concentrations in soil is provided in Table 5. Copies of the analytical laboratory reports are included in Appendix C.

5.8 pH

A total of 64 soil samples were collected and analyzed for pH by EPA Method 9045D from the following site Features:

- Chemical Storage Room (Feature 8)

- Centrifuge Sumps (Features 6 and 11)
- 200-gallon Chemical Feed ASTs (Feature 12)
- Bearing Cooling Water System (Feature 13)
- Stormwater Outfalls (Features 34, 35, and 55)
- Hazardous Waste Storage Shed (Feature 38)
- Condenser Drains (Feature 40)
- Caustic and Acid ASTs (Feature 47)
- Tank Cleanout Area (Feature 53)
- Swale Areas

Generally, the pH of the soil samples was measured between 6 and 8, relatively neutral. However, a pH of 3.44 was observed in the sample collected from 5 feet bgs in the vicinity of the caustic and acid ASTs (Feature 47). By contrast, a pH value of 9.36 was reported for one of the soil samples collected from 5 feet bgs in the vicinity of the bearing cooling water system (Feature 13). A summary of pH values measured in soil is provided in Table 6 and Appendix C. A discussion of pH values is provided in Section 6.6.

6.0 DISCUSSION OF RESULTS

The following section provides a brief discussion of the RFI analytical results as described in the previous section.

6.1 VOCs

As described in section 5.1, a total of 11 VOCs were detected in twenty-six soil samples collected from 8 site Features. These compounds included acetone, benzene, chloroform, ethylbenzene, methylene chloride, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, total xylenes, and methyl tert-butyl ether (MTBE). All reported VOC concentrations were reported several orders of magnitude below the most conservative US Environmental Protection Agency (EPA) Preliminary Remediation Goals (PRGs). The most current residential PRGs for soil for the reported constituents are provided with the RFI VOC results in Table 2. At the state level, California Human Health Screening Levels (CHHSLs) for VOCs in soil have not been established at this time.

However, the benzene, toluene, ethylbenzene, xylene (BTEX) and methyl-tert-butyl ethene (MTBE) results can be compared to the Maximum Soil Screening Levels established by the Los Angeles Regional Water Quality Control Board (LA RWQCB) in May 1996 (Table 4-1, Interim Site Assessment & Cleanup Guidebook, May 1996, revised January 2005). The LA RWQCB does not have jurisdiction over the subject site and these screening values may not be

applicable, however they do provide an additional frame of reference for the results of this investigation.

Of the few reported BTEX and MTBE detections, all of the RFI results for those compounds were reported in concentrations of at least one full order of magnitude below the most conservative (lowest) LA RWQCB screening values. For comparison, the respective LA RWQCB screening levels are provided in Table 2.

Overall, methylene chloride constitutes the most commonly reported VOC as it was detected in all but 5 of the samples analyzed during the RFI. Moreover, methylene chloride was the only VOC reported in eighteen (18) of the twenty-six (26) samples analyzed for VOCs during the RFI.
During the preparation of the RFA/CCR for the site, no indication of the use of methylene chloride at the former generating station was identified in the historical information and documentation reviewed for the facility. Therefore, widespread distribution of methylene chloride in concentrations just above its analytical detection limit is likely due to carry over from analytical preparation and/or instrumentation at the analytical laboratory. This premise is supported by the laboratory case narratives provided in Calscience analytical report number 08-01-1194 and 08-01-1665 (Appendix C) in which methylene chloride was indicated as a laboratory artifact.

Methylene chloride was determined as an artifact as it was detected in the laboratory-prepared method blank sample in similar concentrations to those reported in the associated soil samples from the same quality control run. This indicates that the compound was likely introduced to the soil samples during the laboratory preparation or analysis phase as methylene chloride is a common laboratory solvent that is used to clean analytical instrumentation and glassware.

Based on the documentation of laboratory carry over, the widespread nature of low-level concentrations of the compound in samples where no other VOCs were detected, and the lack of documented evidence of its past use on site, all of the reported methylene chloride concentrations reported during this RFI are considered suspect and cannot be ascribed to actual site conditions.

Other suspect constituents include acetone and chloroform. These compounds were detected in each one on the 41 samples analyzed for VOCs during the RFI. The results for both acetone and chloroform were reported well below their respective residential PRGs and neither CHHSLs nor Maximum Soil Screening Levels (RWQCB) have been established for these compounds. Furthermore, these compounds are also commonly used as solvents and reagents in analytical laboratories and likely represent carry over events during sample preparation or analysis. No

other VOCs were reported at or above their respective reporting limits in any of the soil samples collected.

Based on the limited number and concentration of VOCs detected in the site Features investigated during this RFI, evidence for significant VOC impacts to the soil due to past activities on site was not observed.

6.2 TPH

As summarized in Section 5.3, some minor concentrations of TPH compounds were detected in essentially all of the 107 soil samples collected from across the site during this RFI. However, although detections of TPH were generally widespread in their vertical and lateral distributions, the overwhelming majority of results were reported in concentrations less than 1.0 mg/kg. A full 59% of the 927 results for all of the carbon ranges analyzed were reported below this value.

All of the TPH results, except for the near surface sample collected next to the 8,000-gallon light oil tank at HGRI-18-1, were reported in concentrations that are typically several orders of magnitude below the most stringent LA RWQCB Maximum Soil Screening Levels for gasoline (C4-C12), diesel (C13-C22), and motor oil (C23-C32) range hydrocarbons (Table 3). The gasoline and diesel range results for the 1 foot bgs sample collected at HGRI-18-1 both exceed the most conservative LARWQCB screening levels for soil at 20 feet above the groundwater (100 mg/kg). However, historical depth to water measurements documented for the site range between 80 and 100 feet bgs and the screening levels for soil located between 20 and 150 feet above groundwater (500 and 1,000 mg/kg for gasoline and diesel range TPH compounds, respectively) more accurately reflect the site conditions. Compared to these values, only the results for the diesel range hydrocarbons in the 1 foot sample from HGRI-18-1 slightly exceed the screening level, the gasoline range hydrocarbons do not.

The TPH results from the soil samples collected from 5 and 10 feet bgs at HGRI-18-1 indicate markedly lower concentrations of the gasoline and diesel-range compounds that are well below even the most stringent screening levels. As such, the impact of gasoline and diesel range TPH appears to be limited to the near surface soil at that particular location.

Furthermore, based on the documented use of the 8,000 gallon tank (Feature 8) for storing light oil product, the hydrocarbon signature of the results from HGRI-18-1 indicate minor impact from gasoline and diesel which may be inconsistent with the hydrocarbon signature for light oil that would likely appear in the higher, C23-C32 hydrocarbon range. However, fractions in the motor oil range were not observed in HGRI-18-1. As such, the results for HGRI-18-1 tend to indicate that a small release may have occurred at the surface near the tank, perhaps due to overfilling of the tank or leaking gas and diesel from a site vehicle parked in that location.

Overall, the highest concentrations of diesel range TPH were generally associated with the samples collected adjacent to the above ground storage tanks, outside the machine shop, and near the train unloading stations. However, apart from the near surface sample from HGRI-18-1, the next highest concentration of diesel range TPH was reported for the two soil samples collected from inside and outside the concrete swale within Cage Park. Gasoline, diesel, and motor oil range hydrocarbons were also reported in all of the samples collected from HGRI-35-2 and HGRI-35-3 in Cage Park. The HGRI-35-3 samples were collected from the extreme southwest portion of the park, as far away as possible from the plant infrastructure and equipment.

Furthermore, a logical mechanism for impact at many of the affected site Features cannot be discerned from the vertical distribution patterns of the sample results. For example, the diesel range TPH results for the 5 feet bgs sample collected at HGRI-35-3 were higher than that for the near surface sample at 6-inches from that same location. At this remote corner of Cage Park, any potential impact would be expected to originate from the surface, resulting in decreasing TPH concentrations with depth. However, the observed increase in TPH concentrations with depth at that location may be reflective of analytical variances associated with sampling and analytical methods.

Minor concentrations of gasoline, diesel, and motor oil range hydrocarbons were also reported in the samples collected near the base of the tree on the western edge of Cage Park Pond (HGRI-55-1). This particular location lies a significant distance from the tanks, pipelines, and machinery where petroleum hydrocarbon use would be expected. In addition, HGRI-55-1 lies topographically above the natural drainage pathways from the facility into Cage Park. Therefore, the presence of TPH in these samples cannot be directly correlated to normal activities at the facility and may be indicative of ambient conditions or possible laboratory carryover issues.

Although the RFI sampling results indicate the widespread detection of minor amounts of TPH compounds, all but one of the reported concentrations were reported well below risk screening level criteria that provide a general frame of reference from which the data can be evaluated. Based on this comparison and the overall distribution patterns observed in the results, the subsurface soil at the site does not appear to have been significantly affected by historical use of petroleum hydrocarbons at the site.

6.3 Metals Evaluation

As outlined in section 5.6 above, 15 of the 17 California Title 22 suite of metals were detected in the soil samples collected across the site. These included antimony, arsenic, barium, beryllium,

chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, vanadium, and zinc. With the exception of arsenic, the detected metals were all reported in concentrations well below the respective PRGs and CHHSLs for commercial/industrial use soil. Furthermore, based on the relatively consistent range of results reported for each of these metals, the results for antimony, barium, beryllium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, vanadium, and zinc are considered representative of background conditions for the site.

Arsenic was detected in concentrations ranging from 0.978 to 12.1 mg/kg in the soil samples collected during the RFI. The current PRG and CHHSL values for arsenic in industrial soil are 0.25 and 0.24 mg/kg, respectively, both of which are below the laboratory detection limit of 0.75 mg/kg for that compound. However, arsenic concentrations in excess of 11 mg/kg or more in soil samples analyzed from Southern California are well documented. A detailed discussion of the arsenic results is provided in the following section.

6.4 Arsenic

Based on an initial review of the metals results obtained by EPA Method 6010B, four of the highest arsenic concentrations appear to cluster around several locations between the plant Cooling Towers (HGRI-29/30-1, HGRI-30-2, HGRI-30/31-1, HGRI-30/31-2, HGRI-30/31-3, and HGRI-31/31-3). This would appear to suggest that there may be some correlation between the historical activities at the cooling towers and elevated arsenic concentrations in the adjacent soil. Furthermore, the average arsenic concentration for all of the 194 soil samples analyzed for metals during the RFI is approximately 4 mg/kg, which exceeds the background value of approximately 2 mg/kg established for previous investigation conducted on site.

However, further evaluation of the RFI data indicates that nearly all of the arsenic values obtained during the RFI are representative of ambient or background conditions for soil and do not reflect impacts from previous activities at the site. A detailed discussion of the evidence supporting this interpretation is outlined in the following subsections.

6.4.1 Background Sampling on Site

Initially, a total of three sampling locations along the southern portion of Cage Park (HGRI-35-2, HGRI-35-3, and HGRI-35-6) were designated to serve as background for comparing the results from other locations on site. However, the analytical results for arsenic ranged from 3.12 to 5.43 mg/kg in the samples analyzed from those locations. Because these results were so similar to the arsenic concentrations obtained from other samples collected adjacent to the site Features, there was some concern that additional background samples from other locations around the facility may be necessary to provide better confirmation of the original results.

As described in Section 4.4, another ten soil samples were collected in April 2008 from five locations (BG-1 through BG-5) between the western margin of the switch yard and northeastern corner of the site to provide additional background information. The results from these samples ranged from 2.08 to 4.08 mg/kg and were generally lower than those obtained from Cage Park. This slightly lower range of values is generally more consistent with background samples collected during previous investigations from the northeast corner of the site.

Comparing the highest arsenic concentrations (e.g. 12.1 mg/kg at HGRI-50-1; 11.1 mg/kg at HGRI-30/31-3) to these background values indicates a difference of approximately 7 to 8 mg/kg between the samples. Although this differential may imply that higher results from the site samples reflect the effects of past activities or operations at the site, it may also represent the variation in ambient arsenic conditions for different soil types across the site.

Given the size, history, and various uses of the site, it is almost certain that the uppermost 5 to 10 feet of soil at the facility was derived from various on-site and off-site sources. Most likely, large sections of the facility were cut, filled, and graded at different times using different soil materials. For example, the northern portion of the site was graded with several deep berms that once served as secondary containment ponds for four above ground storage tanks. The soil used to construct these berms may have been brought in from off site to meet the appropriate geotechnical requirements for use, whereas the soil surrounding the cooling tower basins may be native to the site.

Therefore, the difference in arsenic concentrations between the background samples and those collected next to the cooling towers may be due to the natural variation in arsenic levels for the different soil types at the site. Additional evidence to support this interpretation is provided below.

6.4.2 Lateral and Vertical Distribution Patterns

Although four of the highest arsenic results were observed in soil samples from around the cooling towers, similar concentrations were also reported in samples collected from locations that would not be affected by the cooling towers. For example, arsenic was reported in a concentration of 7.24 mg/kg in the sample collected from approximately 5 feet bgs at the base of the tree along the western edge of the Cage Park Pond (HGRI-55-1). Given the depth and location of this sample, there is no plausible way to ascribe this result to activities that once took place on site.

The highest concentration of arsenic reported during the RFI (12.1 mg/kg) was observed in the near surface sample collected from the small depression associated with the drainage coming

off the northeastern edge of the switchyard (HGRI-50-1). This location is several hundred feet northwest of the cooling towers and is separated from them by much of the power plant infrastructure and switchyard towers. Furthermore, much of the soil surrounding the cooling towers lies at a lower elevation than the switchyard and drain. As such, runoff from the cooling tower area does not feed into the drain associated with sample HGRI-50-1. As such, the arsenic concentration reported for this sample is not likely related to the cooling towers.

Similarly, relatively high concentrations of arsenic, with respect to the background results, were observed in the 6-inch and 5 feet bgs samples (7.76 and 8.86 mg/kg, respectively) collected adjacent to the condenser drain for Unit #4 (HGRI-40-6). This area is covered by approximately 3 inches of concrete and would not be affected by activities associated with the cooling towers.

Based on these observations, the lateral and vertical distribution of arsenic concentrations across the site does not support the notion that the results above background levels are indicative of impact from the cooling towers or other site operations. Furthermore, these data do indicate that the arsenic concentrations observed in the samples collected from the site are reflective of ambient soil conditions.

6.4.3 Background Concentrations in California soils

In March 1996, the Department of Soil and Environmental Sciences at the University of California, Riverside (UCR), in conjunction with the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC), published a comprehensive scientific database on background concentrations of trace and major elements in soil collected from across the state of California (University of California, 1996). A copy of this report is provided in Appendix D. The study evaluated the background concentrations of 46 trace and major elements in 50 benchmark soils in California. This was work was undertaken with the intent to provide reliable, comprehensive background data for these elements that can be used for provide a reference for interpreting environmental data associated with California soils.

Based on the comprehensive analyses of 50 California soil types collected from all over the state, reported background concentrations of arsenic ranged from 0.6 to 11.0 mg/kg. Statistical calculations of the arsenic results indicated that the background concentrations form a normal distribution pattern with a mean concentration of 3.5 mg/kg and a standard deviation of 2.5 mg/kg.

The results of this comprehensive investigation confirm that California soils typically contain naturally-occurring concentrations of arsenic that range from approximately less than 1.0 to 11.0 mg/kg. Although the study attempts to correlate the individual results to specific soil taxonomies, the results highlight the fact that background arsenic levels in many locations

throughout California typically exceed both Federal and State regulatory action/screening levels. Furthermore, the results indicate that ambient arsenic concentrations in a set of heterogeneous soil samples can naturally occur as high as 11.0 mg/kg in California soils.

6.4.4 Confirmation Results

Based on the initial analytical data obtained by EPA Method 6010B, there was some concern that the results for arsenic during the RFI were higher than what was expected from previous soil sampling data obtained in earlier investigations using EPA Method 6020. To address this concern, a total of 15 soil samples were re-analyzed by EPA Method 6020 by Calscience Environmental Laboratories on February 8, 2008 in and effort to confirm the original results obtained by EPA 6010B. The confirmation samples selected for re-analysis included six of those with the highest arsenic concentrations from around the cooling towers and two form areas where the lowest concentrations were observed. The remaining samples were selected to provide a relatively random pattern of observations. Please refer to the following table.

Sample ID	Arsenic (in mg/kg)		Initial Concentration vs. Reanalysis
	EPA Method 6010B	EPA Method 6020	
HGRI-59-1-0.5'	4.96	5.95	Similar
HGRI-11/12-1-1'	2.61	4.87	Higher
HGRI-8-1-1'	2.62	5.54	Higher
HGRI-26-1-0.5'	1.82	5.08	Higher
HGRI-55-1-5'	7.24	7.5	Similar
HGRI-54-1-5'	5.1	2.64	Lower
HGRI-31/32-3-10'	9.19	3.44	Lower
HGRI-30/31-3-0.5'	11.1	2.38	Lower
HGRI-30/31-3-5'	9.92	2.43	Lower
HGRI-30/31-3-10'	6.28	1.67	Lower
HGRI-30/31-3-15'	5.2	0.941	Lower
HGRI-30/31-1-0.5'	8.06	2.14	Lower
HGRI-30/31-1-5'	11.1	2.22	Lower
HGRI-30/31-1-10'	7.61	1.34	Lower
HGRI-30/31-1-15'	5.8	0.784	Lower
Mean	3.56*	2.67	Similar
Standard Deviation	2.04*	2.04	Similar

*Based on all 196 arsenic results obtained by Method 6010B (includes background samples)

Comparison of these results reveals an interesting and important pattern. In general, those arsenic concentrations that were the highest from by Method 6010B were reported in lower concentrations by Method 6020. Conversely, those that were lower by Method 6010B were reported as higher by Method 6020. Two of the fifteen samples were reported in similar concentrations by both methods. However, the statistical mean concentrations and standard deviations for the sample results obtained by both methods are comparable.

In short, the results of this comparison indicate that the higher concentrations of arsenic initially observed in the samples collected near the cooling towers could not be confirmed when those same samples were reanalyzed by the 6020 method. Therefore the elevated arsenic concentrations in the samples collected from around the cooling towers based on the Method 6010B results are not likely the result of operations at the plant, but likely reflect minor variations in the analytical precision associated with the 6010B method. Support for this notion may be provided in the fact that the four samples from the cooling tower areas with the highest arsenic concentrations by the 6010B method were all analyzed on the same day, within several hours of one another. The background samples indicating the lowest overall concentrations of arsenic were analyzed several weeks afterwards. However, the quality control results associated with all of the metals data obtained by both methods were reported within acceptable ranges.

Furthermore, the similarities between the sample mean and standard deviation values for the 6010B and 6020 results indicate that the two data sets are essentially equivalent. This validates the initial results obtained by the EPA 6010B method and implies that the range of arsenic concentrations observed in the data set can be considered representative of actual site conditions.

6.4.5 Comparison to Copper and Chromium Results

As briefly described in the RFA/CCR and Final RFI Work Plan documents, the soils in the vicinity of the plant cooling towers were identified as Areas of Concern (AOCs) due to the potential for impacts from metals due to drift water coming off the towers. This concern was founded by the large volume of pressure-treated wood used in the construction of the sides of the towers. Though design or as-built specifications were not available for review, it is likely that the wood slats used to construct the sides of the towers was vacuum-treated with a heavy duty wood preservative, prior to construction. The most common wood preservatives are Chromated Copper Arsenate (CCA) compounds that consist of variable mixtures of chromic acid, cupric acid, and arsenic pentoxide.

Assuming that the cooling towers were constructed with CCA-treated wood, the water and water vapors coming in contact with the wood could potentially dissolve and entrain some of the chromium, copper, and arsenic compounds. Thus, the water and water vapors flowing off the

cooling tower slats could, in theory, carry the dissolved compounds down to the nearby soils, resulting in potentially increased concentrations of chromium, copper, and arsenic in those locations.

Although the precise rates and proportions at which individual copper, chromate, and arsenate compounds might partition themselves between the treated wood, water, and water vapors coming in contact with the cooling towers are not well understood, it would be logical to expect that if historical use of the cooling towers resulted in elevated arsenic concentrations in the surrounding soil, a corresponding pattern of elevated copper and/or chromium concentrations would likely be observed in the same soil. However, this pattern is not observed in the analytical results for copper, chromium, and arsenic obtained during the RFI.

Based on the RFI initial arsenic results obtained by EPA Method 6010, the highest concentrations near the cooling towers were observed in the samples collected from HGRI-29/30-1 (9.31 mg/kg), HGRI-29/30-2 (9.12 mg/kg), HGRI-30/31-1 (11.1 mg/kg), and HGRI-30/31-3 (11.1 mg/kg). However, the corresponding results for chromium and copper for those four samples were reported in concentrations that ranged from 15 to 19.4 mg/kg and 11.9 to 20.9 mg/kg, respectively. These ranges are reflective of average chromium and copper concentrations reported for all of the soil samples analyzed during the RFI and do not indicate impacts to the soil surrounding the cooling towers from the CCA-treated wood panels.

As such, the arsenic results reported for the 4 soil samples from HGRI-29/30-1, HGRI-29/30-2, HGRI-30/31-1, and HGRI-30/31-3 are not related to the past use of the cooling towers. This is supported by the fact that the plant was only operational for several days of the year, typically during the hottest days of summer, from the time it was brought on line. Most likely, the arsenic concentrations reported in these samples represent either natural variations in the soil conditions at the site or normal variation in the analytical/sampling methods used to obtain the results.

6.4.6 Statistical Analysis

In an effort to provide a more quantifiable means to support the notion that the arsenic data obtained during the RFI do not reflect impacts from historical site activities and are representative of ambient soil conditions, the results were subjected to a series statistical analyses. The arsenic results were analyzed using the ProUCL version 4.00.04 software program as approved and published by the United States Environmental Protection Agency's Office of Research and Development (US EPA, 2007). The ProUCL generated data from the statistical analyses are provided in Appendix E. A discussion of these statistical results is provided herein.

In general, the basic premise behind the statistical analyses is the assumption that the analytical results for arsenic obtained from the samples collected at all locations during the RFI are representative of ambient soil conditions. To test this assumption, the results from the site features were compared to those designated as background samples for the purposes of the RFI. For this comparison, arsenic concentrations from Cage Park (HGRI-35-2, HGRI-35-3, and HGRI-35-6), the western edge of the switchyard (BG-1 and BG-2), and the northeastern portion of the site (BG-3 through BG-5) were used for background. All other sample locations were associated with the site.

For both sample sets, an initial analysis for basic statistical parameters was run using the 95% confidence coefficient. A summary of the mean and standard deviation results is provided in the following table.

Data Set	Number of Samples (n)	Mean (in mg/kg)	Standard Deviation (mg/kg)	Coefficient of Variation
Background Samples	15	3.52	1.00	0.28
Site Samples	179	4.01	2.11	0.53

Based on these results, the mean concentrations of arsenic between the background samples and the site samples are within 0.5 mg/kg of one another. However, the standard deviation and variance coefficients are somewhat different between the two data sets. Furthermore, the highest concentrations in the 6010 data set were observed in the site samples. To evaluate some of those apparent elevated results, an analysis for statistical outliers was run on the site samples using a Rosner's Outlier Test (Appendix E). Based on this analysis, one of the highest arsenic results from HGRI-50-1 (12.1 mg/kg) of the 179 site samples constitutes a statistical outlier and it was removed for the comparative analysis performed on the site and background samples.

Other differences observed in the statistical analyses indicate that although the background samples exhibit a normal distribution pattern, the distribution of the site samples is consistent with a lognormal distribution at the 5% significance level (Appendix E). A Goodness-of-fit (GOF) analysis performed on the site samples confirms that arsenic concentrations on site are most likely consistent with a lognormal distribution at the 5% significance level. The results also indicate that the site samples approximate a gamma distribution at that same significance level.

Ultimately, however, the statistical analysis provided by the ProUCL software recommended using a parametric t-Test hypothesis (based on the large n values) to analyze the site and

background data. Therefore, a null hypothesis (H0) was set assuming that the site sample data are equivalent to the background sample data. If the statistical analyses cannot confirm the null hypothesis, the H0 and assumption that the site and background data sets are similar would be rejected, and the weight of the statistical evidence would indicate that the many of the arsenic concentrations observed on site may be unrelated to ambient or background conditions.

Based on this premise, the site and background arsenic data sets were then compared using the t-Test protocol for the 95% confidence interval in the ProUCL software program to determine if the H0 would be accepted or rejected. The t-Test results indicate that H0 is accepted, the site data are equivalent to the background data (Appendix E). As a check on the t-Test results, the two data sets were also subjected to the Wilcoxon-Mann-Whitney (WMW) Test to test the same H0 at the 95% confidence level. The results of the WMW test confirmed the acceptance of the H0, indicating the site and background data sets are essentially the same.

The results of these analyses indicate that the arsenic concentrations obtained from the soil samples on site during the RFI are statistically consistent with those obtained from the background samples. Therefore, there is no statistical evidence to support the interpretation that the arsenic concentrations observed in the soil samples collected from around the cooling towers are associated with historical activities at those locations.

6.5 Hexavalent Chromium

Hexavalent chromium was detected in only 3 of the 103 soil samples collected from 34 locations across the site. These include two locations near the cooling towers (HGRI-29-1 and HGRI-31/32-2) and one at the chemical drum storage pad (HGRI-59-1). However, the highest reported concentration was 1.6 mg/kg, an order of magnitude below the respective CHHSL and PRG values of 17 and 30 mg/kg for hexavalent chromium (Table 5). In addition, the frequency of detectable concentrations corresponds to less than 3% of the total sample set which is below the typical threshold value of 5% for use in statistical analysis.

With respect to hexavalent chromium, the analytical results obtained during this RFI do not indicate significant impacts or releases to the soil due to previous activities on site.

6.6 Other Chemicals of Potential Concern

As indicated in section 5.2, a total of 27 soil samples were analyzed for SVOCs during the RFI and only one compound, bis(2-ethylhexyl) phthalate, was detected in one sample. This sample was collected from a depth of approximately 10 feet bgs (HGRI-38-1-10) in the vicinity of the hazardous waste storage shed. However, the concentration of bis(2-ethylhexyl) phthalate in

that sample was reported as 1.8 mg/kg, an order of magnitude below the US EPA residential PRG of 35 mg/kg for that compound.

No other SVOCs were detected at or above laboratory reporting limits in the features investigated during the RFI. Based on these results, there does not appear to be evidence for significant impact from SVOCs to the subsurface soil due to previous activities at the site.

As outlined in Section 5.5, the majority of the soil samples analyzed for pH were neutral with reported values ranging between 6 and 8 units, though values above 8.0 were commonly observed. For one sample in the vicinity of the caustic and acid ASTs (HGRI-47-1), a pH value of 3.44 was observed at a depth of 5 feet bgs. However, the corresponding shallow soil sample collected from 2 feet bgs in that same location was reported with a pH of 8.50. The highest pH values measured during the RFI (9.37 and 9.26 units) were observed in the samples collected adjacent to the bearing cooling water system piping (HGRI-13-4).

These pH results may indicate some impacts at a few locations on site, but pH values for subsurface soils typically vary considerably due to a number of natural conditions that can affect this measurement. As such, the pH values measured in the soil samples for this RFI likely represent natural conditions and do not indicate significant impacts due to past activities at the site.

6.7 Off-Site Impacts

In an effort to evaluate the potential for impacts to the Cage Park portion of the site due to runoff from the former K&J Plating facility located directly east of Taylor Street, several subsurface soil and sediment samples were collected from beneath and within the concrete swale within the southwest portion of the park. The swale collects runoff from Taylor Street and conveys it westward, emptying into the Cage Park Pond.

As indicated in Section 4.4 above, soil samples were collected from directly beneath a cracked portion of the base of the swale (HGRI-35-4), as well as from a sediment pile located inside the swale, and a sediment pile that had recently been dredged from the base of the swale (outside the swale). All of these samples were analyzed for TPH, metals, and hexavalent chromium.

The analytical results for these samples generally included trace amounts of diesel (7.4 to 54.4 mg/kg) and motor oil (28.0 to 231 mg/kg) range hydrocarbons, with concentrations slightly higher in the sediment samples from within the swale than those collected at HGRI-35-5, beneath the concrete (Table 3). These results are consistent with what might be expected for those samples as the runoff coming from Taylor Street would likely contain motor oil and other petroleum hydrocarbons that build up over time on the pavement due to vehicular traffic.

Hexavalent chromium was not detected in any of the samples collected from within or beneath the swale (Table 5). Furthermore, the concentrations of total chromium and other metals in the swale samples were generally reported within the respective range of values observed for the other samples collected across the site during the RFI. As such, the results from the swale samples indicate that surface water runoff from the former K & J Plating facility located east of Taylor Street does not appear to be contributing additional metals to the Cage Park area of the site.

7.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

As part of quality assurance/quality control (QA/QC), sample holding times, maintenance of required preservation (temperature, light conditions), surrogate recovery, laboratory blanks, matrix spike/matrix spike duplicate (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), and post-digestive-spike/post-digestive-spike duplicate (PDS/PDSD) samples were evaluated against method criteria for data acceptability.

Since groundwater was not encountered during this investigation, trip blank samples were not submitted to the laboratory for analysis. In addition, all sampling equipment used at the site was disposable, therefore equipment blanks were not collected during this project.

7.1 Laboratory Sample Custody and Documentation

The integrity and traceability of samples from the time they were collected to through the time the data was reported were essential to this program. Sample handling and custody transfer were well documented based on the potential evidentiary nature of the analytical data. A sample was considered to be in one's custody if it met any of the following criteria:

1. In actual possession or in view of the person who collected the sample
2. Locked in a secure area
3. Placed in an area restricted to authorized personnel

The samples were delivered to a designated laboratory employee authorized to receive samples (referred to as the sample custodian). Upon receipt of samples, the sample custodian inspected the condition of the samples (including the temperature of the cooler), reconciled the information on each sample label against that on the chain-of-custody record, assigned a unique laboratory tracking number, logged the sample in the laboratory logbook, and stored the sample in a secured sample storage room.

Inconsistencies between the COC record and sample containers received or deviations from accepted sample handling procedures were not encountered during the execution of the RFI sampling event.

7.2 Instrument/Calibration Blanks

As part of laboratory quality control procedures, instrument blanks were run by the laboratory to ensure that analytes or chemical constituents from previous analytical runs were purged out of the system and did not contaminate succeeding runs. Instrument blanks were run following calibration runs, before sample analyses were performed, and after samples containing high concentrations of potentially interfering materials were detected.

7.3 Method Blanks

Method blanks were prepared by the analytical laboratory in the same manner as the samples, using the same procedure, reagents, glassware, and other equipment. The purpose of the method blank is to ensure that the procedures, equipment, and reagents used in preparing the samples do not introduce contaminants that could interfere with the analysis. A method blank sample was prepared and analyzed for each batch of 20 project samples.

Methylene chloride, a common laboratory reagent used for cleaning glassware and equipment, was detected in concentrations near or above the reporting limit for that compound in two laboratory prepared method blanks. Based on the presence of methylene chloride in the method blank samples, the results of several of the soil samples associated with those method blanks were qualified as laboratory artifacts in the analytical laboratory reports.

The method blank results for the remaining analytes from this RFI sampling program were reported within acceptable QA/QC ranges, indicating that the analytical results reported for the submitted soil samples were not influenced or affected by the procedures, equipment, or reagents used during their analyses.

7.4 Laboratory Control Samples (LCS)

Laboratory Control Samples (LCSs) are laboratory prepared samples containing known concentrations of specific target analytes. LCSs are prepared by spiking known amounts of target analytes into a well-characterized blank matrix. The matrix must be analyte-free, laboratory reagent-grade water for water samples and clean sand or equivalent for soil samples.

The LCS was prepared and run at a frequency of one per 20 project samples per matrix with the associated samples, using the same reagents and volumes. If insufficient quantity of sample

was available for MS/MSD, the LCS was prepared and analyzed in duplicates (LCSD). Based on the QA/QC results reported by the analytical laboratory, all of the analytes in the LCS samples met the recovery criteria for this RFI sampling event.

7.5 Matrix Spike and Matrix Spike Duplicates (MS/MSD)

Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples serve to determine whether matrix effects have influenced recoveries. For inorganic analyses, only a single MS was performed per batch. A MS/MSD was prepared by spiking a known amount of solution to two portions of a sample being run in a batch. Once the spike was added to the MS/MSD samples, these samples were carried through the complete sample preparation process along with the other samples in the batch. The MS/MSD recoveries were compared against each other and against the known amount of the spike.

From this data, both accuracy and precision could be determined. For this RFI sampling event, Terracon field personnel collected additional sample volumes at a frequency of approximately one MS/MSD per 20 samples. Samples designated for MS/MSD analysis were labeled as such on the sample containers and chain-of-custody documents. A list of samples selected for MS/MSD analysis is provided in Table 7.

As indicated in the QA/QC results of the analytical laboratory reports, the percent recovery values for the MS or MSD samples for several metals and SVOCs were reported as out of control. In general, the MS/MSD results for antimony (Sb) and barium (Ba) appear to have been out of the control range for percent recoveries on several occasions. In addition, the percent recovery values for either the MS or MSD sample results for SVOCs phenol, 2-chlorophenol, 4-chloro-3-methylphenol, acenapthene, 4-nitrophenol, and 2,4-dinitrotoluene were reported above the control range in two batch samples.

However, in each case, the corresponding LCS and LCSD sample results for each of these MS/MSD samples were reported within acceptable control ranges, therefore the associated sample results were considered unqualified by the analytical laboratory. The MS/MSD sample results for all other analytes were reported within acceptable QA/QC ranges and therefore do not indicate significant matrix effects on the reported sample results.

7.6 Post-Digestive Spike and Post-Digestive Spike Duplicate (PDS/PDSD)

In the event that matrix interferences were observed during the MS/MSD analysis, a Post-Digestive Spike and Post-Digestive Spike Duplicate (PDS/PDSD) analysis was performed to confirm that matrix effects were influencing recoveries. As with the MS/MSD, both accuracy

and precision can be determined from this data. Once the spike was added to the PDS/PDSD samples, they were carried through the complete sample preparation process along with the other samples in the batch. The PDS/PDSD recoveries were then compared against the MS/MSD recoveries and the known amount of the spike.

7.7 Duplicate Samples

Laboratory duplicate analyses were performed during this project by the analytical laboratory where two aliquots were taken from the same sample and analyzed in parallel. The purpose of this analysis was to measure the precision of laboratory operations. Laboratory duplicate analyses were performed for inorganic analyses at a frequency of approximately one per 20 project samples. All of the laboratory duplicate samples analyzed for this RFI sampling event were reported within acceptable QA/QC ranges.

However, due to the overall heterogeneity of the soil matrix at the site, field duplicates for soil samples were not collected.

8.0 FINDINGS AND CONCLUSIONS

Based on the analytical results from the soil samples obtained during this investigation, the following findings and conclusions from the RFI have been made:

- Minor concentrations of some VOCs were detected in a limited number of samples, though all of the reported concentrations were observed several orders of magnitude below the most conservative US Environmental Protection Agency (EPA) Preliminary Remediation Goals (PRGs). Of the few reported BTEX and MTBE detections, all of the RFI results for those compounds were reported in concentrations of at least one full order of magnitude below the most conservative (lowest) LA RWQCB screening values.
- Low levels of methylene chloride were reported in nearly all of the samples analyzed for VOCs during RFI, although its presence was reported in the laboratory method blank and is considered a laboratory artifact.
- The RFI sampling results indicate minor amounts of TPH compounds in most samples, though only one sample was reported in levels that would exceed regionally defined risk screening values. Based on this comparison and the overall distribution patterns observed in the results, the subsurface soil at the site does not appear to have been significantly affected by historical use of petroleum hydrocarbons at the site.
- Only one SVOC, bis(2-ethylhexyl) phthalate, was detected in 1 of a total of 27 soil samples that were analyzed for SVOCs during the RFI. However, the reported concentration of bis(2-ethylhexyl) phthalate in that sample was reported as 1.8 mg/kg, an order of magnitude below the US EPA residential PRG of 35 mg/kg for that compound. No other SVOCs were detected at or above their respective reporting limits in any of the other samples. There, no evidence for impact to the site by SVOCs was observed in the results of the RFI sampling.
- PCBs and PAHs were not detected in any of the samples analyzed during this RFI.
- Hexavalent chromium was reported in concentrations just above the reporting limit for just 3 of 103 samples analyzed during the RFI for that compound (in values well below

the established CHHSLs and PRGs) and was not detected in any of the remaining 100 samples. These results indicate that there is no evidence for significant impact to the site with respect to hexavalent chromium.

- With the exception of arsenic, 14 of the 17 Title 22 metals were reported in concentrations several orders of magnitude below their respective PRG and CHHSL values and are considered representative of ambient or background soil conditions for the site. Silver and thallium were not detected in any of the RFI samples.
- Arsenic was consistently reported in concentrations above the respective PRG and CHHSL values for soil and appears to be elevated in several locations around the cooling tower areas, implying a potential impact from past activities on site. However, reanalysis of approximately 10% of the same samples for arsenic could not confirm these elevated concentrations. Furthermore, an evaluation of chromium and copper results on site does not indicate any evidence for increased concentrations of those metals in the cooling tower area, or anywhere on site. If the arsenic results observed in the samples on site were related to the CCA-treated wood from the cooling towers, a corresponding trend in chromium and copper concentrations above background levels would have been expected.
- US EPA ProUCL version 4.00.02 software was used to evaluate the results of the soil samples collected from background locations and near the features associated with the site. Based on these evaluations, a Student's t-Test was recommended to compare the parametric background and site sample sets. The results of this statistical analysis indicate that the background and sample results for arsenic are statistically equivalent.
- Based on these lines of evidence, the arsenic results obtained during the RFI are considered representative of ambient soil conditions for the entirety of the site.
- Quality assurance/quality control data indicated that methylene chloride was detected in the method blank results. Some of the MS/MSD results were reported out of their respective control ranges, but associated LCS/LCSD results were within range. Therefore, no other laboratory results required qualification. Overall, the QA/QC results indicate that the analytical data are suitable for their intended use in this RFI.

9.0 REFERENCES

Cal/EPA, 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, California Environmental Protection Agency, January 2005.

LARWQCB, 1996. Interim Site Assessment & Cleanup Guidebook, California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4, May 1996.

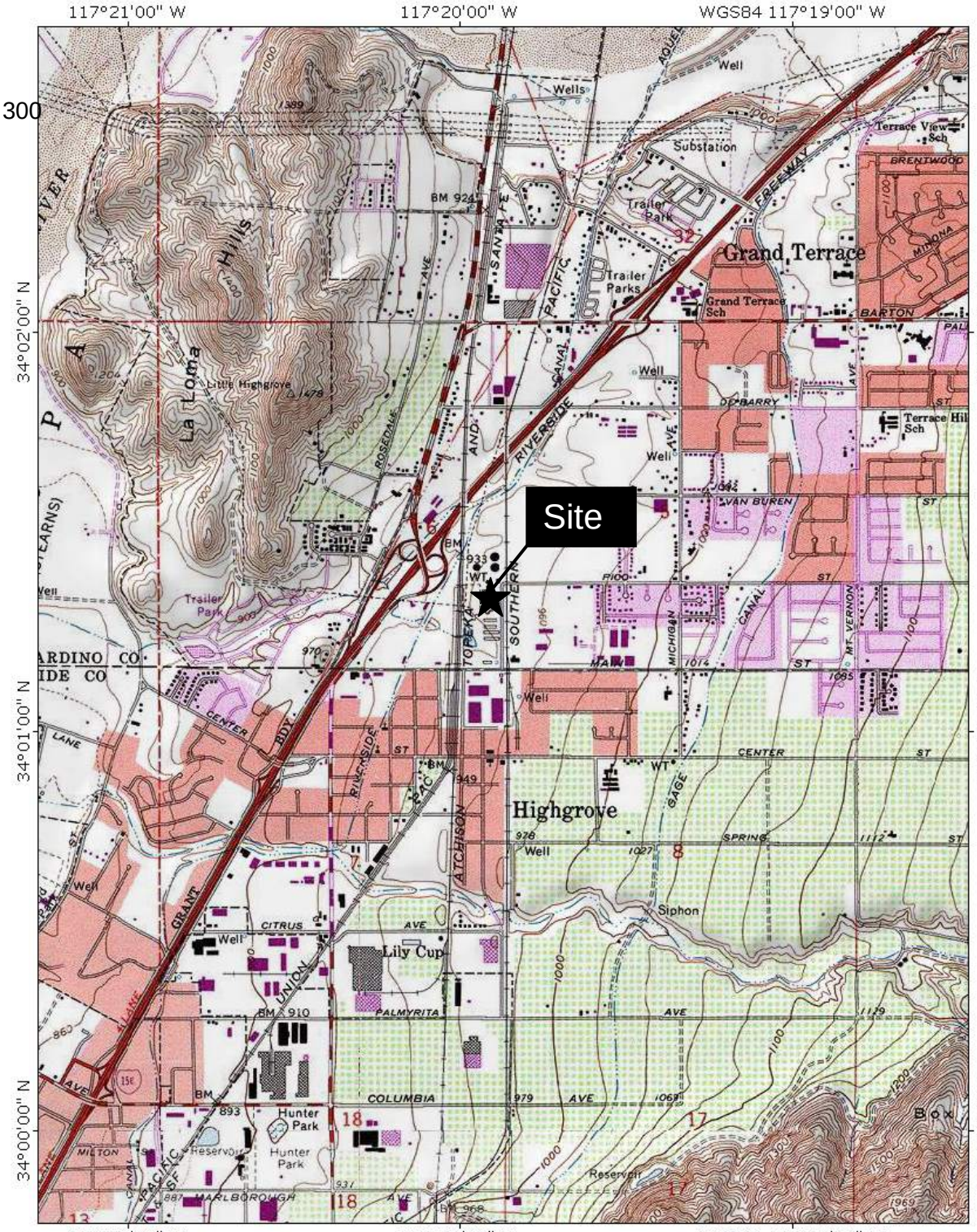
University of California, 1996. Background Concentrations of Trace and Major Elements in

California Soils, Kearney Foundation Special Report, Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, Riverside, March 1996.

US EPA, 2007. ProUCL, version 4.00.02, United States Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, Environmental Sciences Division, Technology Support Center, Characterization and Monitoring Branch, April 2007.

US EPA, 2004. USEPA Region IX Preliminary Remediation Goals (PRG) Table, United States Environmental Protection Agency Region IX, October 2004.

FIGURES



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

SITE LOCATION MAP

Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

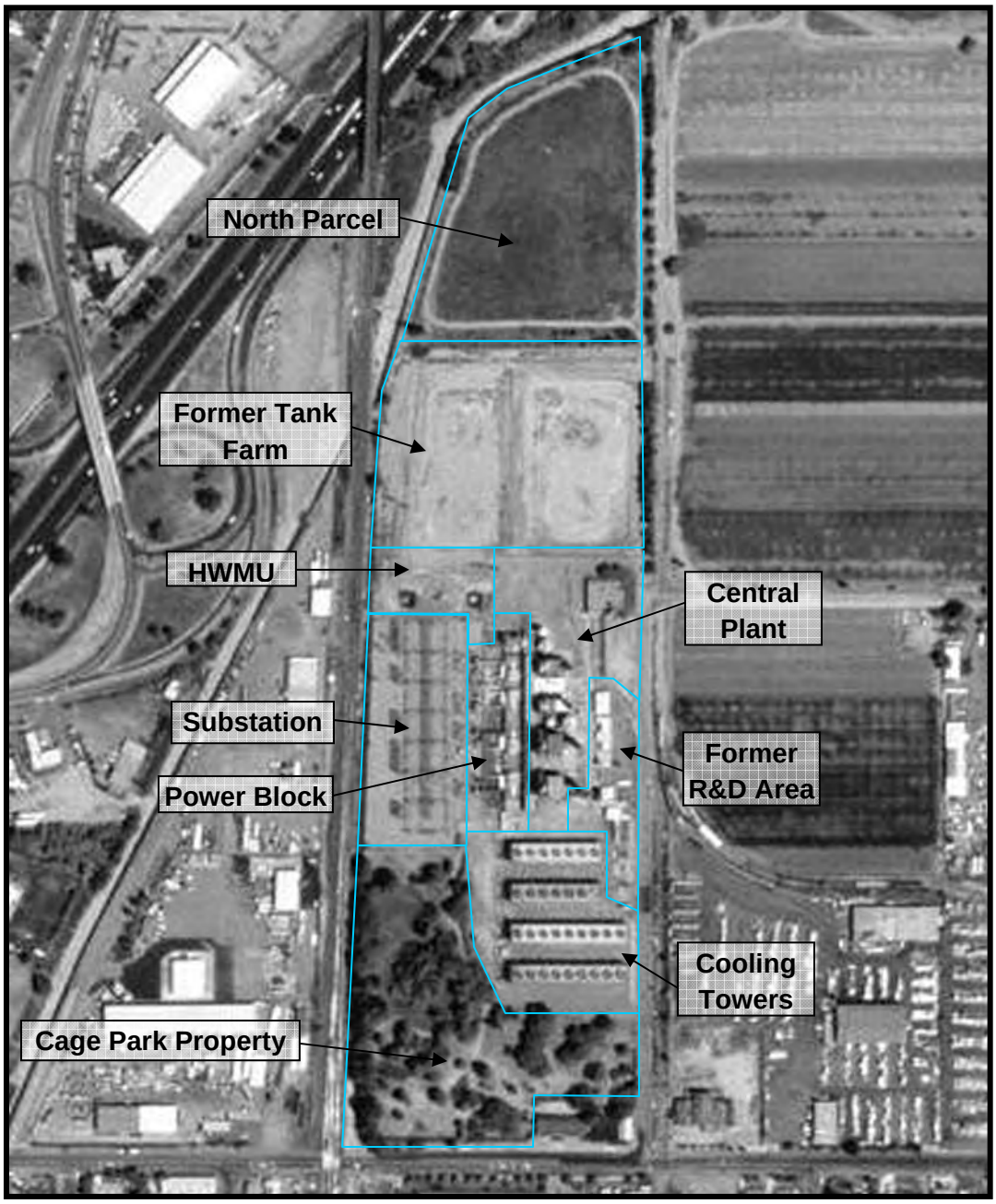
Reference: USGS San Bernardino South, California, 7.5-minute Quadrangle (Photorevised 1980)

N

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Project Manager: JB	Terracon 16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Project No.**	60077051
Designed By: KB		**Scale:**	See scale bar
Checked By: JB		**Date:**	08/24/2007
Approved By: JB		**Drawn By:**	NA
File Name: \60077051\Draft RFI Report\Figure 1 Site Location		**Figure No.**	1

Owned by AES:	Owned by SCE:	Owned by Grand Terrace:
Central Plant	Substation	North Parcel
Cooling Towers		Former Tank Farm
Former R&D Area		Former SCE Properties - East of Taylor Street
Power Block		
HWMU		
Cage Park Property		



Reference: USGS 2002

Notes:
Area boundary lines are approximate
HWMU: Hazardous Waste Management Unit
R&D: Research and Development

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

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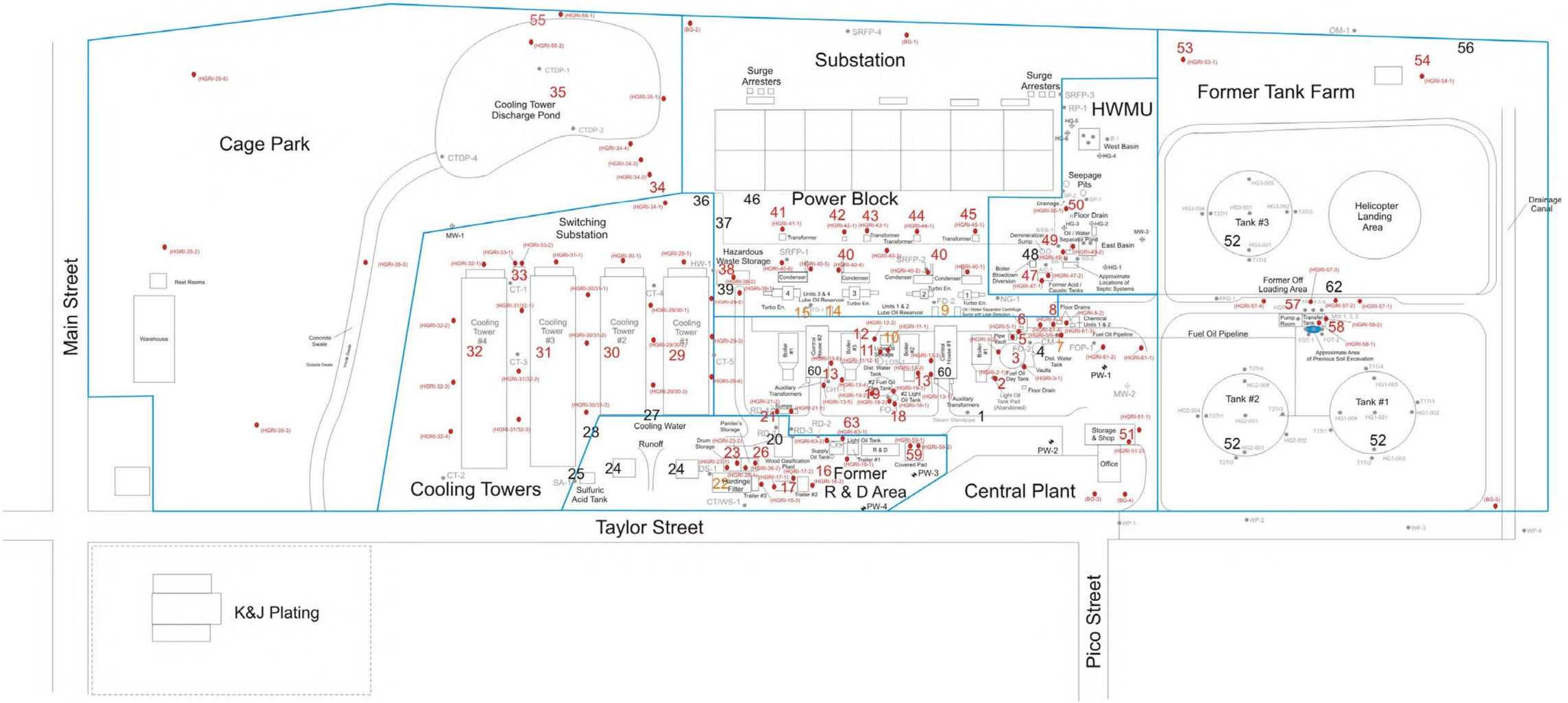
SITE OVERVIEW MAP

Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon	Project No. 60077051
Designed By: JO		Scale: NA
Checked By: JB	16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	Date: 08/24/2007
Approved By: JB		Drawn By: NA
File Name: \60077051\Draft RFI Report\Figure 2 Site Overview		Figure No. 2



NOTES:

RED FEATURE NUMBER:	FEATURES INVESTIGATED UNDER RFI
ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- RFI SOIL BORING LOCATION

N

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Features Investigated under RFI Including Boring Locations – Facility Wide
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 145'
Checked By: JB	16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Date:** 07/15/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 3		**Figure No.** 3

NOTES:

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ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

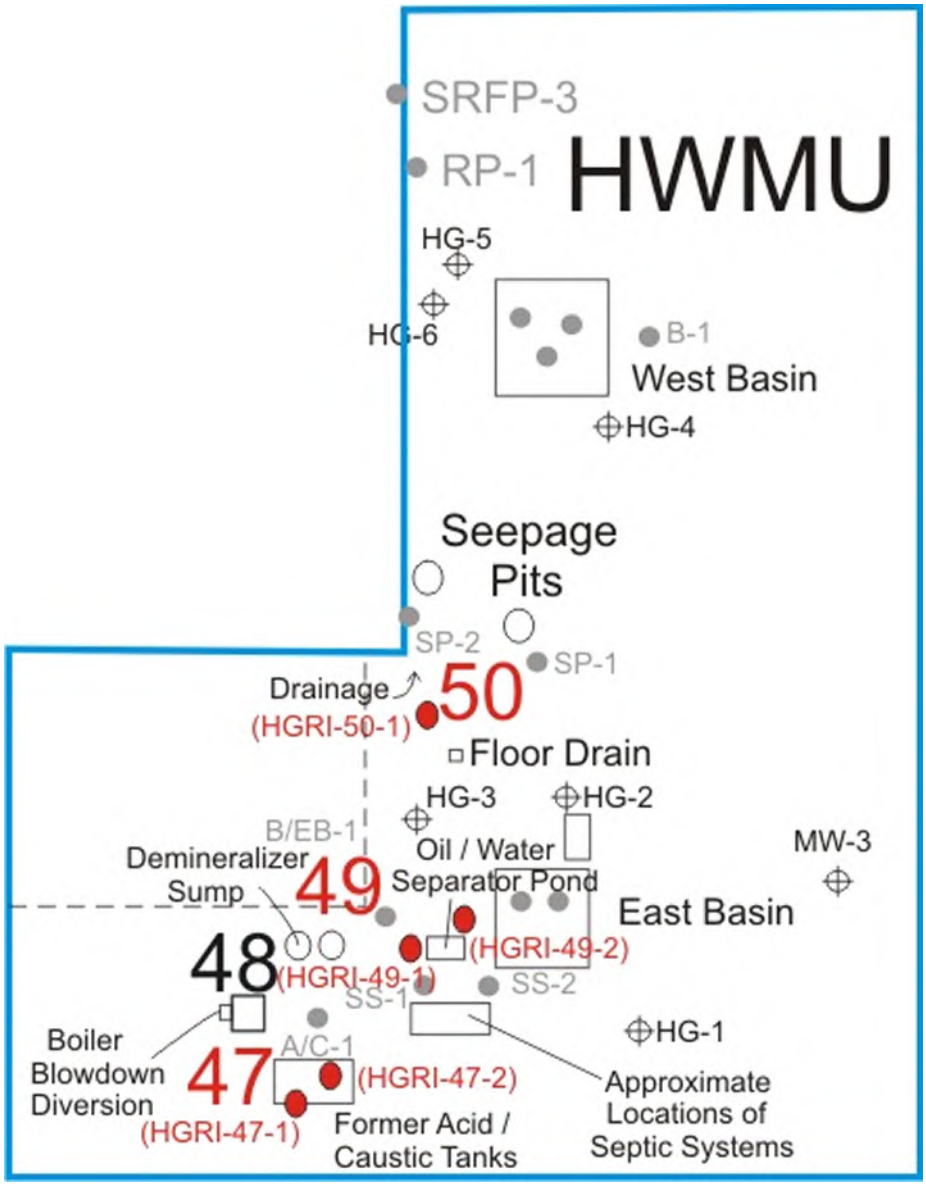
- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

N

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Features Investigated Under RFI - Cage Park Area
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon 16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 140'
Checked By: JB		**Date:** 07/14/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 4		**Figure No.** 4



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ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

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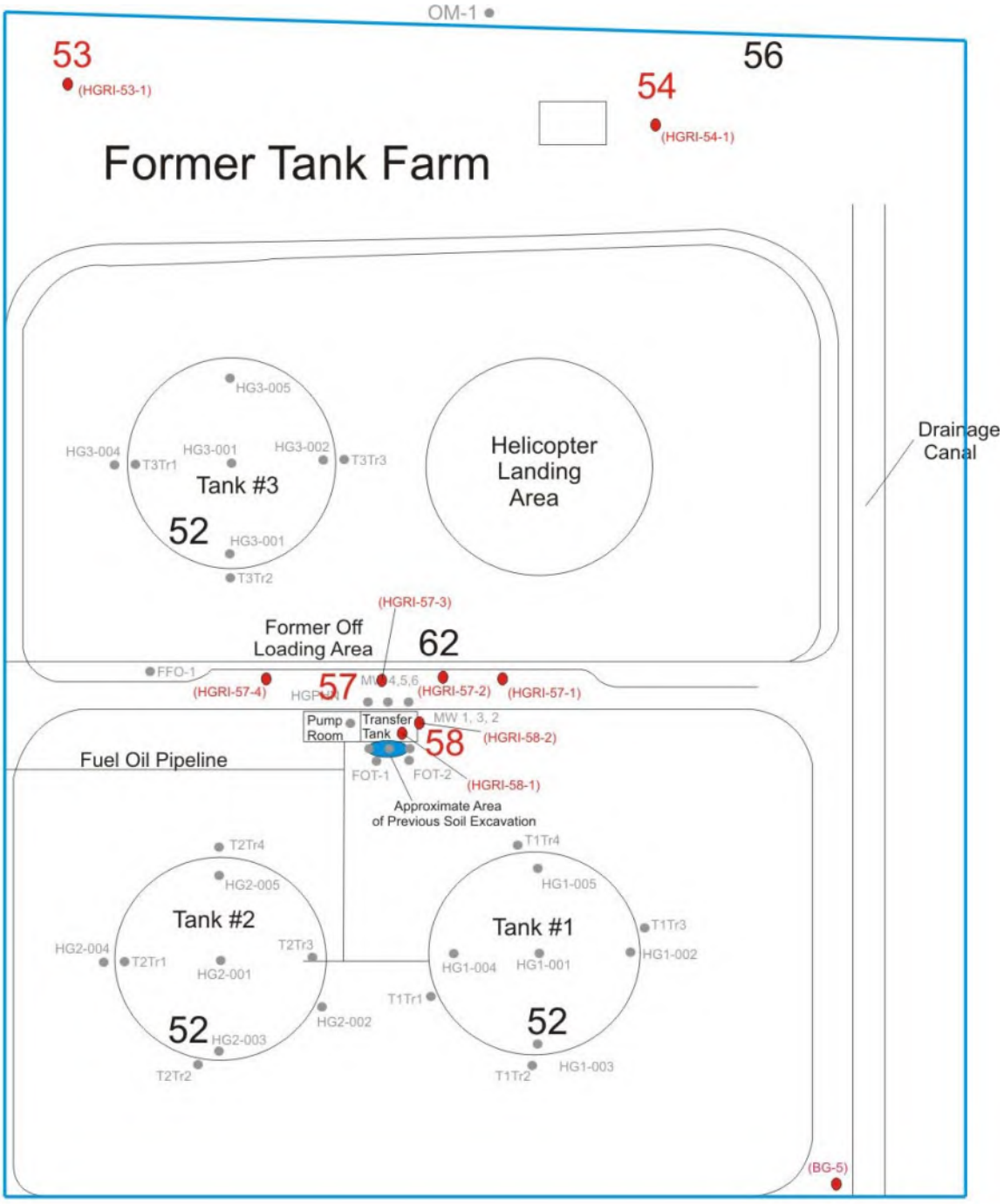
Features Investigated Under RFI – HWMU Area
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon 16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 55'
Checked By: JB		**Date:** 07/14/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 5		**Figure No.** 5



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ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

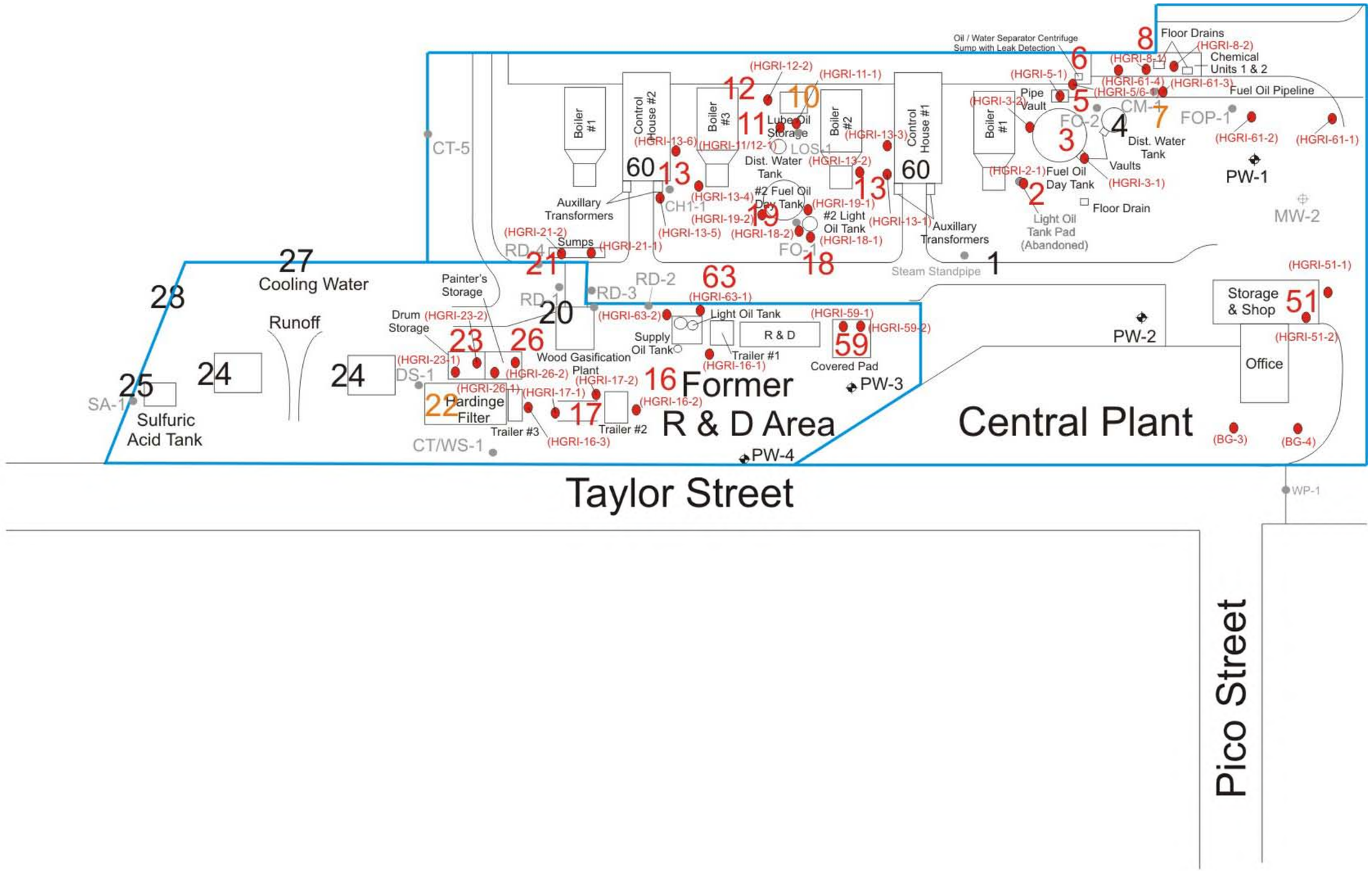
- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

N

Features Investigated Under RFI – Former Tank Farm Area
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon 16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 90'
Checked By: JB		**Date:** 07/14/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 6		**Figure No.** 6



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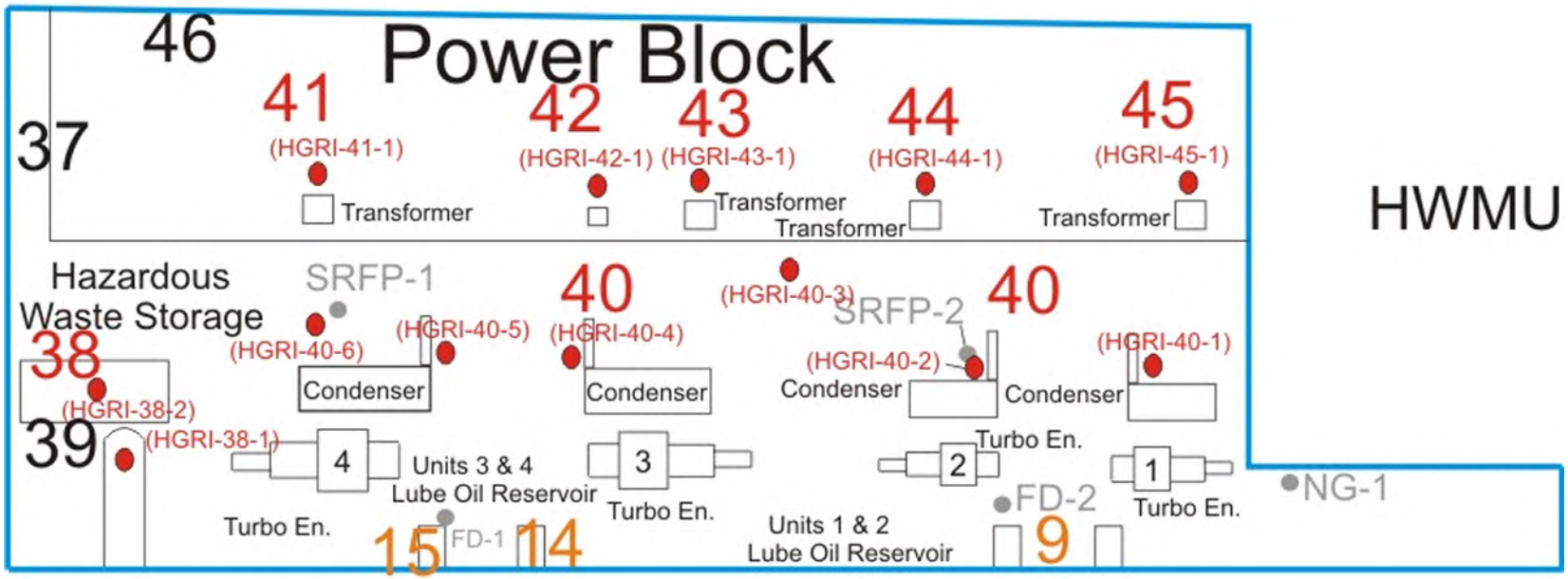
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Features Investigated Under RFI – Central Plant
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 40'
Checked By: JB	16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Date:** 07/14/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 7		**Figure No.** 7



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ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

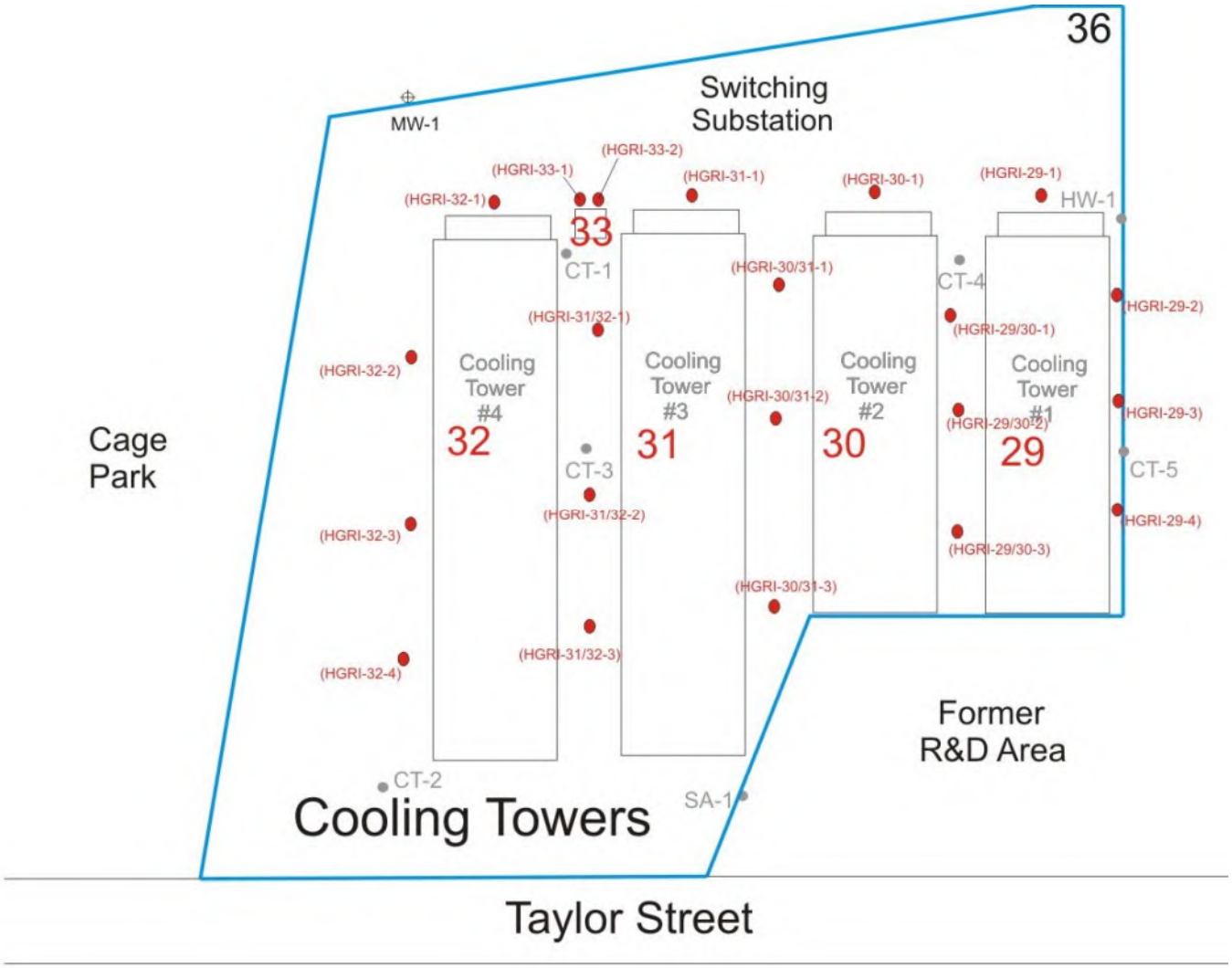
- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

N

Features Investigated Under RFI – Power Block Area
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon	**Project No.**	60077051
Designed By: JB		**Scale:**	1" ~ 60'
Checked By: JB	16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-97320	**Date:**	07/14/2008
Approved By: JB		**Drawn By:**	JP
File Name: \60077051\Draft RFI Report\Figure 8		**Figure No.**	8



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ORANGE FEATURE NUMBER:	FEATURES PROPOSED FOR INVESTIGATION AFTER PHYSICAL REMOVAL OF FEATURE
BLACK FEATURE NUMBER:	FEATURES THAT WERE NOT INVESTIGATED UNDER RFI

- GROUNDWATER MONITORING WELLS
- GROUNDWATER EXTRACTION WELLS
- LOCATION OF PREVIOUS SOIL BORING / SOIL SAMPLING
- RFI SOIL BORING LOCATION

N

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Features Investigated Under RFI – Cooling Tower Area
Former Highgrove Generating Station
12700 Taylor Street
Grand Terrace, San Bernardino County, California

Project Manager: JB	Terracon 16662 Millikan Avenue Irvine, California 92606 949-660-9718 Fax: 949-660-9732	**Project No.** 60077051
Designed By: JB		**Scale:** 1" ~ 90'
Checked By: JB		**Date:** 07/15/2008
Approved By: JB		**Drawn By:** JP
File Name: \60077051\Draft RFI Report\Figure 9		**Figure No.** 9

TABLES

Table 1

Soil Sampling Locations
RFI Sampling Event, Former Highgrove Generating Station
January 2008

RFI Feature ID	Name	Sampling Date	Boring ID's	Sample Depths (ft bgs)	Analyses	Comments
2	Former 3,000-gallon AST Foundation	01/17/08	HGRI-2-1	2, 5, 10	TPH-cc	--
3	189,000 gallon Day Tank #1 (AST)	01/17/08 01/23/08	HGRI-3-1 HGRI-3-2	2, 5, 10 2, 5.5, 10	TPH-cc	--
5	Pipe Vault	01/17/08	HGRI-5-1	10, 15	TPH-cc + Metals	
6	Centrifuge Sump A - Units 1&2	01/17/08	HGRI-5/6-1	1.5, 5	TPH-cc + Metals	
8	Chemical Storage Room	01/23/08 --	HGRI-8-1 HGRI-8-2*	1 --	pH + *Metals*	*Refer to Section 4.4
11	Centrifuge Sump B - Units 3&4	01/22/08	HGRI-11-1	1, 5	TPH-cc + Metals	--
12	Two 200-gallon Chemical Feed ASTs - Units 3&4	01/22/08	HGRI-11/12-1 HGRI-12-2	1, 4 1, 5	pH + *Metals*	--
13	Bearing Cooling Water System	01/17/08 01/23/08 01/23/08 01/16/08 01/23/08 01/16/08	HGRI-13-1 HGRI-13-2 HGRI-13-3 HGRI-13-4 HGRI-13-5 HGRI-13-6	1, 5 1.5, 5 1.5, 5 2, 5 1.5, 5 2, 5	Cr VI + *pH*	--
16	Lab Trailers (#1, #2, and #3)	01/21/08 01/21/08 01/21/08	HGRI-16-1 HGRI-16-2 HGRI-16-3	0.5, 5 0.5, 5 0.5, 3.5	VOCs + SVOCs + Metals	--
17	Former Drum Storage Area	01/21/08 01/22/08	HGRI-17-1 HGRI-17-2	0.5, 3.5 0.5, 5	SVOCs + Metals	--
18	8,000-gallon Light Oil AST	01/17/08 01/18/08	HGRI-18-1 HGRI-18-2	1, 5, 10 1, 5, 10	TPH-cc	--
19	235,000 gallon Day Tank #2 (AST)	01/18/08	HGRI-19-1 HGRI-19-2	1, 5, 10, 15 1, 5, 10, 15	TPH-cc	--
21	R & D Sump	01/21/08	HGRI-21-1 HGRI-21-2	0.5, 5, 10, 15 0.5, 5, 10, 15	VOCs + PAHs + TPH-cc + Metals	--
23	New Oil Drum Storage Area	01/16/08	HGRI-23-1 HGRI-23-2	1.5, 5 1, 5	VOCs, TPH-cc	--
26	Painter's Storage Room	01/23/08	HGRI-26-1 HGRI-26-2	0.5, 5 0.5, 5	VOCs + SVOCs + Metals	--

Table 1

Soil Sampling Locations
RFI Sampling Event, Former Highgrove Generating Station
January 2008

RFI Feature ID	Name	Sampling Date	Boring ID's	Sample Depths (ft bgs)	Analyses	Comments
29	Cooling Tower #1	01/17/08 01/17/08 01/17/08 01/17/08 01/16/08	HGRI-29-1 HGRI-29-2 HGRI-29-3 HGRI-29-4 HGRI-29/30-1	0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 510, 15 0.5, 5, 10, 15	Cr VI + Metals	--
30	Cooling Tower #2	01/22/08 01/16/08 01/17/08 01/16/08 01/16/08	HGRI-30-1 HGRI-29/30-2 HGRI-29/30-3 HGRI-30/31-1 HGRI-30/31-2	0.5, 5, 10, 15 0.5, 5, 10, 15 1, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15	Cr VI + Metals	--
31	Cooling Tower #3	01/22/08 01/16/08 01/15/08 01/15/08 01/16/08	HGRI-31-1 HGRI-30/31-3 HGRI-31/32-1 HGRI-31/32-2 HGRI-31/32-3	0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15	Cr VI + Metals	--
32	Cooling Tower #4	01/15/08	HGRI-32-1 HGRI-32-2 HGRI-32-3 HGRI-32-4	0.5, 5, 10 0.5, 5, 10, 15 0.5, 5, 10, 15 0.5, 5, 10, 15	Cr VI + Metals	--
33	Two Cooling Tower Transformers	01/22/08	HGRI-33-1 HGRI-33-2	0.5, 5 1, 5	PCBs + *Metals*	--
34	Stormwater Outfall	01/21/08	HGRI-34-1 HGRI-34-2 HGRI-34-3 HGRI-34-4	0.5, 5 0.5, 5 0.5, 5 0.5, 5	TPH-cc + Metals + Cr VI + *pH*	--
35	Stormwater drainage Pond	01/21/08 01/21/08 01/21/08 -- 01/23/08 01/23/08	HGRI-35-1 HGRI-35-2 HGRI-35-3 HGRI-35-4* HGRI-35-5 HGRI 35-6	0.5, 5 0.5, 5 0.5, 5 -- 1, 2.5 0.5, 5	TPH-cc + Metals + Cr VI + pH	*Refer to Section 4.4
38	Hazardous Waste Storage Shed	01/23/08	HGRI-38-1* HGRI-38-2*	0.5, 5, 10, 15 0.5, 5, 10, 15, 20	VOCs + TPH-cc + SVOCs + Metals + pH	*Refer to Section 4.4

Table 1

Soil Sampling Locations
RFI Sampling Event, Former Highgrove Generating Station
January 2008

RFI Feature ID	Name	Sampling Date	Boring ID's	Sample Depths (ft bgs)	Analyses	Comments
40	Condenser Drains (aka VCP Vents)	01/15/08 01/15/08 01/15/08 01/15/08 01/15/08 01/16/08	HGRI-40-1 HGRI-40-2 HGRI-40-3 HGRI-40-4 HGRI-40-5 HGRI-40-6	2.5, 5.5 2.5, 5 2.5, 5 1.5, 3.5 1.5, 3.5 1, 5	Metals + pH	--
41	Transformer #4 (Unit 4), main and auxiliary	01/30/08	HGRI-41-1	0.5, 4	PCBs	--
42	Transformer #3 (Unit 3), main and auxiliary	01/30/08	HGRI-42-1	0.5, 5	*PCBs*	--
43	Transformer #2 (Unit 2), main and auxiliary	01/30/08	HGRI-43-1	0.5, 5	*PCBs*	--
44	Transformer #1 (Unit 1), main and auxiliary	--	HGRI-44-1	--	PCBs	Refer to Section 4.4
45	Reserve Bank Transformer (Station)	01/30/08	HGRI-45-1	0.5, 5	*PCBs*	--
47	Caustic and Acid ASTs	01/15/08	HGRI-47-1 HGRI-47-2	2, 5 2, 5	*Metals + pH*	--
49	Oil Water Separator	01/15/08, *01/18/08* 01/18/08	HGRI-49-1 HGRI-49-2	10, 15, *20, 25, 30* 10, 20, 23.5	TPH-cc + *Metals*	--
50	Stormwater drainage from substation	01/30/08	HGRI-50-1	0.5, 5	PCBs + *Metals*	--
51	Machine Shop	01/22/08	HGRI-51-1 HGRI-51-2	0.5, 5, 10 0.5, 5, 10	VOCs + TPH-cc + Metals	--
53	Tank Cleanout Area	01/21/08	HGRI-53-1	0.5, 4	Metals + pH	--
54	Stormwater outfall at MH-6, Outfall #002.	01/21/08	HGRI-54-1	0.5, 5, 10	TPH-cc + Metals	--
55	Stormwater outfall at Cage Park Pond, Outfall #001.	01/21/08 01/23/08	HGRI-55-1 HGRI-55-2*	0.5, 5 0.5, 5	*TPH-CC + Metals + pH*	*Refer to Section 4.4
56	Stormwater outfall adjacent to Outfall at MH-6, Outfall #003.	--	--	See Feature 54	See Feature 54	--
57	Transfer Tank/Unloading Stations	01/18/08 01/18/08 01/18/08 01/18/08	HGRI-57-1 HGRI-57-2 HGRI-57-3 HGRI-57-4	1, 5, 10 1, 5, 10 1, 5, 10 1, 5, 10	TPH-cc	--
58	39,000 gallon Fuel Oil Transfer UST	01/18/08	HGRI-58-1 HGRI-58-2	1, 5, 10 1, 5, 10	TPH-cc	--

Table 1

Soil Sampling Locations
RFI Sampling Event, Former Highgrove Generating Station
January 2008

RFI Feature ID	Name	Sampling Date	Boring ID's	Sample Depths (ft bgs)	Analyses	Comments
59	Chemical Drum Storage Pad	01/22/08	HGRI-59-1 HGRI-59-2	0.5, 5 1, 5	VOCs + SVOCs + TPH-cc + Metals + Cr VI	--
61	Underground Pipelines	01/23/08	HGRI-61-1 HGRI-61-2 HGRI-61-3 HGRI-61-4	0.5, 5 0.5, 5 0.5, 5 0.5, 5	TPH-cc	--
62	Bermed receiving tanks/hoppers	--	--	See Feature 57	See Feature 57	--
63	Light oil ASTs	01/18/08	HGRI-63-1 HGRI-63-2	0.5, 5, 10 0.5, 5, 10	TPH-cc	--
None	Cage Park	01/23/08	Inside Swale Outside Swale	N/A	TPH-cc + Metals + Cr VI + pH	*Refer to Section 4.4

Notes:

TPH-cc = total petroleum hydrocarbons by carbon chain method
Metals = California Title 22 CAM-Metals
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
PAHs = poly aromatic hydrocarbons
PCBs = polychlorinated biphenyls
ft bgs = feet below ground surface

Table 2

Summary of VOC Results in Soil (in μg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Acetone	Benzene	Chloroform	Ethylbenzene	Methylene Chloride	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	p/m-Xylene	o-Xylene	Methyl-tert-butyl-ether (MTBE)
HGRI-16-1	0.5	01/21/08	--	--	--	--	8	--	--	--	--	--	--
	5	01/21/08	--	--	--	--	9	--	--	--	--	--	--
HGRI-16-3	3.5	01/21/08	--	--	--	--	--	--	--	--	--	--	2.7
HGRI-21-1	5	01/21/08	--	--	--	--	8.7	--	--	--	--	--	--
	15	01/21/08	--	--	--	--	9	--	--	--	--	--	--
HGRI-21-2	10	01/21/08	--	--	--	--	9	--	--	--	--	--	--
	15	01/21/08	--	--	--	1.1	--	9.4	--	--	5.8	1.1	--
HGRI-23-2	1	01/16/08	--	--	--	--	9.8 B	--	--	--	--	--	--
	5	01/16/08	--	1.4	--	4.6	--	7.8	11	3.6	21	10	--
HGRI-26-1	5	01/23/08	--	--	--	--	11	--	--	--	--	--	--
HGRI-26-2	0.5	01/23/08	--	--	--	--	--	2.3	--	--	--	--	--
HGRI-38-1	0.5	01/23/08	--	--	--	--	11	--	--	--	--	--	--
	5	01/23/08	--	--	--	--	10	--	--	--	--	--	--
	10	01/23/08	--	--	1.1	--	11	--	--	--	--	--	--
	15	01/23/08	--	--	--	--	12	--	--	--	--	--	--
HGRI-38-2	10	01/23/08	--	--	--	--	9.7	0.99	--	--	--	--	--
	15	01/23/08	--	--	--	--	10	--	--	--	--	--	--
	20	01/23/08	--	--	--	--	12	--	--	--	--	--	--
HGRI-51-1	0.5	01/22/08	--	--	--	--	9.6	--	--	--	--	--	--
	5	01/22/08	--	--	--	--	--	1.9	--	--	--	--	--
	10	01/22/08	--	--	--	--	11	--	--	--	--	--	--
HGRI-51-2	0.5	01/22/08	100	--	--	--	12	--	--	--	--	--	--
	5	01/22/08	--	--	--	--	9.3	--	--	--	--	--	--
	10	01/22/08	--	--	--	--	10	--	--	--	--	--	--
HGRI-59-1	0.5	01/22/08	--	--	--	--	8.7	0.99	--	--	--	--	--
HGRI-59-2	1	01/22/08	--	--	--	--	8.9	--	--	--	--	--	--
US EPA Region IX PRG (in μg/kg)			140,000,000	640	220	400,000	9,100	520,000	52,000	21,000	270,000	270,000	32,000
LARWQCB Screening Level[1] (in μg/kg)			NE	11	NE	700	NE	150	NE	NE	1,750[2]		13

Notes:

LARWQCB Screening Level = Los Angeles Regional Water Quality Control Board Maximum Soil Screening Level (May 1996, revised in January 2005)
US EPA Region IX PRG = United States Environmental Protection Agency Region IX Preliminary Remediation Goal for Industrial Soil (October 2004)
(1) Most convervative screening level values based on gravel soil at 20 feet or less above groundwater
(2) Screening level value for total xylenes (p/m- and o- isomers)
μg/kg = micrograms per kilogram
ft bgs = feet below ground surface
"--" = Not detected at or above respective laboratory reporting limits
NE = Not established
B = Detected in associated laboratory method blank sample

Table 3

Summary of TPH-cc Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Sample Date	C6	C7	C8	C9-C10	C11-C12	Total C4-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	Total C13-C22	C23-C24	C25-C28	C29-C32	Total C23-C32	C33-C36	C37-C40	C41-C44	Total C6-C44
HGRI-2-1	2	01/17/08	--	--	--	--	1.6	1.6	0.46	6.0	0.59	0.93	1.1	9.1	0.23	0.73	0.23	1.2	0.40	0.28	1.2	14
	5	01/17/08	--	--	--	--	1.6	1.6	0.17	6.9	0.73	1.3	1.3	10.4	0.34	0.65	0.20	1.2	0.48	0.19	1.1	15
	10	01/17/08	--	--	--	--	--	--	0.0079	1.1	0.22	0.53	0.42	2.3	0.14	0.17	--	0.3	--	--	0.10	--
HGRI-3-1	2	01/17/08	--	--	--	0.25	1.2	1.5	0.80	3.4	0.45	0.53	1.1	6.3	0.15	0.23	0.28	0.7	0.27	0.074	0.28	8.9
	5	01/17/08	--	--	--	--	--	--	--	--	--	--	0.071	0.071	0.081	0.038	--	0.1	--	--	--	--
	10	01/17/08	--	--	--	--	1.1	1.1	0.43	5.6	0.30	1.0	1.2	8.5	0.29	0.63	--	0.9	0.17	--	0.58	11
HGRI-3-2	2	01/23/08	--	--	--	--	--	--	--	2.1	--	--	--	2.1	--	9.9	--	9.9	--	--	--	12
	5.5	01/23/08	--	--	--	--	--	--	--	--	--	--	--	--	0.16	0.52	--	0.7	--	--	--	--
HGRI-5-1	10	01/17/08	--	--	--	--	--	--	--	0.73	0.41	0.012	--	1.2	--	--	--	--	--	--	--	--
	15	01/17/08	--	--	--	--	--	--	--	0.50	0.090	--	--	0.6	--	--	--	--	--	--	--	--
HGRI-5/6-1	1.5	01/17/08	--	--	--	--	0.88	0.88	0.25	3.3	0.39	0.35	0.87	5.2	0.31	0.51	--	0.8	0.095	0.037	0.16	7.1
	5	01/17/08	--	--	--	--	0.84	0.84	0.15	2.9	0.39	0.22	0.86	4.5	0.32	0.61	0.30	1.2	0.45	0.22	0.37	7.6
HGRI-11-1	1	01/22/08	--	--	--	0.026	1.2	1.2	0.32	2.7	0.26	0.18	2.2	5.7	1.6	0.93	0.89	3.4	1.4	0.15	--	12
	5	01/22/08	--	--	0.20	1.8	1.6	3.6	0.69	3.3	0.68	0.39	3.1	8.2	2.1	1.2	0.87	4.2	1.1	0.26	--	17
HGRI-18-1	1	01/17/08	--	--	--	3.9	120	**123.9**	310	280	380	300	61	**1331.0**	10	7.1	1.8	18.9	0.37	0.010	0.12	1500
	5	01/17/08	--	--	--	--	1.9	1.9	0.20	8.3	0.70	1.3	1.9	12.4	0.51	1.1	0.24	1.9	0.53	0.17	1.3	18
	10	01/17/08	--	--	--	--	--	--	--	0.53	0.24	0.32	0.26	1.4	0.12	0.030	0.033	0.2	0.28	0.16	--	--
HGR1-18-2	1	01/18/08	--	--	--	--	2.7	2.7	2.0	6.8	1.8	3.1	2.9	16.6	3.3	12	27	42.3	29	41	31	160
	5	01/18/08	--	--	--	0.17	1.9	2.1	0.24	7.9	0.64	1.5	1.7	12.0	0.40	0.64	--	1.0	0.46	--	0.71	16
	10	01/18/08	--	--	--	--	0.69	0.69	0.014	2.9	0.081	0.44	0.65	4.1	0.29	0.31	--	0.6	--	--	--	5.4
HGR1-19-1	1	01/18/08	--	--	--	0.30	1.5	1.8	0.34	4.5	0.47	0.84	0.93	7.1	0.24	0.36	--	0.6	0.087	--	--	9.6
	5	01/18/08	--	--	--	0.40	1.2	1.6	0.26	2.2	0.40	0.94	1.4	5.2	0.31	0.26	--	0.6	--	--	--	7.4
	10	01/18/08	--	--	--	0.55	0.89	1.4	0.30	2.7	0.27	1.0	1.6	5.9	0.21	0.29	--	0.5	--	--	--	7.8
	15	01/18/08	--	--	--	--	0.24	0.24	0.063	0.62	0.20	0.20	0.29	1.4	0.012	--	--	0.012	--	--	--	--
HGR1-19-2	1	01/18/08	--	--	--	--	0.62	0.62	0.41	1.8	0.25	0.71	0.73	3.9	0.23	0.26	0.46	1.0	0.32	0.056	--	5.9
	5	01/18/08	--	--	--	0.14	1.0	1.1	0.26	3.0	0.30	0.76	0.77	5.1	0.25	0.32	--	0.6	--	--	--	6.8
	10	01/18/08	--	--	--	--	0.89	0.89	0.33	2.9	0.35	0.92	0.75	5.3	0.29	0.32	--	0.6	--	--	--	6.8
	15	01/18/08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.055	--	--	--
HGRI-21-1	0.5	01/21/08	--	--	--	0.63	0.99	1.6	0.28	0.60	0.22	--	--	1.1	--	--	--	--	--	--	--	--
	5	01/21/08	--	--	--	--	--	--	0.0064	0.29	--	--	--	0.3	--	--	--	--	--	--	--	--
	10	01/21/08	--	--	--	0.49	1.0	1.5	0.29	1.6	0.31	0.31	0.27	2.8	0.16	0.053	--	0.2	--	--	--	--
HGRI-21-2	5	01/21/08	--	--	--	--	0.32	0.32	0.017	1.8	0.31	0.30	0.33	2.8	0.22	0.25	--	0.5	--	--	--	--
	10	01/21/08	--	--	--	--	1.1	1.1	0.48	3.8	0.49	0.56	0.53	5.9	0.22	0.34	--	0.6	--	--	--	7.6
HGRI-23-1	5	01/16/08	--	0.11	--	--	0.67	0.8	--	2.2	--	--	--	2.2	--	--	--	--	--	--	--	--
HGRI-23-2	1	01/16/08	--	--	--	--	0.18	0.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	01/16/08	--	--	--	--	0.23	0.23	0.28	1.1	--	--	--	1.4	--	--	--	--	--	--	--	--
HGRI-34-1	5	01/21/08	--	--	--	--	0.83	0.83	0.32	2.3	0.36	0.47	0.31	3.8	0.20	0.21	--	0.4	--	--	--	--
HGRI-34-2	0.5	01/21/08	--	--	--	--	0.074	0.074	--	0.45	0.21	--	--	0.7	--	--	--	--	--	--	--	--
HGRI-34-3	0.5	01/21/08	--	--	--	--	1.1	1.1	0.40	3.7	0.45	0.87	1.0	6.4	0.31	0.24	--	0.6	--	--	--	8.1
	5	01/21/08	--	--	--	0.19	1.0	1.2	0.31	2.8	0.27	0.55	0.55	4.5	0.44	0.24	--	0.7	--	--	--	6.4
HGRI-34-4	0.5	01/21/08	--	--	--	--	0.17	0.17	0.25	0.55	0.43	0.30	0.24	1.8	0.022	--	--	0.022	--	--	--	--
	5	01/21/08	--	--	--	--	0.44	0.44	0.019	1.9	0.28	0.39	0.34	2.9	0.30	0.28	--	0.6	--	--	--	--
HGRI-35-1	0.5	01/21/08	--	--	--	0.48	1.0	1.5	0.20	2.2	0.40	0.79	0.81	4.4	2.3	2.0	2.2	6.5	2.5	0.041	0.38	15
	5	01/21/08	--	--	--	0.14	0.25	0.4	--	0.76	0.29	0.26	0.35	1.7	0.30	0.20	--	0.5	--	--	--	--
HGRI-35-2	0.5	01/21/08	--	--	--	0.093	0.88	1.0	0.33	1.8	0.46	0.43	0.46	3.5	0.32	0.18	--	0.5	--	--	--	--
HGRI-35-3	0.5	01/21/08	--	--	--	--	0.40	0.40	0.17	1.2	0.87	1.3	1.6	5.1	2.6	5.4	10	18.0	8.7	8.3	6.5	47
	5	01/21/08	--	--	--	--	0.75	0.75	0.12	4.0	0.83	1.8	1.8	8.6	2.0	3.8	7.2	13.0	4.6	1.5	4.3	33

Table 3

Summary of TPH-cc Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Sample Date	C6	C7	C8	C9-C10	C11-C12	Total C4-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	Total C13-C22	C23-C24	C25-C28	C29-C32	Total C23-C32	C33-C36	C37-C40	C41-C44	Total C6-C44
HGRI-35-5	1	01/23/08	--	--	--	0.21	0.72	0.9	0.77	0.97	1.5	2.5	3.3	9.0	4.0	10	17	31.0	15	20	14	90
	2.5	01/23/08	--	--	--	--	0.45	0.45	0.61	0.59	0.96	2.4	2.8	7.4	3.2	9.8	15	28.0	15	21	14	86
HGRI-38-2	0.5	01/23/08	--	--	--	--	0.19	0.19	0.036	0.46	--	--	--	0.5	--	2.0	--	2.0	--	--	--	--
	5	01/23/08	--	--	--	--	--	--	--	--	--	--	--	--	--	0.086	--	0.086	--	--	--	--
	10	01/23/08	--	--	--	--	--	--	--	--	--	--	--	--	--	0.093	--	0.093	--	--	--	--
HGRI-49-1	20	01/18/08	--	--	--	--	--	--	--	0.30	0.41	0.41	0.53	1.7	0.18	0.21	0.35	0.7	0.49	0.14	--	--
	25	01/18/08	--	--	--	--	--	--	--	--	--	0.15	1.3	1.5	0.34	0.28	0.24	0.9	0.39	--	--	--
	30	01/18/08	--	--	--	--	--	--	--	--	--	0.21	1.4	1.6	0.43	0.26	0.21	0.9	0.35	0.10	--	--
HGR1-49-2	10	01/18/08	--	--	--	--	--	--	--	--	0.055	0.48	0.44	1.0	0.10	0.025	--	0.1	--	--	--	--
	20	01/18/08	--	--	--	--	--	--	0.039	0.39	0.30	0.30	1.2	2.2	0.15	0.15	--	0.3	--	--	--	--
HGRI-51-1	0.5	01/22/08	--	--	--	0.076	4.5	4.6	4.4	7.8	4.6	6.2	12	35.0	11	22	46	79.0	47	36	57	260
	5	01/22/08	--	--	--	--	--	--	--	1.6	2.5	5.4	12	21.5	15	25	50	90.0	54	37	49	250
	10	01/22/08	--	--	--	0.15	1.3	1.5	0.52	4.4	0.77	1.3	3.6	10.6	3.2	15	--	18.2	5.4	3.3	6.0	40
HGRI-51-2	0.5	01/22/08	--	--	--	--	--	--	0.13	0.39	0.31	0.32	2.5	3.7	2.2	1.0	0.84	4.0	1.2	0.34	0.086	9.3
	5	01/22/08	--	--	--	--	1.0	1.0	0.34	0.70	0.32	0.26	0.86	2.5	0.67	0.29	0.39	1.4	0.55	0.11	--	5.5
	10	01/22/08	--	--	--	--	0.90	0.90	0.26	2.7	0.41	0.14	0.46	4.0	0.41	0.31	0.35	1.1	0.39	0.13	--	6.5
HGRI-54-1	0.5	01/21/08	--	--	--	0.11	0.79	0.9	0.31	1.7	0.41	0.44	0.42	3.3	0.35	0.22	--	0.6	--	--	--	--
	5	01/21/08	--	--	--	0.16	0.80	1.0	0.32	0.83	0.29	0.28	0.24	2.0	0.22	0.10	--	0.3	--	--	--	--
	10	01/21/08	--	--	--	--	0.24	0.24	0.011	0.57	0.029	--	--	0.6	--	--	--	--	--	--	--	--
HGRI-55-1	0.5	01/21/08	--	--	--	0.61	2.2	2.8	2.1	4.4	3.1	4.4	3.8	17.8	7.5	18	32	57.5	22	16	13	130
	5	01/21/08	--	--	--	--	0.34	0.34	0.44	0.63	1.0	1.6	1.2	4.9	1.7	3.6	5.7	11.0	5.6	2.4	2.2	26
HGRI-55-2	0.5	01/23/08	--	--	--	--	--	--	0.039	0.28	0.18	0.48	1.1	2.1	1.4	2.9	3.5	7.8	2.3	0.89	1.2	14
	5	01/23/08	--	--	--	0.13	--	0.13	--	--	--	--	0.11	0.11	0.66	0.35	--	1.0	--	--	--	--
HGR1-57-1	1	01/18/08	--	--	--	--	0.28	0.28	0.94	2.4	2.5	5.1	6.4	17.3	9.9	37	98	144.9	88	110	120	480
	5	01/18/08	--	--	--	--	0.043	0.043	0.23	0.86	0.33	0.52	1.4	3.3	0.35	0.16	--	0.5	--	--	--	--
	10	01/18/08	--	--	--	0.040	1.4	1.4	0.16	3.8	0.33	0.47	1.9	6.7	0.34	0.34	--	0.7	--	--	--	8.8
HGR1-57-2	1	01/18/08	--	--	--	0.72	2.3	3.0	1.0	5.8	2.5	2.4	4.1	15.8	3.1	5.5	8.0	16.6	6.0	3.7	5.0	50
	5	01/18/08	--	--	--	0.0012	2.0	2.0	0.59	8.0	0.39	0.53	2.7	12.2	0.85	2.5	4.2	7.6	4.5	4.9	6.8	38
	10	01/18/08	--	--	--	0.35	2.3	2.7	0.41	6.6	0.35	0.85	3.7	11.9	0.70	0.61	0.43	1.7	0.52	0.20	1.4	18
HGR1-57-3	1	01/18/08	--	--	--	--	--	--	0.58	3.2	2.4	4.6	6.1	16.9	6.6	29	70	105.6	62	75	85	340
	5	01/18/08	--	--	--	0.077	1.8	1.9	0.34	7.6	0.57	1.9	1.6	12.0	0.31	0.59	--	0.9	0.19	0.034	1.1	16
	10	01/18/08	--	--	--	--	1.2	1.2	0.28	3.2	0.57	0.55	1.8	6.4	0.19	0.23	--	0.4	--	--	--	8.0
HGR1-57-4	1	01/18/08	--	--	--	0.32	0.70	1.0	0.24	0.47	0.12	--	--	0.8	--	--	--	--	--	--	--	--
	5	01/18/08	--	--	--	0.16	1.2	1.4	0.26	4.3	0.30	1.3	1.8	8.0	0.29	0.36	0.39	1.0	0.47	--	--	11
	10	01/18/08	--	--	--	1.2	1.4	2.6	0.42	2.7	0.30	0.47	0.61	4.5	0.24	0.26	--	0.5	--	--	--	7.6
HGR1-58-1	1	01/18/08	--	--	--	0.15	1.3	1.5	0.55	2.8	0.26	0.14	0.84	4.6	0.48	0.17	--	0.7	0.12	0.022	--	6.9
	10	01/18/08	--	--	--	--	--	--	0.16	2.1	0.26	0.16	1.1	3.8	0.13	0.20	--	0.3	0.097	--	--	--
HGR1-58-2	1	01/18/08	--	--	--	--	1.7	1.7	0.24	7.4	0.42	0.50	2.0	10.6	0.36	0.36	--	0.7	--	--	--	13
	5	01/18/08	--	--	--	--	2.4	2.4	0.31	9.3	1.1	2.9	3.5	17.1	2.0	5.2	8.3	15.5	7.5	4.6	6.3	54
	10	01/18/08	--	--	--	0.0045	0.80	0.8	0.40	3.4	0.49	0.48	1.2	6.0	0.37	0.16	--	0.5	--	--	--	7.4
HGRI-59-1	0.5	01/22/08	--	--	--	0.17	1.3	1.5	0.33	0.77	0.49	0.43	3.4	5.4	2.9	0.75	1.2	4.9	1.7	0.13	--	14
	5	01/22/08	--	--	--	--	--	--	0.16	0.40	0.31	0.37	3.5	4.7	2.9	1.1	1.2	5.2	1.7	0.22	--	12
HGRI-59-2	1	01/22/08	--	--	--	0.15	2.3	2.5	0.58	4.0	0.38	0.30	1.9	7.2	0.94	0.40	0.49	1.8	0.66	0.18	--	12
	5	01/22/08	--	--	--	0.26	2.1	2.4	0.53	6.4	0.44	0.79	1.3	9.5	0.50	0.40	0.41	1.3	0.49	0.099	--	14
HGRI-61-1	0.5	01/23/08	--	--	--	--	--	--	--	1.8	0.053	--	--	1.9	--	--	--	--	--	--	--	--
	5	01/23/08	--	--	--	--	--	--	--	--	--	--	0.14	0.14	0.26	1.1	2.1	3.5	2.9	3.7	3.1	13

Table 3

Summary of TPH-cc Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Sample Date	C6	C7	C8	C9-C10	C11-C12	Total C4-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	Total C13-C22	C23-C24	C25-C28	C29-C32	Total C23-C32	C33-C36	C37-C40	C41-C44	Total C6-C44
HGRI-61-2	0.5	01/23/08	--	--	--	--	--	--	0.0015	0.37	0.20	0.36	1.1	2.0	1.1	4.0	6.1	11.2	6.1	6.5	5.8	32
	5	01/23/08	--	--	--	--	0.30	0.30	--	2.6	0.23	0.53	1.3	4.7	1.2	5.2	11	17.4	13	14	11	60
HGRI-61-3	0.5	01/23/08	--	--	--	--	--	--	--	1.9	0.34	0.41	0.88	3.5	0.59	1.5	2.3	4.4	2.5	2.6	4.0	17
	5	01/23/08	--	--	--	--	--	--	--	0.56	--	--	--	0.56	--	--	--	--	--	--	--	--
HGRI-61-4	0.5	01/23/08	--	--	--	--	--	--	--	--	--	0.25	2.0	2.3	2.8	20	46	68.8	52	62	64	250
	5	01/23/08	--	--	--	--	--	--	--	--	--	0.060	0.44	0.5	0.42	2.4	5.6	8.4	6.8	9.1	9.0	34
HGR1-63-1	0.5	01/18/08	--	--	--	0.47	1.8	2.3	0.34	6.2	0.58	1.4	1.9	10.4	0.40	0.45	--	0.9	0.17	--	0.44	14
	5	01/18/08	--	--	--	0.39	1.6	2.0	0.27	6.1	0.38	1.2	1.7	9.7	0.48	0.60	--	1.1	0.42	0.015	0.49	14
	10	01/18/08	--	--	--	0.38	0.045	0.4	--	0.25	--	--	--	0.25	--	--	--	--	--	--	--	--
HGR1-63-2	0.5	01/18/08	--	--	--	--	0.25	0.25	--	0.71	0.023	0.21	0.39	1.3	0.036	--	--	0.036	--	--	--	--
	5	01/18/08	--	--	--	0.14	1.7	1.8	0.34	7.2	0.52	1.5	2.1	11.7	0.59	0.86	--	1.5	0.18	--	0.40	15
	10	01/18/08	--	--	--	0.39	1.1	1.5	0.33	3.1	0.32	1.2	1.2	6.2	0.32	0.34	--	0.7	0.12	--	--	8.5
Cage Park, Inside Swale		01/23/08	--	--	--	--	0.85	0.85	3.2	6.2	11	18	16	54.4	16	48	82	146.0	50	130	140	530
Cage Park, Outside Swale		01/23/08	--	--	--	--	--	--	1.1	4.5	8.8	15	22	51.4	24	67	140	231.0	99	200	150	730
LARWQCB Screening Level [1]			NE	NE	NE	NE	NE	500	NE	NE	NE	NE	NE	1,000	NE	NE	NE	10,000	NE	NE	NE	NE
LARWQCB Screening Level [2]			NE	NE	NE	NE	NE	100	NE	NE	NE	NE	NE	100	NE	NE	NE	1,000	NE	NE	NE	NE

Notes:

LARWQCB Screening Level = Los Angeles Regional Water Quality Control Board Maximum Soil Screening Levels (May 1996, revised in January 2005)
(1) LARWQCB Screening Levels for soil between 20 and 80 feet above groundwater
(2) LARWQCB Screening Levels for soil less than 20 feet above groundwater
TPH-cc = total petroleum hydrocarbons by carbon chain method
mg/kg = milligrams per kilogram
ft bgs = feet below ground surface
"--" = Not detected at or above respective laboratory reporting limits
NE = Not established
Values in bold type indicate results that exceed LARWQCB Screening Levels

Table 4

Summary of Metals Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Antimony	Arsenic (6010)	Arsenic (6020)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HGRI-5-1	10	01/17/08	--	1.02	na	44.7	--	--	2.87	2.81	3.06	2.01	--	--	1.62	--	--	--	9.17	17.7
	15	01/17/08	0.868	3.4	na	145	0.608	--	12.2	9.15	9.94	7.81	--	--	9.16	--	--	--	34.2	44.5
HGRI-5/6-1	1.5	01/17/08	--	4.51	na	149	0.692	--	17.6	10.4	14.6	8.47	--	--	13.6	--	--	--	38	56.1
	5	01/17/08	--	2.43	na	141	0.619	--	17.4	10.2	16.2	8.87	--	--	13.8	--	--	--	35.6	57.6
HGRI-8-1	1	01/23/08	--	2.62	5.54	126	0.507	--	12.8	7.66	10.1	5.97	--	--	8.99	--	--	--	27.6	46
HGRI-11-1	1	01/22/08	--	2.85	na	108	0.453	--	8.72	6.81	7.16	5.89	--	--	6.4	--	--	--	25.2	40.9
	5	01/22/08	--	2.33	na	109	0.372	--	6.93	6.39	5.76	5.26	--	--	6.33	--	--	--	22.3	38.7
HGRI-11/12-1	1	01/22/08	--	2.61	4.87	137	0.471	--	9.09	7.57	7.57	6.31	--	--	7.23	--	--	--	26.7	45.9
	4	01/22/08	--	3.79	na	124	0.553	--	11.3	8.08	9.36	7.25	--	--	8.57	--	--	--	29.5	45.4
HGRI-12-2	1	01/22/08	--	3.41	na	117	0.507	--	9.68	8.01	8.63	6.43	--	--	7.48	--	--	--	26.6	42.5
	5	01/22/08	--	3.66	na	119	0.606	--	13	8.83	10.9	8.24	--	--	10.2	--	--	--	31.5	46.4
HGRI-16-1	0.5	01/21/08	--	4.6	na	115	0.725	--	18.2	10.5	14.9	8.26	--	--	14.4	--	--	--	38.4	47
	5	01/21/08	--	2.25	na	101	0.276	--	4.15	4.66	4.85	3.78	--	--	3.55	--	--	--	16.6	35.8
HGRI-16-2	0.5	01/21/08	--	3.91	na	151	0.654	--	14	8.11	10	7.37	--	--	9.75	--	--	--	33.8	50
	5	01/21/08	0.756	3.59	na	153	0.519	--	8.96	9.48	7.01	6.53	--	--	4.82	--	--	--	32.6	54.2
HGRI-16-3	0.5	01/21/08	--	4.42	na	178	0.757	--	15.7	11.5	12.6	13.6	--	--	11.7	--	--	--	42.1	63.2
	3.5	01/21/08	--	5.34	na	266	0.854	--	14.6	11.3	11.9	10.2	--	--	11.5	--	--	--	42.2	66
HGRI-17-1	0.5	01/21/08	--	5.96	na	131	0.901	--	20.8	11.8	15.6	10.5	--	--	14.5	--	--	--	46.7	62.1
	3.5	01/21/08	--	3.82	na	186	0.62	--	10.6	9.15	9.49	6.94	--	--	8.6	--	--	--	35.2	57.8
HGRI-17-2	0.5	01/22/08	--	4.35	na	134	0.692	--	12.7	6.5	8.23	8.75	--	--	7.51	--	--	--	36.4	57.2
	5	01/22/08	--	3.21	na	110	0.464	--	7.16	7.79	5.61	5.85	--	--	6.16	--	--	--	26.5	48.1
HGRI-21-1	0.5	01/21/08	--	4.35	na	175	0.566	--	11.7	9.03	11.8	6.9	--	--	7.71	--	--	--	32.3	59.8
	5	01/21/08	--	3.36	na	125	0.404	--	6.33	6.61	5.94	5.31	--	--	4.78	--	--	--	24.7	46.1
	10	01/21/08	--	3.39	na	160	0.408	--	7.23	7.6	5.59	5.64	--	--	5.38	--	--	--	27.7	55.7
	15	01/21/08	--	1.73	na	95.8	--	--	3.64	4.29	2.95	2.94	--	--	2.46	--	--	--	13.4	29.4
HGRI-21-2	0.5	01/21/08	--	4.49	na	185	0.72	--	15.1	9.83	15.9	10	--	--	16.1	--	--	--	43.3	66.7
	5	01/21/08	--	2.92	na	101	0.45	--	7.53	6.47	6.41	5.5	--	--	4.73	--	--	--	25	41.7
	10	01/21/08	--	1.52	na	63	--	--	3.08	3.37	2.65	2.49	--	--	2.08	--	--	--	11	19.7
	15	01/21/08	--	1.64	na	94.5	--	--	3.55	3.84	3.01	2.97	--	--	2.42	--	--	--	13.5	32.5
HGRI-26-1	0.5	01/23/08	0.957	1.82	5.08	206	0.561	--	11	9.83	8.06	7.04	--	--	9.02	1.31	--	--	35	69
	5	01/23/08	--	2.02	na	190	0.479	--	8.39	8.44	7.38	5.78	--	--	6.15	--	--	--	29.9	62.4
HGRI-26-2	0.5	01/23/08	0.847	3.03	na	263	0.623	--	11.7	11.6	11.5	7.28	--	--	9.9	1.24	--	--	40.5	79.3
	5	01/23/08	--	2.56	na	149	0.413	--	9.33	7.96	8.26	5.32	--	--	7.12	--	--	--	27.6	52.9
HGRI-29-1	0.5	01/17/08	--	3.17	na	208	0.321	--	18.1	8.22	62.8	50	--	--	11.1	--	--	--	34.1	264
	5	01/17/08	--	3.16	na	195	0.373	--	14.2	8.59	154	14	--	--	11.7	--	--	--	34	94.4
	10	01/17/08	--	2.36	na	166	0.38	--	9.27	7.82	9.77	5.72	--	--	5.85	--	--	--	25.9	53.1
	15	01/17/08	--	1.19	na	71.3	--	--	3.69	3.65	9.41	3.15	--	--	3.93	--	--	--	15.4	27.5
HGRI-29-2	0.5	01/17/08	--	2.1	na	229	--	--	2.55	7.55	1.41	3.68	--	--	1.93	0.89	--	--	26.9	78.7
	5	01/17/08	--	4.29	na	200	0.669	--	13.1	10.1	11.6	8.67	--	--	9.18	--	--	--	38.9	65.9
	10	01/17/08	--	1.35	na	97.6	--	--	3.4	3.81	4.23	3.17	--	--	2.72	--	--	--	13.1	25
	15	01/17/08	--	2.03	na	149	0.339	--	7.12	7.01	5.16	4.74	--	--	4.95	--	--	--	24.3	55
HGRI-29-3	0.5	01/17/08	--	4.44	na	181	0.704	--	18.7	10.4	15	8.67	--	--	14.5	--	--	--	38.8	57.3
	5	01/17/08	--	1.79	na	113	0.284	--	6.22	5.33	4.96	4.18	--	--	3.31	--	--	--	21.2	47.6
	10	01/17/08	--	1.98	na	101	0.351	--	12.2	5.78	7.24	4.76	--	--	5.56	--	--	--	22.7	37.6
	15	01/17/08	--	2.51	na	171	0.395	--	8.23	8.33	7.02	5.53	--	--	5.73	--	--	--	28.8	60.8
HGRI-29-4	0.5	01/17/08	--	2.83	na	138	0.315	--	11.4	6.43	48.4	18.4	--	--	18.1	--	--	--	35.1	74.1
	5	01/17/08	--	2.77	na	131	0.457	--	9.53	8.07	9.12	6.1	--	--	7.21	--	--	--	28.1	56.8
	10	01/17/08	--	4.72	na	157	0.686	--	24.1	9.93	24	10.7	0.0835	0.258	16.6	--	--	--	41.6	65.8
	15	01/17/08	--	3.36	na	164	0.518	--	17.7	8.52	12.7	7.61	--	--	9.94	--	--	--	32.7	61.4

Table 4

Summary of Metals Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Antimony	Arsenic (6010)	Arsenic (6020)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HGRI-29/30-1	0.5	01/16/08	--	8.68	na	130	0.529	--	15.8	10.2	17.8	6.03	--	0.442	12.8	--	--	--	32.3	46.6
	5	01/16/08	--	9.31	na	133	0.622	--	19.1	11.8	17.9	6.38	--	0.384	15.3	--	--	--	37.4	50
	10	01/16/08	--	6.02	na	39.3	0.358	--	8.77	7.47	6.77	4.5	--	--	6.03	--	--	--	25.4	19.4
	15	01/16/08	--	8.27	na	102	0.681	--	17.8	9.73	36.5	9.17	--	0.69	22.4	--	--	--	30.4	51.6
HGRI-29/30-2	0.5	01/16/08	--	9.12	na	141	0.533	--	15.7	10.6	20.9	7.4	--	0.378	12.5	--	--	--	34.4	53.3
	5	01/16/08	--	8.42	na	98.3	0.578	--	15.5	9.41	12.6	5.45	--	--	11.2	--	--	--	33.3	41.4
	10	01/16/08	--	5.52	na	127	0.456	--	11.8	5.2	9.3	3.69	--	--	7.16	--	--	--	24.9	26
	15	01/16/08	--	7.68	na	125	0.508	--	17	15.1	13.6	4.09	--	0.315	11.5	--	--	--	34.3	36.4
HGRI-29/30-3	1	01/17/08	--	4.18	na	167	0.694	--	19	10.9	16.2	8.72	--	--	15.1	--	--	--	38.7	60
	5	01/17/08	--	2.25	na	97.4	0.392	--	7.2	7.14	6.03	5.52	--	--	6.56	--	--	--	24.9	38.6
	10	01/17/08	2.07	4.28	na	286	0.736	--	13.5	13.8	8.5	9.13	--	--	7.53	0.778	--	--	45.6	78.4
	15	01/17/08	--	3.52	na	112	0.751	--	17.9	10.4	13.3	9.14	--	--	9.92	--	--	--	36.6	49.4
HGRI-30-1	0.5	01/22/08	--	3.18	na	174	0.465	--	8.28	8.34	13.1	6.99	--	--	6.32	--	--	--	30.5	60.3
	5	01/22/08	--	2.79	na	133	0.564	--	11.2	7.66	9.01	6.74	--	--	11.2	--	--	--	27	43.7
	10	01/22/08	--	5.66	na	185	1.08	--	24.1	14.3	20.8	11.6	--	--	18.8	--	--	--	51.1	68.9
	15	01/22/08	--	3.56	na	111	0.697	--	13.9	8.78	11.7	8.41	--	--	10.1	--	--	--	30.9	44.8
HGRI-30/31-1	0.5	01/16/08	--	8.06	2.14	137	0.574	--	15.7	10.9	14	6.1	--	0.305	12.3	--	--	--	34.7	51.4
	5	01/16/08	--	11.1	2.22	159	0.733	--	15	11.2	11.9	7.41	--	--	11.2	--	--	--	40.8	60.4
	10	01/16/08	--	7.61	1.34	130	0.692	--	14.8	10.1	10.3	6.16	--	0.342	15.6	--	--	--	31	34.9
	15	01/16/08	--	5.8	0.784	72.9	0.357	--	11.6	8.33	9.97	3.11	--	0.293	9.63	--	--	--	24	30.7
HGRI-30/31-2	0.5	01/16/08	--	8.3	na	141	0.465	--	11.5	9.29	9.86	4.63	--	--	9.26	--	--	--	29.7	45.9
	5	01/16/08	--	8	na	144	0.514	--	13.8	10.2	12.2	6.37	--	0.271	11	--	--	--	31.9	50.6
	10	01/16/08	--	6.02	na	147	0.415	--	8.05	8.67	7.35	4.53	--	--	5.85	--	--	--	25.5	48.9
	15	01/16/08	--	5.5	na	106	0.355	--	8.25	7.79	6.95	3.82	--	0.287	5.73	--	--	--	23.8	38.8
HGRI-30/31-3	0.5	01/16/08	--	11.1	2.38	133	0.614	--	19.4	12.3	17	6.73	--	0.33	15.4	--	--	--	37.6	54.6
	5	01/16/08	--	9.92	2.43	154	0.654	--	20	12.8	16.9	7.65	--	0.402	16.2	--	--	--	38.9	56.9
	10	01/16/08	--	6.28	1.67	127	0.426	--	13.7	8.63	7.93	3.98	--	--	7.87	--	--	--	24.5	24.3
	15	01/16/08	--	5.2	0.941	54.3	--	--	9.54	5.35	7.16	2.54	--	0.311	5.14	--	--	--	21.4	23
HGRI-31-1	0.5	01/22/08	--	3.79	na	177	0.584	--	11.7	9.66	13.1	9.02	--	--	8.79	--	--	--	35	66.8
	5	01/22/08	--	5.31	na	144	0.704	--	14.7	9.15	10.9	8.79	--	--	10.4	--	--	--	35.9	51.8
	10	01/22/08	--	2.87	na	128	0.479	--	9.67	7.54	7.91	5.88	--	--	7.62	--	--	--	26.2	40.1
	15	01/22/08	--	3.46	na	108	0.566	--	10.8	6.3	8.56	6.4	--	--	6.03	--	--	--	30.6	43.7
HGRI-31/32-1	0.5	01/15/08	--	1.86	na	193	0.592	--	11.6	8.84	11.4	8.48	--	--	8.68	--	--	--	34.2	56.8
	5	01/15/08	--	3.17	na	135	0.69	--	17.7	10	14.2	9.35	--	--	13.9	--	--	--	37	51
	10	01/15/08	--	2.24	na	141	0.626	--	12.3	8.39	7.38	8.81	--	--	6.31	--	--	--	31.4	48.4
	15	01/15/08	--	2.29	na	126	0.853	--	18.3	11.6	10.5	11	--	--	16	--	--	--	34.1	35.2
HGRI-31/32-2	0.5	01/15/08	--	3.75	na	167	0.628	--	20.9	9.67	52.5	20	--	--	12.5	--	--	--	42.4	75.4
	5	01/15/08	--	3.25	na	230	--	--	3.97	3.42	5.55	8.51	--	0.559	1.08	--	--	--	39	6.1
	10	01/15/08	--	3.03	na	59.4	--	--	2.66	2.03	0.982	3.21	--	1.19	--	--	--	--	17	1.05
	15	01/15/08	--	2.44	na	64.3	--	--	9.86	2.68	10.1	8.97	--	--	3.82	--	--	--	27.9	20.1
HGRI-31/32-3	0.5	01/16/08	--	7.23	na	145	0.564	--	15.9	10.3	13.4	5.78	--	0.349	12.4	--	--	--	34.3	48.7
	5	01/16/08	--	6.29	na	134	0.459	--	11	8.8	9.62	4.38	--	--	8.91	--	--	--	26.3	42
	10	01/16/08	--	9.19	3.44	134	0.645	--	13.9	9.99	12.9	6.39	--	0.26	11	--	--	--	34.5	41.1
	15	01/16/08	--	3.71	na	52.6	0.277	--	9.5	5.63	8.99	2.65	--	0.288	6.63	--	--	--	20.4	22.3
HGRI-32-1	0.5	01/15/08	--	1.8	na	257	0.315	--	4.21	8.94	5.3	5.68	--	--	1.93	--	--	--	35.8	82.4
	5	01/15/08	--	3.13	na	123	0.633	--	14.6	8.74	11.3	8.73	--	--	10.5	--	--	--	33.3	46.2
	10	01/15/08	--	3.65	na	147	0.701	--	16.9	10.3	13.6	9.97	--	--	12.8	--	--	--	39.1	53.4

Table 4

Summary of Metals Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Antimony	Arsenic (6010)	Arsenic (6020)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HGRI-32-2	0.5	01/15/08	--	2.84	na	130	0.667	--	15.2	9.23	28.5	11.3	--	--	12.8	--	--	--	36.1	53.4
	5	01/15/08	--	3.76	na	158	0.732	--	18	10.9	14	10.3	--	--	13.7	--	--	--	39.9	57.3
	10	01/15/08	--	2.02	na	53.1	0.465	--	11	5.65	8.48	5.4	--	--	7.71	--	--	--	23.9	23
	15	01/15/08	--	1.61	na	44.9	0.384	--	9.65	5.09	8.83	4.59	--	--	6.32	--	--	--	24.2	21.5
HGRI-32-3	0.5	01/15/08	--	2.58	na	102	0.548	--	11.9	6.13	10.5	8.49	--	--	7.81	--	--	--	27.7	34.8
	5	01/15/08	--	1.9	na	106	0.571	--	13.7	8.04	10.8	7.02	--	--	10.2	--	--	--	30.6	40.6
	10	01/15/08	--	2.63	na	107	0.406	--	14.2	7.63	12	4.8	--	--	11.4	--	--	--	28.2	32.7
	15	01/15/08	--	2.48	na	123	0.437	--	14.2	8.88	14.4	4.44	--	--	12	--	--	--	31.6	39.7
HGRI-32-4	0.5	01/15/08	--	1.74	na	53	0.441	--	9.9	5.93	8.02	5.38	--	--	8.32	--	--	--	23.6	20.2
	5	01/15/08	--	2.4	na	36.2	0.468	--	11	4.06	9.13	5.08	--	--	5.72	--	--	--	24.2	20.9
	10	01/15/08	--	--	na	31.6	--	--	4.92	3.04	6.19	2.37	--	--	3.82	--	--	--	12.7	12.6
	15	01/15/08	--	1.46	na	65.5	0.315	--	9.58	6.21	9.73	3.87	--	--	7.75	--	--	--	23.5	30.1
HGRI-33-1	0.5	01/22/08	--	4.18	na	124	0.626	--	14.9	9.06	12.3	7.99	--	--	11.5	--	--	--	33.3	46.1
	5	01/22/08	--	4.2	na	128	0.701	--	17.2	9.92	13.6	8.22	--	--	13.6	--	--	--	37.3	48.3
HGRI-33-2	1	01/22/08	--	4.41	na	126	0.654	--	16	9.71	13	8.45	--	--	12.7	--	--	--	34.9	47
	5	01/22/08	--	4.04	na	129	0.697	--	16.8	9.82	13.4	8.54	--	--	13.3	--	--	--	36.7	49.7
HGRI-34-1	0.5	01/21/08	--	4.44	na	138	0.717	--	14	9.54	12	8.15	--	--	10.5	--	--	--	36.9	52.1
	5	01/21/08	--	3.54	na	178	0.514	--	9	9.15	7.13	6.24	--	--	6.84	--	--	--	30.9	55.2
HGRI-34-2	0.5	01/21/08	--	4.01	na	168	0.484	--	9.86	8.27	17	8.92	--	--	8.29	--	--	--	33.1	51
	5	01/21/08	--	4.13	na	196	0.666	--	12.5	12.5	8.82	8.06	--	--	12.8	--	--	--	32.5	58.4
HGRI-34-3	0.5	01/21/08	--	4.74	na	147	0.732	--	17.4	10.3	14.7	8.85	--	--	13.5	--	--	--	38	46.9
	5	01/21/08	--	4.64	na	152	0.761	--	17	10.8	14.5	9.09	--	--	12.7	--	--	--	41.4	55.6
HGRI-34-4	0.5	01/21/08	--	5.47	na	134	0.75	--	17.9	10.4	18.1	9.37	--	--	13.7	--	--	--	39.5	114
	5	01/21/08	--	4.52	na	110	0.716	--	13.5	9.2	10.9	8.22	--	--	10.1	--	--	--	35.8	49.7
HGRI-35-1	0.5	01/21/08	--	6.66	na	161	0.787	--	19.8	10.7	36	26	--	--	19.3	--	--	--	44.2	90.2
	5	01/21/08	--	2.63	na	88.5	0.363	--	7.75	5.19	7.06	3.61	--	--	7.54	--	--	--	20.8	29.1
HGRI-35-2	0.5	01/21/08	--	4.87	na	165	0.776	--	18.7	11	16.3	12.3	--	--	15.3	--	--	--	41.2	60.8
	5	01/21/08	--	3.12	na	169	0.385	--	6.82	7.92	5.44	4.96	--	--	4.42	--	--	--	24.6	57.6
HGRI-35-3	0.5	01/21/08	--	5.43	na	175	0.539	--	13.7	9.28	26.6	32.4	--	--	11.7	--	--	--	35	136
	5	01/21/08	--	5.16	na	162	0.622	--	14.6	9.6	12.8	9.62	--	--	11	--	--	--	34.6	64.8
HGRI-35-5	1	01/23/08	--	4.08	na	98	0.36	--	15.4	5.79	13.5	14.9	--	--	8.51	--	--	--	23.3	69.9
	2.5	01/23/08	--	2.8	na	60.5	0.312	--	12.2	5.08	11.8	12.1	--	--	7.46	--	--	--	19	47.8
HGRI-35-6	0.5	01/23/08	--	4.01	na	151	0.634	--	17.3	10.3	18.6	20	--	--	15.7	1.18	--	--	39.1	86.7
	5	01/23/08	--	3.6	na	231	0.736	--	14.9	12	12.3	8.38	--	--	11.4	1.06	--	--	43	75.3
HGRI-38-1	0.5	01/23/08	--	3.13	na	154	0.679	--	16.9	9.27	13.6	8.31	--	--	12	0.942	--	--	37.5	50.4
	5	01/23/08	--	2.55	na	166	0.557	--	12.4	8.79	9.39	6.82	--	--	22.2	--	--	--	31.8	62.1
	10	01/23/08	--	2.65	na	173	0.398	--	7.76	8.5	7.55	4.66	--	--	5.53	--	--	--	28.6	61.5
	15	01/23/08	--	0.978	na	101	--	--	7.8	4.68	37.2	3.2	--	0.347	3.53	--	--	--	15.8	49.9
HGRI-38-2	0.5	01/23/08	--	2.63	na	155	0.577	--	15	9.18	12.5	6.96	--	--	10.4	--	--	--	31.6	49.5
	5	01/23/08	--	2.24	na	113	0.549	--	12	6.42	8.5	6.84	--	--	7.2	0.832	--	--	31	50.7
	10	01/23/08	--	2.78	na	216	0.604	--	11.4	10.2	9.48	7.24	--	--	9.34	0.809	--	--	31.7	58.6
	15	01/23/08	--	1.37	na	100	0.277	--	5.38	5.88	32.7	3.52	--	--	3.83	--	--	--	19	42.3
	20	01/23/08	--	1.05	na	73	0.272	--	4.97	4.52	51.8	3.46	--	--	3.03	--	--	--	17.9	40.4
HGRI-40-1	2.5	01/15/08	--	3.7	na	118	0.771	--	19.8	10.6	15.1	9.53	1.28	--	14.9	--	--	--	42.3	47.6
	5.5	01/15/08	--	2.95	na	118	0.726	--	18.6	9.24	13.8	8.76	0.151	--	11.6	--	--	--	40.8	49.4
HGRI-40-2	2.5	01/15/08	--	3.38	na	134	0.73	--	16.8	11.3	13.4	9.21	--	--	13.4	--	--	--	39.8	49.2
	5	01/15/08	--	4.7	na	120	0.78	--	19.3	11.2	16.2	9.57	--	--	14.4	--	--	--	44.5	54.4
HGRI-40-3	2.5	01/15/08	--	3.36	na	114	0.681	--	16.4	9.47	13.2	9	--	--	12.2	--	--	--	37.7	45.9
	5	01/15/08	--	3.77	na	120	0.768	--	19.4	10.6	15.3	9.77	--	--	14.7	--	--	--	42.4	50.3

Table 4

Summary of Metals Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Antimony	Arsenic (6010)	Arsenic (6020)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HGRI-40-4	1.5	01/15/08	--	3.2	na	169	0.629	--	13.7	9.92	12	9.96	--	--	11.3	--	--	--	34.8	49.7
	3.5	01/15/08	--	3.52	na	132	0.732	--	17.6	10.3	14	9.29	--	--	13.5	--	--	--	40.2	49.2
HGRI-40-5	1.5	01/15/08	--	3.57	na	122	0.739	--	19.4	10.1	14.1	9.98	--	--	13.4	--	--	--	39.9	51
	3.5	01/15/08	--	3.03	na	129	0.676	--	16.5	9.54	12.8	8.39	--	--	12.4	--	--	--	36.9	48.3
HGRI-40-6	1	01/16/08	--	7.76	na	119	0.542	--	15.9	10.6	12.9	5.69	--	0.274	12.6	--	--	--	34	46.3
	5	01/16/08	--	8.86	na	116	0.524	--	16.6	10.5	12.5	5.7	--	0.275	12.8	--	--	--	31.3	43.7
HGRI-47-1	2	01/15/08	--	3.33	na	105	0.61	--	15.8	8.63	12.7	10.7	--	--	12.7	--	--	--	33	101
	5	01/15/08	--	3.59	na	116	0.528	--	19.4	13.4	11.5	9.01	--	--	9.74	--	--	--	39.2	72.4
HGRI-47-2	2	01/15/08	--	4.62	na	169	0.705	--	33.4	7.26	23.6	10.8	--	--	11.6	--	--	--	86	55.6
	5	01/15/08	--	3.75	na	117	0.712	--	17.6	10.9	13.8	9.21	--	--	12.9	--	--	--	42	48.3
HGRI-49-1	10	01/15/08	--	1.65	na	142	0.542	--	9.4	6.93	6.05	6.29	--	--	5.97	--	--	--	27.8	48.9
	15	01/15/08	--	2.02	na	104	0.418	--	8.98	7.07	7.07	5.36	--	0.366	6.07	--	--	--	27	35
	20	01/18/08	--	2.27	na	104	0.473	--	9.46	7.4	14.7	5.57	--	--	7	--	--	--	28.2	42.1
	25	01/18/08	--	4.17	na	180	0.727	--	14.4	14.5	13	8.67	--	--	11.6	0.895	--	--	42.4	59.9
	30	01/18/08	--	2.21	na	102	0.621	--	12	8.92	17.4	6.64	--	--	6.71	--	--	--	34.3	41.1
HGRI-49-2	10	01/18/08	0.829	2.23	na	176	0.604	--	8.23	8.5	12.7	7.81	--	--	5.79	1.11	--	--	30.6	56
	20	01/18/08	--	2.74	na	139	0.586	--	12.3	9.83	17.2	7.04	--	--	8.98	--	--	--	32.8	43.3
	23.5	01/18/08	--	3.85	na	178	0.752	--	16.1	11.3	14.3	9.98	--	--	10	--	--	--	46.6	58.7
HGRI-50-1	0.5	01/30/08	--	12.1	na	110	0.649	--	18.7	9.35	177	17.3	--	--	18.8	--	--	--	35.8	73
	5	01/30/08	--	5.18	na	98.6	0.603	--	15.1	8.83	12.3	7.74	--	--	12.5	--	--	--	32.3	42.3
HGRI-51-1	0.5	01/22/08	--	5.35	na	154	0.98	--	21.2	12.4	17.8	11.5	--	--	15.9	--	--	--	45	63.3
	5	01/22/08	--	4.91	na	139	0.94	--	19.2	12.3	15.4	10.3	--	--	13.5	--	--	--	45.3	54.4
	10	01/22/08	--	3.2	na	154	0.824	--	15.2	8.89	10.9	9.68	--	--	7.76	--	--	--	34.6	60.2
HGRI-51-2	0.5	01/22/08	--	6.57	na	140	0.995	--	24.2	13.3	20.7	11.6	--	--	19.1	--	--	--	49.5	58.9
	5	01/22/08	--	4.84	na	150	1.14	--	26.9	14.5	21.6	12.8	--	--	20.8	--	--	--	54	66
	10	01/22/08	--	3.69	na	168	0.753	--	13.8	9.89	10.9	9.1	--	--	8.12	--	--	--	36.9	63.3
HGRI-53-1	0.5	01/21/08	--	4.32	na	48.3	0.324	--	9.37	3.52	8.92	4.71	--	--	7.27	--	--	--	17.6	19.1
	4	01/21/08	--	4.39	na	51.2	0.38	--	12.3	4.13	10.9	5.15	--	--	9.55	--	--	--	20.3	24.3
HGRI-54-1	0.5	01/21/08	--	4.9	na	150	0.708	--	17	10.1	14.8	10.2	--	--	13.4	--	--	--	37.3	58.8
	5	01/21/08	--	5.1	2.64	165	0.781	--	19.3	11.2	16.7	9.55	--	--	15.1	--	--	--	40	58.7
	10	01/21/08	--	4.25	na	205	0.661	--	10.4	10.5	7.76	8.11	--	--	8.85	--	--	--	38.8	69.4
HGRI-55-1	0.5	01/21/08	--	4.25	na	137	0.539	--	15.1	7.96	42.4	28.7	--	--	11.3	--	--	--	31	90.4
	5	01/21/08	--	7.24	7.5	286	0.877	--	21.3	14.7	30.2	24.3	--	--	15.4	--	--	--	54.2	139
HGRI-55-2	0.5	01/23/08	--	4.67	na	174	0.533	0.588	29.4	8.95	98.1	35.2	--	--	22.3	--	--	--	34.4	168
	5	01/23/08	--	3.68	na	176	0.45	0.955	21.3	8.61	132	41.7	--	1.38	20.1	--	--	--	29.6	156
HGRI-59-1	0.5	01/22/08	--	4.96	5.95	112	0.676	--	17.9	10.2	14.4	7.84	--	--	14.3	--	--	--	36.6	46.5
	5	01/22/08	--	1.53	na	54.4	--	--	3	3.8	2.17	2.57	--	--	2.17	--	--	--	12.2	20.6
HGRI-59-2	1	01/22/08	--	4.84	na	145	0.804	--	16.4	9.42	12.3	9.88	--	--	12.6	--	--	--	38.7	51.7
	5	01/22/08	--	4.48	na	176	0.461	--	8.49	7.61	7.3	4.26	--	--	5.99	--	--	--	28.9	46.8
BG-1	0.5	04/17/08	--	2.87	na	135	0.81	0.535	20.6	11.7	17.9	7.51	--	--	16.8	--	--	--	42.1	50
	5	04/17/08	--	3.37	na	138	0.869	--	18.7	9	13.2	7.09	--	--	11	--	--	--	44.8	50.9
BG-2	0.5	04/17/08	--	2.81	na	131	0.784	--	20.2	11.6	16.6	6.49	--	--	16	--	--	--	41.7	52.2
	5	04/17/08	--	2.43	na	138	0.633	--	12.2	9.6	10.5	5.53	--	--	9.65	--	--	--	34.5	53.6

Table 4

Summary of Metals Results in Soil (in mg/kg)
RFI Sampling Event, Former Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Antimony	Arsenic (6010)	Arsenic (6020)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
BG-3	0.5	04/17/08	--	3.2	na	148	0.76	--	20.1	11.5	17.2	6.95	--	--	15.6	--	--	--	40.6	50.9
	5	04/17/08	--	2.08	na	138	0.65	--	15.6	9.01	12.5	7.35	--	--	11	--	--	--	32.8	52.2
BG-4	0.5	04/17/08	--	4.08	na	157	0.77	0.597	20	11.8	18.4	30.3	--	--	16.3	--	--	--	41.3	69
	5	04/17/08	--	2.58	na	124	0.615	--	14.6	9.09	13.9	6.37	--	--	10.4	--	--	--	31	42.9
BG-5	1	04/17/08	--	3.7	na	148	0.571	0.511	14.6	10.6	14.1	8.63	--	--	11.8	--	--	--	35.1	64
	5	04/17/08	--	3.53	na	170	0.948	0.66	25.4	14.6	21.7	8.41	--	--	20.4	--	--	--	49	65.9
Cage Park, Inside Swale		01/23/08	--	2.18	na	25.4	--	--	8.13	1.97	6.97	8.93	--	--	3.5	--	--	--	10.1	26.3
Cage Park, Outside Swale		01/23/08	--	2.51	na	143	0.346	--	12	6.74	24.4	14	--	--	8.82	--	--	--	24.9	119
Cal/EPA CHHSL			380	0.24	0.24	63,000	1,700	7.5	100,000	3,200	38,000	3,500	180	4,800	16,000	4,800	4,800	63	6,700	100,000
US EPA Region IX PRG			410	0.25	0.25	67,000	1,930	450	100,000	1,900	41,000	150	310	5,100	20,000	5,100	5,100	67	1,000	100,000

Notes:

Cal/EPA CHHSL = California Environmental Protection Agency California Human Health Screening Levels for Commercial/Industrial Soil (January 2005)
US EPA PRG = United States Environmental Protection Agency Preliminary Remediation Goals for Industrial Soil (October 2004)
mg/kg = miligrams per kilogram
ft bgs = feet below ground surface
"--" = Not detected at or above respective laboratory reporting limits
na = Not analyzed

Table 5

Summary of Hexavalent Chromium in Soil (in mg/kg)
RFI Sampling Event, Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Hexavalent Chromium
HGRI-13-1	1	01/17/08	--
	5	01/17/08	--
HGRI-13-2	1.5	01/23/08	--
	5	01/23/08	--
HGRI-13-3	1.5	01/23/08	--
	5	01/23/08	--
HGRI-13-4	2	01/16/08	--
	5	01/16/08	--
HGRI-13-5	1.5	01/23/08	--
	5	01/23/08	--
HGRI-13-6	2	01/16/08	--
	5	01/16/08	--
HGRI-29-1	0.5	01/17/08	1.6
	5	01/17/08	--
	10	01/17/08	--
	15	01/17/08	--
HGRI-29-2	0.5	01/17/08	--
	5	01/17/08	--
	10	01/17/08	--
	15	01/17/08	--
HGRI-29-3	0.5	01/17/08	--
	5	01/17/08	--
	10	01/17/08	--
	15	01/17/08	--
HGRI-29-4	0.5	01/17/08	--
	5	01/17/08	--
	10	01/17/08	--
	15	01/17/08	--
HGRI-29/30-1	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--
HGRI-29/30-2	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--
HGRI-29/30-3	1	01/17/08	--
	5	01/17/08	--
	10	01/17/08	--
	15	01/17/08	--
HGRI-30-1	0.5	01/22/08	--
	5	01/22/08	--
	10	01/22/08	--
	15	01/22/08	--
HGRI-30/31-1	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--

Table 5

Summary of Hexavalent Chromium in Soil (in mg/kg)
RFI Sampling Event, Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Hexavalent Chromium
HGRI-30/31-2	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--
HGRI-30/31-3	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--
HGRI-31/32-1	0.5	01/15/08	--
	5	01/15/08	--
	10	01/15/08	--
	15	01/15/08	--
HGRI-31/32-2	0.5	01/15/08	--
	5	01/15/08	--
	10	01/15/08	--
	15	01/15/08	1.1
HGRI-31/32-3	0.5	01/16/08	--
	5	01/16/08	--
	10	01/16/08	--
	15	01/16/08	--
HGRI-32-1	0.5	01/15/08	--
	5	01/15/08	--
HGRI-32-2	0.5	01/15/08	--
	5	01/15/08	--
	10	01/15/08	--
	15	01/15/08	--
HGRI-32-3	0.5	01/15/08	--
	5	01/15/08	--
	10	01/15/08	--
	15	01/15/08	--
HGRI-32-4	0.5	01/15/08	--
	5	01/15/08	--
	10	01/15/08	--
	15	01/15/08	--
HGRI-34-1	0.5	01/21/08	--
	5	01/21/08	--
HGRI-34-2	0.5	01/21/08	--
	5	01/21/08	--
HGRI-34-3	0.5	01/21/08	--
	5	01/21/08	--
HGRI-34-4	0.5	01/21/08	--
	5	01/21/08	--
HGRI-35-1	0.5	01/21/08	--
	5	01/21/08	--
HGRI-35-2	0.5	01/21/08	--
	5	01/21/08	--
HGRI-35-3	0.5	01/21/08	--
	5	01/21/08	--

Table 5

Summary of Hexavalent Chromium in Soil (in mg/kg)
RFI Sampling Event, Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	Hexavalent Chromium
HGRI-35-5	1	01/23/08	--
	2.5	01/23/08	--
HGRI-59-1	0.5	01/22/08	1
	5	01/22/08	--
HGRI-59-2	1	01/22/08	--
	5	01/22/08	--
Cage Park, Inside Swale		01/23/08	--
Cage Park, Outside Swale		01/23/08	--
Cal/EPA CHHSL			17
US EPA Region IX PRG			30

Notes:

Cal/EPA CHHSL = California Environmental Protection Agency California Human Health Screening Levels for Commercial/Industrial Soil (January 2005)
US EPA Region IX PRG = United States Environmental Protection Agency Region IX Preliminary Remediation Goal for Industrial Soil (October 2004)
mg/kg = miligrams per kilogram
ft bgs = feet below ground surface
"--" = Not detected at or above respective laboratory reporting limits

Table 6

Summary of pH Values Measured in Soil
RFI Sampling Event, Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	pH
HGRI-8-1	1	01/23/08	7.84
HGRI-11/12-1	1	01/22/08	8.30
	4	01/22/08	7.76
HGRI-12-2	1	01/22/08	7.71
	5	01/22/08	7.28
HGRI-13-1	1	01/17/08	8.35
	5	01/17/08	7.99
HGRI-13-2	1.5	01/23/08	6.79
	5	01/23/08	7.03
HGRI-13-3	1.5	01/23/08	6.74
	5	01/23/08	6.75
HGRI-13-4	2	01/16/08	9.37
	5	01/16/08	9.26
HGRI-13-5	1.5	01/23/08	7.96
	5	01/23/08	6.80
HGRI-13-6	2	01/16/08	8.33
	5	01/16/08	8.52
HGRI-34-1	0.5	01/21/08	6.69
	5	01/21/08	6.46
HGRI-34-2	0.5	01/21/08	6.30
	5	01/21/08	6.70
HGRI-34-3	0.5	01/21/08	6.04
	5	01/21/08	6.22
HGRI-34-4	0.5	01/21/08	6.57
	5	01/21/08	6.28
HGRI-35-1	0.5	01/21/08	5.58
	5	01/21/08	6.91
HGRI-35-2	0.5	01/21/08	6.83
	5	01/21/08	6.88
HGRI-35-3	0.5	01/21/08	5.89
	5	01/21/08	6.55
HGRI-35-5	1	01/23/08	7.93
	2.5	01/23/08	7.62
HGRI-38-1	0.5	01/23/08	6.81
	5	01/23/08	6.68
	10	01/23/08	7.04
	15	01/23/08	6.90
HGRI-38-2	0.5	01/23/08	7.22
	5	01/23/08	6.57
	10	01/23/08	6.83
	15	01/23/08	7.19
	20	01/23/08	7.74
HGRI-40-1	2.5	01/15/08	7.61
	5.5	01/15/08	7.54

Table 6

Summary of pH Values Measured in Soil
RFI Sampling Event, Highgrove Generating Station
January 2008

Sample ID#	Depth (ft bgs)	Date	pH
HGRI-40-2	2.5	01/15/08	7.70
	5	01/15/08	7.59
HGRI-40-3	2.5	01/15/08	7.59
	5	01/15/08	8.20
HGRI-40-4	1.5	01/15/08	8.50
	3.5	01/15/08	7.58
HGRI-40-5	1.5	01/15/08	7.07
HGRI-40-6	1	01/16/08	8.51
	5	01/16/08	8.43
HGRI-47-1	2	01/15/08	8.50
	5	01/15/08	3.44
HGRI-47-2	2	01/15/08	7.49
	5	01/15/08	8.75
HGRI-53-1	0.5	01/21/08	7.74
	4	01/21/08	6.39
HGRI-55-1	0.5	01/21/08	6.22
	5	01/21/08	6.01
HGRI-55-2	0.5	01/23/08	6.05
	5	01/23/08	6.06
Cage Park, Inside Swale	0.5	01/23/08	6.54
Cage Park, Outside Swale	0.5	01/23/08	7.13

Note:

ft bgs = feet below ground surface

Table 7

MS/MSD Analyte Table
RFI Sampling Event, Former Highgrove Generating Station
January 2008

MS/MSD Analyte	Sample ID#	Depth (ft bgs)	Date
Chromium VI	HGRI-13-5	5	01/24/08
	HGRI-29-2	15	01/17/08
	HGRI 29/30-1	15	01/16/08
	HGRI-31-1	5	01/22/08
	HGRI-32-4	0.5	01/15/08
	HGRI-32-4	5	01/15/08
	HGRI-34-1	5	01/21/08
	HGRI-34-3	0.5	01/21/08
	HGRI-35-3	5	01/21/08
	HGRI-59-2	1	01/22/08
Metals	HGRI-12-2	5	01/22/08
	HGRI-16-3	3.5	01/21/08
	HGRI-21-2	5	01/21/08
	HGRI-29-1	15	01/17/08
	HGRI-31/32-3	15	01/16/08
	HGRI-32-2	15	01/15/08
	HGRI-33-1	5	01/22/08
	HGRI-34-1	0.5	01/21/08
	HGRI-38-1	15	01/24/08
	HGRI-40-1	2.5	01/16/08
	HGRI-53-1	4	01/21/08
PCBs	HGRI-33-1	0.5	01/22/08
pH	HGRI-55-2	0.5	01/24/08
	Cage Park, Inside Swale		01/24/08
SVOCs	HGRI-16-3	0.5	01/21/08
	HGRI-21-2	0.5	01/21/08
	HGRI-26-1	0.5	01/24/08
TPH-CC	HGRI-3-2	5.5	01/24/08
	HGRI-11-1	5	01/22/08
	HGRI-19-2	15	01/18/08
	HGRI-23-2	1	01/16/08
	HGRI-35-2	0.5	01/21/08
	HGRI-35-2	5	01/21/08
	HGRI-38-1	5	01/24/08
	HGRI-38-2	5	01/24/08
	HGRI-49-2	23.5	01/18/08
	HGRI-54-1	5	01/21/08
	HGRI-55-1	5	01/21/08
	HGRI-58-2	1	01/18/08
	HGRI-61-4	5	01/24/08
VOCs	HGRI-38-1	5	01/24/08
	HGRI-51-1	5	01/22/08

Notes:

Metals = California Title 22 CAM-Metals
PCBs = polychlorinated biphenyls
SVOCs = semi-volatile organic compounds
TPH-CC = total petroleum hydrocarbons by carbon chain method
VOCs = volatile organic compounds
ft bgs = feet below ground surface

Table 8
Arsenic Concentrations
RFI Sampling Event, Former Highgrove Generating Station

Sample ID#	Arsenic (mg/kg)	Sample ID#	Arsenic (mg/kg)	Sample ID#	Arsenic (mg/kg)
HGRI-11/12-1	2.61	HGRI-30/31-2	8.3	HGRI-38-1	2.55
HGRI-11/12-1	3.79	HGRI-30/31-2	8	HGRI-38-1	2.65
HGRI-11-1	2.85	HGRI-30/31-2	6.02	HGRI-38-1	0.978
HGRI-11-1	2.33	HGRI-30/31-2	5.5	HGRI-38-2	2.63
HGRI-12-2	3.41	HGRI-30/31-3	11.1	HGRI-38-2	2.24
HGRI-12-2	3.66	HGRI-30/31-3	9.92	HGRI-38-2	2.78
HGRI-16-1	4.6	HGRI-30/31-3	6.28	HGRI-38-2	1.37
HGRI-16-1	2.25	HGRI-30/31-3	5.2	HGRI-38-2	1.05
HGRI-16-2	3.91	HGRI-30-1	3.18	HGRI-40-1	3.7
HGRI-16-2	3.59	HGRI-30-1	2.79	HGRI-40-1	2.95
HGRI-16-3	4.42	HGRI-30-1	5.66	HGRI-40-2	3.38
HGRI-16-3	5.34	HGRI-30-1	3.56	HGRI-40-2	4.7
HGRI-17-1	5.96	HGRI-31/32-1	1.86	HGRI-40-3	3.36
HGRI-17-1	3.82	HGRI-31/32-1	3.17	HGRI-40-3	3.77
HGRI-17-2	4.35	HGRI-31/32-1	2.24	HGRI-40-4	3.2
HGRI-17-2	3.21	HGRI-31/32-1	2.29	HGRI-40-4	3.52
HGRI-21-1	4.35	HGRI-31/32-2	3.75	HGRI-40-5	3.57
HGRI-21-1	3.36	HGRI-31/32-2	3.25	HGRI-40-5	3.03
HGRI-21-1	3.39	HGRI-31/32-2	3.03	HGRI-40-6	7.76
HGRI-21-1	1.73	HGRI-31/32-2	2.44	HGRI-40-6	8.86
HGRI-21-2	4.49	HGRI-31/32-3	7.23	HGRI-47-1	3.33
HGRI-21-2	2.92	HGRI-31/32-3	6.29	HGRI-47-1	3.59
HGRI-21-2	1.52	HGRI-31/32-3	9.19	HGRI-47-2	4.62
HGRI-21-2	1.64	HGRI-31/32-3	3.71	HGRI-47-2	3.75
HGRI-26-1	1.82	HGRI-31-1	3.79	HGRI-49-1	1.65
HGRI-26-1	2.02	HGRI-31-1	5.31	HGRI-49-1	2.02
HGRI-26-2	3.03	HGRI-31-1	2.87	HGRI-49-1	2.27
HGRI-26-2	2.56	HGRI-31-1	3.46	HGRI-49-1	4.17
HGRI-29/30-1	8.68	HGRI-32-1	1.8	HGRI-49-1	2.21
HGRI-29/30-1	9.31	HGRI-32-1	3.13	HGRI-49-2	2.23
HGRI-29/30-1	6.02	HGRI-32-1	3.65	HGRI-49-2	2.74
HGRI-29/30-1	8.27	HGRI-32-2	2.84	HGRI-49-2	3.85
HGRI-29/30-2	9.12	HGRI-32-2	3.76	HGRI-5/6-1	4.51
HGRI-29/30-2	8.42	HGRI-32-2	2.02	HGRI-5/6-1	2.43
HGRI-29/30-2	5.52	HGRI-32-2	1.61	HGRI-50-1	12.1
HGRI-29/30-2	7.68	HGRI-32-3	2.58	HGRI-50-1	5.18
HGRI-29/30-3	4.18	HGRI-32-3	1.9	HGRI-5-1	1.02
HGRI-29/30-3	2.25	HGRI-32-3	2.63	HGRI-5-1	3.4
HGRI-29/30-3	4.28	HGRI-32-3	2.48	HGRI-51-1	5.35
HGRI-29/30-3	3.52	HGRI-32-4	1.74	HGRI-51-1	4.91
HGRI-29-1	3.17	HGRI-32-4	2.4	HGRI-51-1	3.2
HGRI-29-1	3.16	HGRI-32-4	0.375	HGRI-51-2	6.57
HGRI-29-1	2.36	HGRI-32-4	1.46	HGRI-51-2	4.84
HGRI-29-1	1.19	HGRI-33-1	4.18	HGRI-51-2	3.69
HGRI-29-2	2.1	HGRI-33-1	4.2	HGRI-53-1	4.32
HGRI-29-2	4.29	HGRI-33-2	4.41	HGRI-53-1	4.39
HGRI-29-2	1.35	HGRI-33-2	4.04	HGRI-54-1	4.9
HGRI-29-2	2.03	HGRI-34-1	4.44	HGRI-54-1	5.1
HGRI-29-3	4.44	HGRI-34-1	3.54	HGRI-54-1	4.25
HGRI-29-3	1.79	HGRI-34-2	4.01	HGRI-55-1*	4.25
HGRI-29-3	1.98	HGRI-34-2	4.13	HGRI-55-1*	7.24
HGRI-29-3	2.51	HGRI-34-3	4.74	HGRI-55-2	4.67
HGRI-29-4	2.83	HGRI-34-3	4.64	HGRI-55-2	3.68
HGRI-29-4	2.77	HGRI-34-4	5.47	HGRI-59-1	4.96
HGRI-29-4	4.72	HGRI-34-4	4.52	HGRI-59-1	1.53
HGRI-29-4	3.36	HGRI-35-1	6.66	HGRI-59-2	4.84
HGRI-30/31-1	8.06	HGRI-35-1	2.63	HGRI-59-2	4.48
HGRI-30/31-1	11.1	HGRI-35-5*	4.08	HGRI-8-1	2.62
HGRI-30/31-1	7.61	HGRI-35-5*	2.8	Park Inside Swale	2.18
HGRI-30/31-1	5.8	HGRI-38-1	3.13	Park Outside Swale	2.51

Notes:
mg/kg = miligrams per kilogram

Table 8 (cont.)
Arsenic Concentrations
RFI Sampling Event, Former Highgrove Generating Station

Sample ID#	Arsenic (mg/kg)
HGRI-35-6*	4.01
HGRI-35-6*	3.6
HGRI-35-2*	4.87
HGRI-35-2*	3.12
HGRI-35-3*	5.43
HGRI-35-3*	5.16
BG-1*	2.87
BG-1*	3.37
BG-2*	2.81
BG-2*	2.43
BG-3*	3.2
BG-3*	2.08
BG-4*	4.08
BG-4*	2.58
BG-5*	3.7
BG-5*	3.53

Appendix D

EDR Lien and AUL Report

Cage Park
21660 Main Street
Grand Terrace, CA 92313

Inquiry Number: 6212139.7
October 05, 2020

EDR Environmental Lien and AUL Search

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

21660 Main Street
Cage Park
Grand Terrace, CA 92313

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

San Bernardino County Clerk
San Bernardino, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	Grant Deed
Title is vested in:	APS AUTO PARTS SPECIALIST INC
Title received from:	RIVERSIDE CANAL POWER COMPANY
Deed Dated	5/1/2014
Deed Recorded:	9/19/2014
Book:	NA
Page:	NA
Volume:	NA
Instrument:	2014-0346388
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	APS AUTO PARTS SPECIALIST INC
Parcel # / Property Identifier:	1167151770000
Comments:	See Exhibit

Deed Exhibit 1

RECORDING REQUESTED BY
First American Title NCS
AND WHEN RECORDED MAIL DOCUMENT AND TAX STATEMENT TO:

NAME APS Auto Parts Specialist, Inc.

STREET ADDRESS 100 E. Main St. Ste A

CITY, STATE & ZIP CODE Ontario, CA 91761

DTT Not of Public Record

Electronically Recorded in Official Records, County of San Bernardino

9/19/2014
09:40 AM
ALS
SAN

DENNIS DRAEGER
ASSESSOR - RECORDER - CLERK
691 First American

Doc #: 2014-0346388

Titles: 1	Pages: 5
Fees	37.00
Taxes	** Conf **
Other	.00
PAID	37.00

SPACE ABOVE FOR RECORDER'S USE ONLY

Grant Deed

Title of Document

THIS AREA FOR RECORDER'S USE ONLY

THIS COVER SHEET ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION
($3.00 Additional Recording Fee Applies)

MAIL TAX STATEMENT TO
RETURN ADDRESS ABOVE

RECORDING REQUESTED BY
First American Title Company National Commercial Services

AND WHEN RECORDED MAIL DOCUMENT TO:
APS Auto Parts Specialist, Inc.
100 E. Main Street, Suite A
Ontario, CA 91761

Space Above This Line for Recorder's Use Only

A.P.N.: 1167-151-66 and 1167-151-77

File No.: NCS-633533-ONT1 (KS)

GRANT DEED

The undersigned Grantor(s) declare(s) that Documentary Transfer Tax shall be shown on a separate Declaration or Statement of Tax Due and not of public record pursuant to revenue & taxation code 11932-11933.

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, **Riverside Canal Power Company, a California Corporation**

hereby GRANTS to **APS Auto Parts Specialist, Inc., a California Corporation**

the following described property in the City of **Grand Terrace**, County of **San Bernardino**, State of **California**:

PARCEL 1:

PROPOSED PARCEL 2 AS SHOWN ON CERTIFICATE OF COMPLIANCE FOR LOT LINE ADJUSTMENT NO. LLA 10-03 AS EVIDENCED BY DOCUMENT RECORDED MAY 21, 2013 AS INSTRUMENT NO. 2013-0214602 OF OFFICIAL RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PARCEL 9 OF CERTIFICATE OF COMPLIANCE RECORDED OCTOBER 28, 1997 AS INSTRUMENT NO. 97-394085 OF OFFICIAL RECORDS, DESCRIBED AS:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 6, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, AS SHOWN ON THE UNITED STATES GOVERNMENT SURVEY ON FILE IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT, SITUATED IN THE CITY OF GRAND TERRACE, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEASTERLY CORNER OF SAID SECTION 6, SAID POINT BEING THE INTERSECTION OF THAT EASTERLY LINE OF TAYLOR STREET (40 FEET WIDE) AND THE CENTERLINE OF MAIN STREET (33 FEET HALF WIDTH) AS SHOWN ON PARCEL MAP NO. 1810, FILED IN BOOK 16, PAGE 2 OF PARCEL MAPS IN THE OFFICE OF SAID COUNTY RECORDER OF SAID COUNTY;
THENCE NORTHERLY ALONG SAID EASTERLY LINE OF SAID SECTION, SAID LINE BEING THE EASTERLY LINE OF SAID TAYLOR STREET AS SHOWN ON SAID PARCEL MAP, NORTH 00°02'50" EAST, 1324.87 FEET TO A POINT OF INTERSECTION OF SAID EASTERLY LINES AND THE CENTERLINE OF PICO STREET (66 FEET WIDE) AS SHOWN ON SAID PARCEL MAP;
THENCE LEAVING SAID SECTION LINE AT RIGHT ANGLES FROM SAID SECTION LINE NORTH 89°57'10" WEST, 40.00 FEET TO A POINT ON THE WESTERLY LINE OF SAID TAYLOR STREET;
THENCE SOUTHERLY ALONG SAID WESTERLY LINE OF SAID TAYLOR STREET, BEING PARALLEL WITH AND 40 FEET WESTERLY, MEASURED AT RIGHT ANGLES, FROM SAID EASTERLY LINE OF SAID SECTION 6, SOUTH 00°02'50" WEST, 586.49 FEET TO THE EASTERLY PROLONGATION OF

Mail Tax Statements To: **SAME AS ABOVE**

THE SOUTHERLY LINE OF PARCEL 2 OF SAID CERTIFICATE OF COMPLIANCE TO THE TRUE POINT OF BEGINNING;
THENCE LEAVING SAID WESTERLY LINE OF SAID TAYLOR STREET, AND ALONG SAID PROLONGATION AND SOUTHERLY LINE OF PARCEL 2 NORTH 89°57'10" WEST, 641.24 FEET TO A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF THE BURLINGTON NORTHERN, ATCHISON, TOPEKA AND SANTA FE RAILWAY (FORMERLY THE CALIFORNIA SOUTHERN RAILROAD); THENCE SOUTHERLY ALONG SAID EASTERLY RIGHT-OF-WAY LINE SOUTH 02°05'21" WEST, 283.56 FEET TO A POINT OF INTERSECTION WITH THE EASTERLY LINE OF A TRACT OF LAND CONVEYED TO THE CALIFORNIA SOUTHERN RAILROAD BY DEED RECORDED IN BOOK 45, PAGE 10 OF DEEDS IN THE OFFICE OF SAID COUNTY RECORDER; THENCE SOUTHERLY ALONG SAID LAST MENTIONED EASTERLY LINE SOUTH 04°14'23" EAST, 420.48 FEET TO A POINT ON THE NORTHERLY LINE OF SAID MAIN STREET, (33 FEET HALF WIDTH), AS CONVEYED TO THE COUNTY OF SAN BERNARDINO BY DEED RECORDED IN BOOK 111, PAGE 94 OF DEEDS IN THE OFFICE OF SAID COUNTY RECORDER;
THENCE EASTERLY ALONG SAID NORTHERLY LINE OF MAIN STREET, SOUTH 89°43'09" EAST, 494.91 FEET TO A POINT ON THE WESTERLY LINE OF LAND CONVEYED TO THE EAST RIVERSIDE IRRIGATION DISTRICT BY DEED RECORDED IN BOOK 174, PAGE 209 OF DEEDS IN THE OFFICE OF SAID COUNTY RECORDER;
THENCE LEAVING SAID NORTHERLY LINE OF MAIN STREET, NORTHERLY ALONG SAID WESTERLY LINE NORTH 00°02'50" EAST 99.00 FEET TO A POINT ON THE NORTHERLY LINE OF SAID LAND CONVEYED TO SAID EAST RIVERSIDE IRRIGATION DISTRICT;
THENCE EASTERLY ALONG SAID LAST MENTIONED NORTHERLY LINE, SOUTH 89°43'09" EAST, 125.00 FEET TO A POINT ON SAID WESTERLY LINE OF SAID TAYLOR STREET;
THENCE NORTHERLY ALONG SAID WESTERLY LINE OF SAID TAYLOR STREET NORTH 00°02'50" EAST, 606.22 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM ALL THAT CERTAIN "SEVERED PROPERTY" AS DESCRIBED AND SET FORTH IN THE GRANT DEED RECORDED APRIL 2, 1998 AS INSTRUMENT NO. 123457 OFFICIAL RECORDS.

AS SHOWN ON EXHIBIT "C" ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.

PARCEL 2:

THE EASEMENTS CREATED BY THAT CERTAIN EASEMENT AND COVENANT AGREEMENT DATED APRIL 2, 1998 AND RECORDED APRIL 2, 1998 AS INSTRUMENT NO. 98-123458 OF OFFICIAL RECORDS, BETWEEN SOUTHERN CALIFORNIA EDISON COMPANY AND RIVERSIDE CANAL POWER COMPANY, A CALIFORNIA CORPORATION, OVER THE FOLLOWING DESCRIBED LAND:

PARCEL 2 OF CERTIFICATE OF COMPLIANCE RECORDED OCTOBER 28, 1997 AS INSTRUMENT NO. 97-394085 OF OFFICIAL RECORDS.

THOSE PORTIONS OF GOVERNMENT LOT 3 AND THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 6, TOWNSHIP 2 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN ON THE UNITED STATES GOVERNMENT SURVEY ON FILE IN THE OFFICE OF THE BUREAU OF LAND MANAGEMENT, TOGETHER WITH A PORTION OF LOT 41 AS SHOWN ON THE MAP OF THE LANDS OF THE EAST RIVERSIDE LAND COMPANY FILED IN BOOK 6, PAGE 44 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, SITUATED IN THE CITY OF GRAND TERRACE, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEASTERLY CORNER OF SAID SECTION 6, SAID POINT BEING THE INTERSECTION OF THE EASTERLY LINE OF TAYLOR STREET (40 FEET WIDE) AND THE CENTERLINE OF MAIN STREET (33 FEET HALF WIDTH) AS SHOWN ON PARCEL MAP NO. 1810 FILED IN BOOK 16, PAGE 2 OF PARCEL MAPS IN THE OFFICE OF SAID COUNTY RECORDER; THENCE NORTHERLY ALONG SAID EASTERLY LINE OF SAID SECTION, SAID LINE BEING THE EASTERLY LINE OF SAID TAYLOR STREET AS SHOWN ON SAID PARCEL MAP, NORTH 00° 02' 50" EAST, 1324.87 FEET TO A POINT OF INTERSECTION OF SAID EASTERLY LINES AND THE CENTERLINE OF PICO STREET (66 FEET WIDE) AS SHOWN ON SAID PARCEL MAP; THENCE CONTINUING NORTHERLY ALONG SAID EASTERLY LINE OF SAID SECTION, SAID LINE BEING THE CENTERLINE OF SAID TAYLOR STREET (33 FEET HALF WIDTH) AS SHOWN ON A RECORD OF SURVEY FILED IN BOOK 99, PAGE 32 OF RECORDS OF SURVEY IN SAID OFFICE OF SAID
COUNTY RECORDER, NORTH 00° 02' 17" EAST, 596.29 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTHERLY ALONG SAID EASTERLY LINE OF SAID SECTION AND SAID CENTERLINE, SOUTH 00° 02' 17" WEST 422.28 FEET TO A POINT ON A LINE BEING PARALLEL WITH AND MEASURED 141.00 FEET NORTHERLY, MEASURED AT RIGHT ANGLES, FROM THE WESTERLY PROLONGATION OF THE SOUTHERLY LINE OF SAID LOT 41; THENCE EASTERLY ALONG SAID PARALLEL LINE, SOUTH 89° 52' 46" EAST, 118.00 FEET TO A POINT ON A LINE MEASURED 85.00 FEET EASTERLY MEASURED AT RIGHT ANGLES, FROM THE WESTERLY LINE OF SAID LOT 41; THENCE SOUTHERLY, ALONG SAID LAST MENTIONED PARALLEL LINE SOUTH 00° 02' 17" WEST, 141.01 FEET TO A POINT ON SAID SOUTHERLY LINE OF SAID LOT 41; THENCE WESTERLY ALONG SAID SOUTHERLY LINE NORTH 89° 52' 46" WEST, 70.00 FEET TO A POINT ON A LINE MEASURED 15.00 FEET EASTERLY, MEASURED AT RIGHT ANGLES, FROM SAID WESTERLY LINE OF SAID LOT 41; THENCE NORTHERLY ALONG SAID LAST MENTIONED PARALLEL LINE NORTH 00° 02' 17" EAST 71.01 FEET; THENCE AT RIGHT ANGLES NORTH 89° 57' 43" WEST, 439.66 FEET; THENCE AT RIGHT ANGLES SOUTH 00° 02' 17" WEST, 42.05 FEET; THENCE AT RIGHT ANGLES NORTH 89° 57' 43" WEST, 209.93 FEET; THENCE SOUTH 00° 27' 06" WEST, 106.14 FEET; THENCE SOUTH 89° 58' 05" EAST, 166.51 FEET; THENCE SOUTH 00° 02' 50" WEST, 542.20 FEET; THENCE NORTH 89° 57' 10" WEST, 245.40 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF THE BURLINGTON NORTHERN, ATCHISON, TOPEKA AND SANTA FE RAILWAY; THENCE NORTHERLY ALONG SAID EASTERLY RIGHT OF WAY LINE, NORTH 02° 05' 21" EAST, 989.63 FEET TO A POINT OF INTERSECTION WITH THE EASTERLY RIGHT OF WAY LINE OF THE RIVERSIDE CANAL AS DESCRIBED IN THE JUDGEMENT IN EMINENT DOMAIN AND FINAL ORDER OF CONDEMNATION RECORDED MAY 23, 1961 IN BOOK 2911, PAGE 299 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTHERLY ALONG SAID LAST MENTIONED EASTERLY RIGHT OF WAY LINE NORTH 16° 18' 44" EAST, 200.13 FEET TO A POINT ON A LINE THAT BEARS SOUTH 89° 53' 09" WEST 589.83 FEET FROM SAID TRUE POINT OF BEGINNING; THENCE EASTERLY ALONG SAID LINE, NORTH 89° 53' 09" EAST, 589.83 FEET TO SAID TRUE POINT OF BEGINNING;

EXCEPTING THEREFROM THAT PORTION OF THE SOUTHERN PACIFIC RAILROAD (33 FEET WIDE);

ALSO EXCEPTING THEREFROM THE WESTERLY 15 FEET OF SAID LOT 41 AS CONVEYED TO THE SOUTHERN CALIFORNIA MOTOR ROAD COMPANY RECORDED APRIL 25, 1888 IN BOOK 73 PAGE 345 OF DEEDS.

A.P.N.: 1167-151-66 and 1167-151-77

File No.: NCS-633533-ONT1 (jd)

Dated: **05/01/2014**

Riverside Canal Power Company, a
California corporation

By: Weikko Wirta, President

STATE OF California)SS
COUNTY OF Los Angeles)

On May 14, 2014, before me, C. R. Serpas, Notary Public, personally appeared Weikko Wirta, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

C. R. SERPAS
COMM. # 1919040
NOTARY PUBLIC • CALIFORNIA
LOS ANGELES COUNTY
My Commission Expires
December 26, 2014

Signature
C. R. Serpas, Notary Public

My Commission Expires: December 26, 2014 *This area for official notarial seal*

Notary Name: Clarissa Renee Serpas
Notary Registration Number: 1919040

Notary Phone: 562 493 7340
County of Principal Place of Business: Los Angeles

Appendix E

Historical Research Documentation

Cage Park

21660 Main Street

Grand Terrace, CA 92313

Inquiry Number: 6212139.11

October 01, 2020

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/01/20

Site Name:

Cage Park
21660 Main Street
Grand Terrace, CA 92313
EDR Inquiry # 6212139.11

Client Name:

Alta Environmental
3777 Long Beach Blvd
Long Beach, CA 90807-0000
Contact: Eric Fraske

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1995	1"=500'	Acquisition Date: October 03, 1995	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1974	1"=500'	Flight Date: November 26, 1974	USGS
1967	1"=500'	Flight Date: July 15, 1967	USDA
1959	1"=500'	Flight Date: October 15, 1959	USDA
1953	1"=500'	Flight Date: January 23, 1953	USDA
1949	1"=500'	Flight Date: May 06, 1949	USDA
1938	1"=500'	Flight Date: June 03, 1938	USDA
1931	1"=500'	Flight Date: September 18, 1931	FAIR

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 6212139.11
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 1995
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 1989
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 1985
= 500'
N
EDR

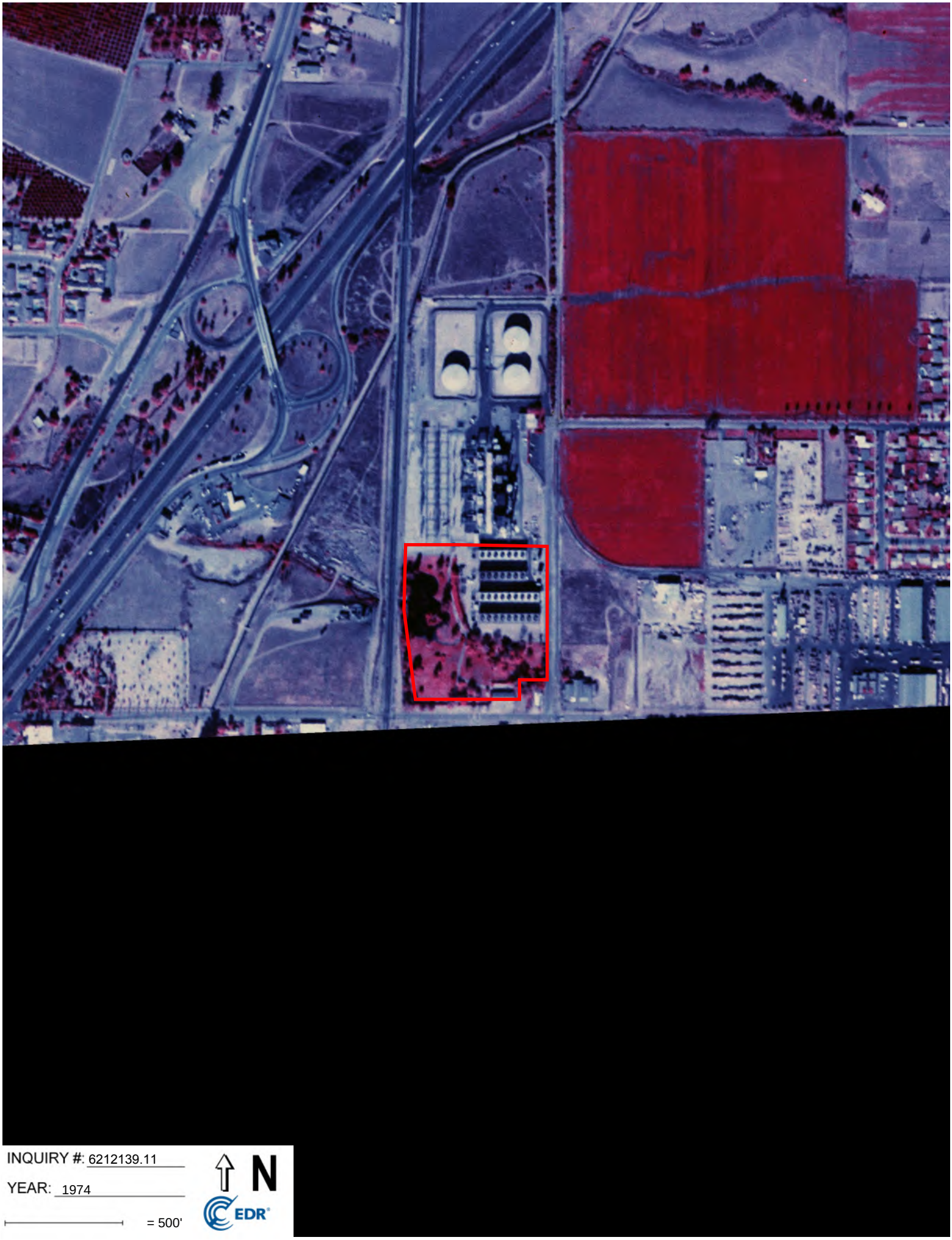
INQUIRY #: 6212139.11

YEAR: 1978

= 500'

N

EDR



INQUIRY #: 6212139.11

YEAR: 1974

= 500'

N

EDR


INQUIRY #: 6212139.11
YEAR: 1967
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 1959
= 500'
N
EDR


INQUIRY #: 6212139.11
YEAR: 1953
= 500'
N
EDR

INQUIRY #: 6212139.11

YEAR: 1949

= 500'

N

EDR


INQUIRY #: 6212139.11
YEAR: 1938
= 500'
N
EDR

INQUIRY #: 6212139.11

YEAR: 1931

= 500'

N

EDR

Cage Park
21660 Main Street
Grand Terrace, CA 92313

Inquiry Number: 6212139.5
October 01, 2020

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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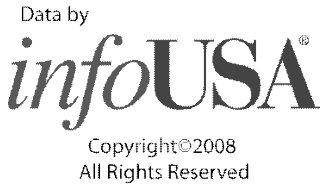


RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1976	☑	☐	Haines Criss-Cross Directory
1971	☑	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

21660 Main Street
Grand Terrace, CA 92313

Year	*CD Image*	*Source*	
MAIN ST			
2017	pg A1	EDR Digital Archive	
2014	pg A3	EDR Digital Archive	
2010	pg A5	EDR Digital Archive	
2005	pg A7	EDR Digital Archive	
2000	pg A9	EDR Digital Archive	
1995	pg A11	EDR Digital Archive	
1992	pg A13	EDR Digital Archive	
1985	pg A15	Haines Criss-Cross Directory	
1980	pg A16	Haines Criss-Cross Directory	
1976	pg A17	Haines Criss-Cross Directory	
1976	pg A18	Haines Criss-Cross Directory	
1971	pg A19	Haines Criss-Cross Directory	
W MAIN ST			
2017	pg A2	EDR Digital Archive	
2014	pg A4	EDR Digital Archive	
2010	pg A6	EDR Digital Archive	
2005	pg A8	EDR Digital Archive	
2000	pg A10	EDR Digital Archive	
1995	pg A12	EDR Digital Archive	
1992	pg A14	EDR Digital Archive	
1985	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1980	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1976	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source
1971	-	Haines Criss-Cross Directory	Target and Adjoining not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 2017

21496	NATIONAL LOGISTICS TEAM LLC
21506	HARRIS TRANSFER
	PRECISION FLEET REPAIR
21516	AMERICAN METAL RECYCLING
	DUNCAN BROS INC
	JENSEN STRUCTURES
21582	BARTEL HEATING & AIR
	VENVEST BALLARD
21810	COLTON JOINT UNIFIED SCHOOL DISTRICT
	THE BROOK
22200	MILLER, LAREN
22544	BERG, JAMES D
22554	CASTRO, FIDEL O
22566	COVER, SEAN
22576	CASH, JANET A
22586	YOUNG, ILENE G
22596	RINGWALD, JANIS R
22616	ALONZO, JOHN I
22626	CHRISTIAN, CHAD M
22638	PRIEBE, JESSICA R
22648	ORNELAS, RALPH
22658	RODRIGUEZ, JESSE B
22670	SAUCEDA, MEGAN R
22690	ESCOBEDO, V
22710	TORRES, RONALD T
22730	WALEAN, ANDRY A
22740	ZAKHARY, EMIL A
22750	RIDGE, BOBETTE R
22760	BEES, DEBORAH D
22780	SPENCER, CARRIE C
22790	COLE, RUSSELL J
22800	UNG, JENNY L
22810	KIDD, DENIS W
22820	HALE, DAVID L
22830	OSLER, QUE

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 2017

454	JO, JAMES K
530	DIAZ, C
548	CARTER, WARREN L
608	FISHER, DAVID L
622	ARROYO, CANDICE
630	ROCHIN, GILBERT
650	STOUFFER, ROBERT C
668	PULIDO, ARNULFO P
678	GONZALEZ, WALTER O
686	SULLIVAN, JOHN D
690	SERNA, ANA M
708	FLOREZ, BONIFACIO G
716	SABALA, MARIO
726	SHIVERY, JOHN C
734	PENALOZA, BACILIO
750	MARTINEZ, ALEX
760	BRICENO, JESUS G
776	MEDINA, JOSE J
784	GUSTAFSON, RONALD W
808	TALLEY, TYLENE M
840	LUPA, ZAMORA
	STREMPKE, KRISTI
842	GUTIERREZ, NAYELY
844	HERNANDEZ, ELIZABETH
1108	MADRID, MATEO

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 2014

21506	HARRIS TRANSFER
	PRECISION FLEET REPAIR
21516	ADT SECURITY SERVICES
	JENSEN STRUCTURES
21810	COLTON JOINT UNIFIED SCHOOL DISTRICT
22200	DIAZ, ANNE A
22544	BERG, JAMES D
22554	CASTRO, FIDEL A
22566	COVER, SEAN
22576	CASH, JANET A
22586	OCCUPANT UNKNOWN,
22596	RINGWALD, JANICE R
22616	ALONZO, JOHN I
22626	CHRISTIAN, CHAD M
22638	LANSDOWN, DONNA J
22648	OCCUPANT UNKNOWN,
22658	RODRIGUEZ, DAVID
22670	COMBS, KENNETH C
22678	DUSSEAU, LAMONT
22690	ESCOBEDO, ADRIAN
22700	MINASYAN, LILIT
22710	TORRES, RONALD T
22720	COPELIN, LES J
22730	KEITH, MUNDT
22740	ZAKHARY, EMIL A
22760	BEES, GREG
22770	OCCUPANT UNKNOWN,
22780	STEHR, JEFF G
22790	COLE, RUSSELL J
22800	UNG, JENNY L
22810	ATHEY, CHRISTY
22820	HALE, DAVID L
22830	OSLER, QUE

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 2014

430	OCCUPANT UNKNOWN,
454	JO, JAMES K
462	MCKINNEY, MARK
530	DIAZ, C
548	CARTER, WARREN L
622	ARROYO, CANDICE
630	ROCHIN, GILBERT
650	NG, WANG C
668	MARKIE, DAVID A
678	GIL, TERRY O
686	SULLIVAN, DALE
690	SERNA, ANA M
708	FLOREZ, BONIFACIO G
716	ABOYTES, JENISE D
726	SHIVERY, JOHN C
734	CERVANTES, JOSE C
742	TELLEZ, LETICIA
750	MARTINEZ, ALEX
760	BRICENO, JESUS G
768	JONES, JENELLE
776	MEDINA, JOSE J
784	DIAS, DONNA M
808	OCCUPANT UNKNOWN,
826	OCCUPANT UNKNOWN,
842	TORRES, ISAIAS E
844	HERNANDEZ, ELIZABETH
846	OCCUPANT UNKNOWN,
1108	MADRID, MATEO

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 2010

21506	HARRIS TRANSFER
	PRECISION FLEET REPAIR
21516	JENSEN STRUCTURES
21582	BARTEL HEATING & AIR COND
21850	INLAND TIMBER
	STOCKTON BUILDING SUPPLY
22544	OPITZ, MARK J
22554	CASTRO, FIDEL A
22566	FLORES, VALERIE
22576	CASH, JANET A
22586	HORSPOOL, WINIFRED B
22596	RINGWALD, JANIS R
22616	OCCUPANT UNKNOWN,
22626	DOMINGUEZ, ENRIQUE
22638	LANSDOWN, DONNA J
22648	OCCUPANT UNKNOWN,
22658	RODRIGUEZ, JESSE B
22670	MCALMOND, LARAMIE N
22690	ESCOBEDO, V
22700	MINASYAN, LILIT
22710	TORRES, DAVID W
22720	COPELIN, LES J
22730	WALEAN, ANDRY A
22740	OCCUPANT UNKNOWN,
22750	BENTJEN, KIMBERLY
22760	BEES, TIMOTHY J
22770	LESLIE, PRESTON L
22780	STEHR, JEFF G
22790	COLE, RUSSELL J
22800	UNG, JENNY L
22810	GONZALEZ, ANGELINA
22820	HALE, DAVID L
22830	GAMBOA, DEBRA N

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 2010

430	VASQUEZ, JACK
454	OCCUPANT UNKNOWN,
462	MCKINNEY, MARK
530	GARCIA & SONS TRUCKING
	GARCIA, NAPOLEON G
548	CARTER, WARREN L
622	ARROYO, ALBERTO P
630	ESPINOZA, NANCY L
650	S & M MATERIALS
	STOUFFER, ROBERT C
668	MARKIE, DAVID A
678	GIL, TERRY O
686	SULLIVAN, CORENE M
690	SERNA, JUAN F
708	FLOREZ, BONIFACIO G
716	OCCUPANT UNKNOWN,
726	SHIVERY, CHARLES
734	GOMEZ, MARIO R
742	VARGAS, JUAN J
760	BRICENO, JESUS G
768	JONES, INGE
776	DEDON, TAMMY
784	GUSTAFSON, RONALD W
796	GUTIERREZ, MERCY V
808	TALLEY, FOY B
826	OCCUPANT UNKNOWN,
840	FORREST, MONIQUE F
	GENOVA, DON
	VALADEZ, PETER
842	OCCUPANT UNKNOWN,
844	OCCUPANT UNKNOWN,
846	OCCUPANT UNKNOWN,
1108	MENDEZ, ARMANDO R

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 2005

21582	BARTEL HEATING & AIR
21800	DIXIELINES
	HAMPTON LUMBER SALES
21850	INLAND TIMBER
	MASON MART
22200	BALLARD, BLANCHE E
22544	OCCUPANT UNKNOWN,
22554	OCCUPANT UNKNOWN,
22566	CHRISP, DAVID R
22576	OCCUPANT UNKNOWN,
22586	GREEN, WINIFRED B
22596	RINGWALD, JANIS R
22626	GUTEKUNST, GERARD A
22638	LANSDOWN, DONNA J
22658	RODRIGUEZ, RITA
22670	MCALMOND, LARAMIE N
22678	BRUCE, STEPHANIE L
22690	ESCOBEDO, JOSE L
22700	VIDAL, IRVING
22710	TORRES, DAVID W
22720	BAUGHN, DAVID A
22730	WALEAN, ANDRY A
22740	HUIZAR, JUAN C
22750	BENTJEN, KIMBERLY
22760	BEES, TIMOTHY J
22770	LESLIE, PRESTON L
22780	STEHR, JEFF G
22790	COLE, RUSSELL J
22800	UNG, JENNY L
22830	OSLER, QUE

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 2005

430	OCCUPANT UNKNOWN,
454	OCCUPANT UNKNOWN,
462	STRAHL, ROSALIE M
530	GARCIA & SONS TRUCKING
	GARCIA, ERNIE J
548	CARTER, WARREN L
622	SALAZAR, FRANCISCO
650	STOUFFER, DANNY L
668	MARKIE, DAVID A
678	GIL, TERRY
690	OCCUPANT UNKNOWN,
708	DEHARO, RANDY
716	OCCUPANT UNKNOWN,
726	SHIVERY, CHARLES
734	GOMEZ, MARIO R
742	VARGAS, JUAN J
750	LANE, PAUL S
760	RICENO, JESUS
768	JONES, INGE
776	GARCIA, C
784	GUSTAFSON, RONALD W
796	OCCUPANT UNKNOWN,
808	TALLEY, EDDY E
826	OCCUPANT UNKNOWN,
840	GENOVA, DON
	MCKAY, DON
	VALADEZ, PETER
844	AUSTIN, JOHN
846	NAVARRO, GUSTAVO
1108	ACEVES, ANDREA

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 2000

21496	MID CAL EXPRESS INCORPORATED
21506	HARRIS TRANSFER
21516	AMERICAN MODULAR STRUCTURES INCORPORATED
21750	PRIVATE LINE K & N ENGINEERING
21800	DIXIELINE LUMBER COMPANY
	MASON MART
	WESPRO LUMBER
21850	INLAND TIMBER
21900	THOMSON EQUITIES INCORPORATED
22200	BALLARD, BLANCHE L
	FRANKLIN, DON
22586	GREEN, W B
22606	KRAVETZ, RONALD M
22626	GUTEKUNST, GERARD
22648	DAVIS, HOWARD L
22670	SWIGART, W
22678	COWLEY, CHARITY A
22700	TIA, ROMEO
22710	TORRES, DAVID W
22720	BAUGHN, LISA
22730	SUMANTI, KRISHNA A
22760	BEES, TIMOTHY
22770	OCCUPANT UNKNOWN,
22780	SHERMER, N J
22790	GONZALEZ, PABLO J
22810	POPMA, DANIEL G
22820	HALE, DAVID L
22830	KOLESZAR, JAMES

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 2000

454	OCCUPANT UNKNOWN,
462	STRAHL, ELDEN M
480	OCCUPANT UNKNOWN,
530	GARCIA, N G
548	STOUFFER, DANNY L
734	CANNON, CHARLES
744	OCCUPANT UNKNOWN,
750	MERGY, ROBERT E
768	JONES, INGE
784	GUSTAFSON, MARIE M
844	AUSTIN, JOHN
846	MACIASALVAREZ, MIGUEL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 1995

21506	GOLDEN ALUMINUM CO
21516	AMERICAN MODULAR STRUCTURES
	CAL MOBIL LEASING INC
21582	BARTEL HEATING & AIR COND
21750	K & J PLATING
21800	TAYLOR LUMBER CO
22200	BALLARD, BLANCHE L
	FRANKLIN, DON
22544	ROBERT, BRUCE
22576	OCCUPANT UNKNOWNN
22586	GREEN, LISLE R
22596	RINGWALD, JANIS R
22606	KRAVETZ, RONALD M
22616	LOSI, MARK
22626	GUTEKUNST, GERARD A
22638	ZANDBERGEN, ROBERT
22670	JOHNSON, AARON
22678	WAGNER, G L
22690	CAMATO, FELIN
22700	WOOD, TIMOTHY M
22720	WIENER, FRANK L
22740	NIERE, NORINA
22750	WILSON, BERNARD E
22760	HERMAN, ROY T
22770	BARTLETT, CAROLYN R
22780	HILL, JANIE M
22790	GONZALEZ, PABLO JR
22800	UNG, MENG

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 1995

454	LEE, S
462	STRAHL, ELDEN M
548	STOUFFER, DANNY L
608	FISHER, MARY A
622	HOLLAND, SAMUEL R
630	OCCUPANT UNKNOWNN
650	ROBBINS, F H
668	MARKIE, DAVID W
678	GIL, TERRY
686	OCCUPANT UNKNOWNN
714	OCCUPANT UNKNOWNN
716	ABOYTES, JANET
726	SHIVERY, CRYSTAL
734	OCCUPANT UNKNOWNN
742	VARGAS, JUAN
750	OCCUPANT UNKNOWNN
760	MCBRIDE, OWEN C
768	OCCUPANT UNKNOWNN
776	MORSE, JAMES
784	GUSTAFSON, JOHN
796	VALADEZ, JENETTE
808	TALLEY, FOY B
840	OCCUPANT UNKNOWNN
846	OCCUPANT UNKNOWNN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

MAIN ST 1992

21516	AMER MODULR STRCTRE
	CAL MOBIL LEASING
	PAC RECYCLING CNTR
21750	K&N PLATING OFC
21800	TAYLOR LUMBER CO
21850	INLAND TIMBER CO
21900	A B C SUPPLY CO INC
	THOMSON EQTYS INC
22200	BALLARD, BLANCHE L
	FRANKLIN, DON
22576	BATTLE, SCOTT E
22586	GREEN, LISLE R
22670	NASHED, ARNOLD
22690	CAMATO, FELIN
22710	GRAND TER HORIZONS
	GRAND TERR HORIZONS
22740	NIERE, NORINA
22790	GONZALEZ, PABLO JR
22800	UNG, MENG
22820	TABURA, DAVID E
22872	ANDERSON, M

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

W MAIN ST 1992

462 STRAHL, ELDEN M
548 STOUFFER, DANNY L
630 SCHOTT, R A
742 VARGAS, JUAN
768 JONES, WILLIAM R
808 TALLEY, FOY B

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

MAIN ST 1985

MAIN 92324 COLTON

SAN BERNARDINO CO

21506	GOLDEN RECYCLE CO	788-4101 +6
21516	AFCOM MANUFACTURING	682-1101 +6
21750	K&J PLATING CO	682-7012 +6
	KEN ENGNRG	683-7012 +6
21800	FIBER PRODUCTS CORP	783-0462 +6
21900	INLAND LUMBER CO	783-0021 +6
22586	GREEN LISLE R	763-0445 +6
22646	NISHKIAN GREG	783-0620 +6
22690	SILAO NERCISO	763-1543 +6
22872	ANDERSON WARREN	783-1433 +6

* 6 BUS 6 RES 12 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

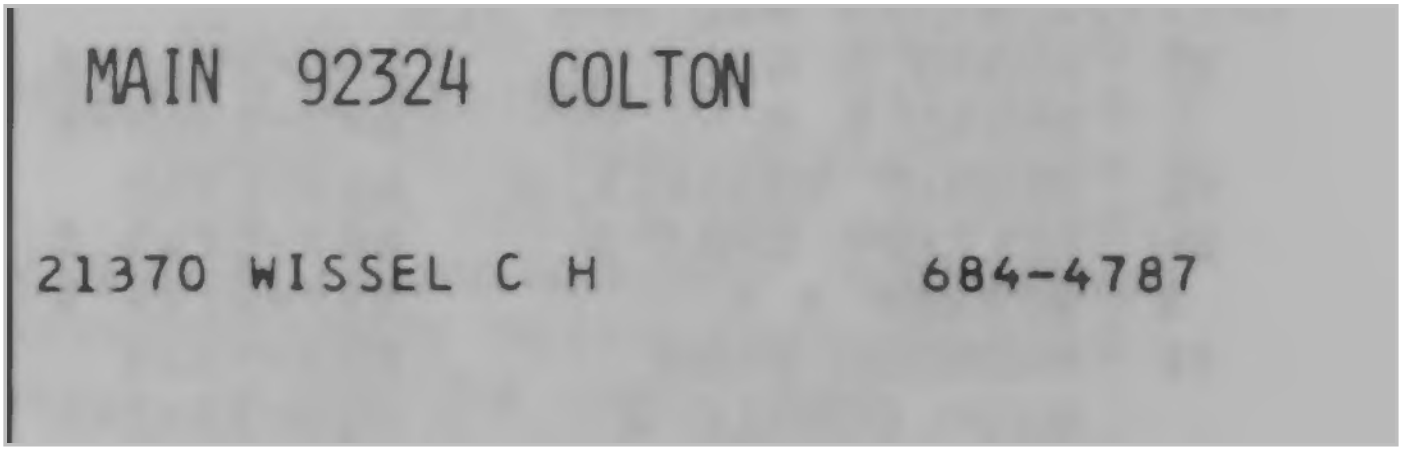
MAIN ST 1980

MAIN 92324 COLTON

21370	WISSEL C H	684-4787	
21404	XXXX	00	
21516★	CUSTOM CRAFT MFG CO	781-9550	9
21582★	TIPATOP	686-8800	8
21750★	K J ENTERPRISES	683-7013	+0
21900★	INLAND LUMBER CO	877-2001	+0
★	THERMA COUSTICS INC	783-0462	
22544	ANDERSON CLARA E	824-3224	9
	SOMMERVILLE P	824-3224	9
22554	CHRISTENSON FRANK	824-5024	+0
22576	TAN DARRYL	783-1508	9
22586	GREEN LISLE R	783-0445	9
22596	LENG JOHN H	783-0152	+0
22606	EISENBEISZ E	783-0441	9
	KRAVETZ RONALD M	783-0441	9
22616	THORP RICHARD E	783-1277	8
22648	MORRILL KENNETH B	783-1598	9
22670	PLUMB BRUCE A	825-9366	9
22678	YARNELL C	824-5726	+0
22690	NORCLIFFE ARTHUR	825-2882	9
22872	ADAIR FRANCIS L	781-6612	+0
★	AMER RED BALL TRANS	684-9444	4
	ANDERSON W ROY	825-2237	4
★	ANDERSONS ARABIANS	684-9444	4
★	ANDERSONS MVNG&STR	684-9444	4
	FOX R	684-5122	7
	KNAUSS BRUCE W	684-9444	8
★	8 BUS 19 RES	6 NEW	

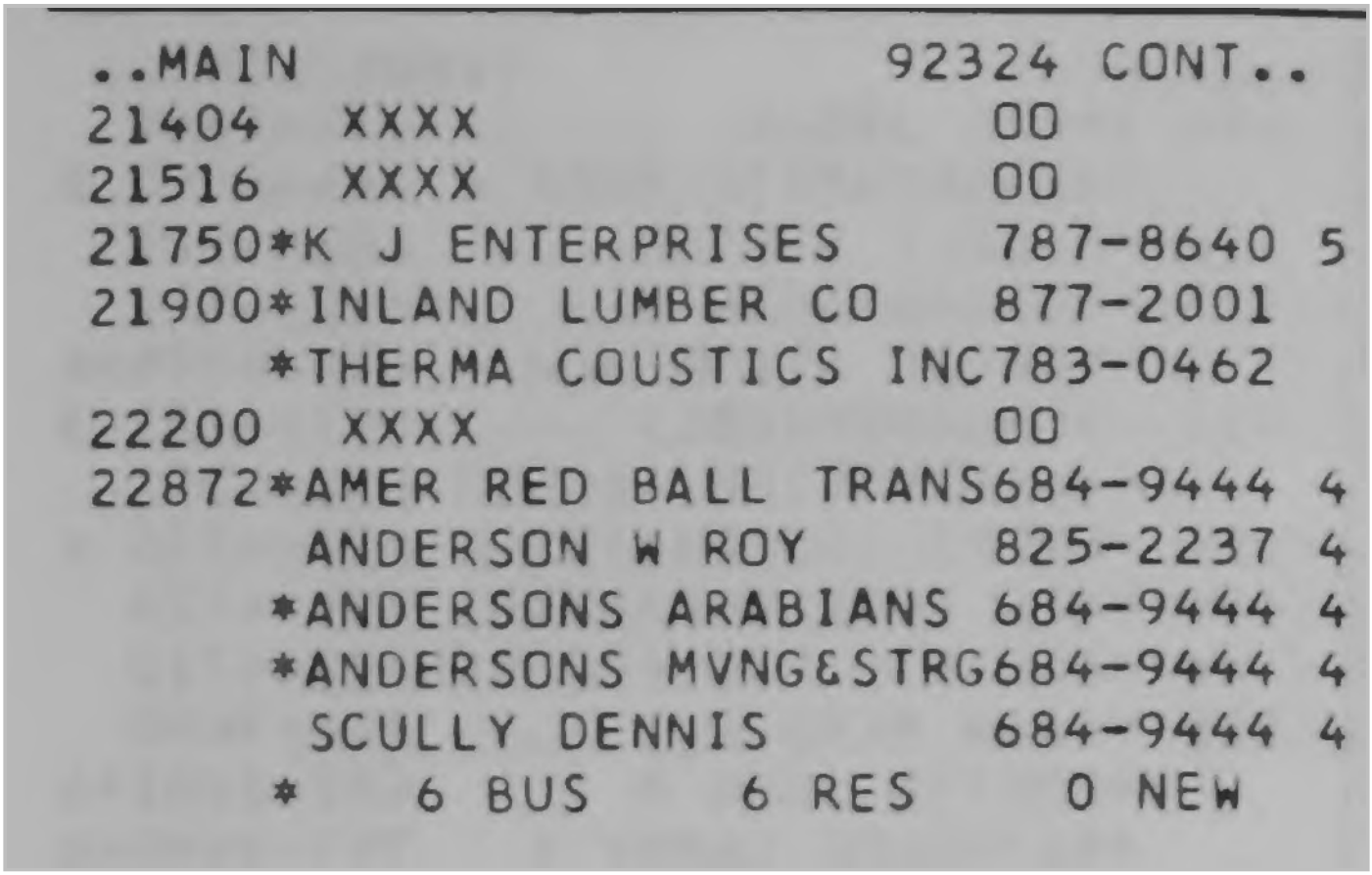
Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

MAIN ST 1976



Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

MAIN ST 1976



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..MAIN                              92324 CONT..
21404   XXXX                          00
21516   XXXX                          00
21750*K J ENTERPRISES                 787-8640 5
21900*INLAND LUMBER CO                877-2001
      *THERMA COUSTICS INC            783-0462
22200   XXXX                          00
22872*AMER RED BALL TRANS             684-9444 4
       ANDERSON W ROY                 825-2237 4
      *ANDERSONS ARABIANS             684-9444 4
      *ANDERSONS MVNG&STRG            684-9444 4
       SCULLY DENNIS                  684-9444 4
      *    6 BUS     6 RES      0 NEW
```

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

MAIN ST 1971

MAIN 92324 COLTON

21370	WISSEL C H	684-4787
21404	WISSEL EO	684-7034
21516	*HANCOCK BRICK CO	684-5000
21750	*RIVERSIDE PLATING	682-5861
21900	*INLAND BLDNG MATRLS	783-0021
	*INLAND LUMBER CO	783-0021
	*INLAND LUMBER CO	877-2001
	*THERMA COUSTICS INC	783-0462
22200	SEEVERS O H	686-3604
22872	ANDERSON W ROY	684-9444
	GARNER JOS JR	784-1716
	MILLER JAS A	686-3359
	* 6 BUS 6 RES	

Cage Park

21660 Main Street

Grand Terrace, CA 92313

Inquiry Number: 6212139.3

October 01, 2020

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/01/20

Site Name:

Cage Park
21660 Main Street
Grand Terrace, CA 92313
EDR Inquiry # 6212139.3

Client Name:

Alta Environmental
3777 Long Beach Blvd
Long Beach, CA 90807-0000
Contact: Eric Fraske

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Alta Environmental were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # DD6C-4F62-BEB3

PO # NA

Project TNSK-20-9873

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: DD6C-4F62-BEB3

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Cage Park

21660 Main Street

Grand Terrace, CA 92313

Inquiry Number: 6212139.4

October 01, 2020

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/01/20

Site Name:

Cage Park
21660 Main Street
Grand Terrace, CA 92313
EDR Inquiry # 6212139.4

Client Name:

Alta Environmental
3777 Long Beach Blvd
Long Beach, CA 90807-0000
Contact: Eric Fraske

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Alta Environmental were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: TNSK-20-9873

Coordinates:

Latitude:	34.020457 34° 1' 14" North
Longitude:	-117.332281 -117° 19' 56" West
UTM Zone:	Zone 11 North
UTM X Meters:	469321.86
UTM Y Meters:	3764473.98
Elevation:	943.00' above sea level

Maps Provided:

2012	1942, 1947
1980	1938, 1942
1975	1901
1973	1898
1967	1896
1954	
1953, 1954	
1943	

Topo Sheet Key

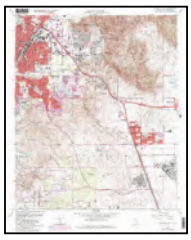
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets

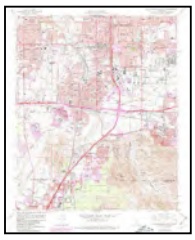
Riverside East
2012
7.5-minute, 24000

San Bernardino South
2012
7.5-minute, 24000

1980 Source Sheets

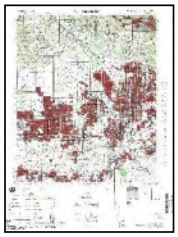


Riverside East
1980
7.5-minute, 24000
Aerial Photo Revised 1978



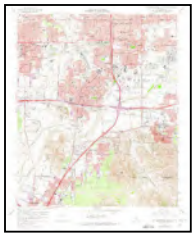
San Bernardino South
1980
7.5-minute, 24000
Aerial Photo Revised 1979

1975 Source Sheets



SAN BERNARDINO
1975
15-minute, 50000

1973 Source Sheets

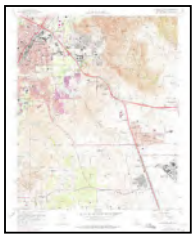


San Bernardino South
1973
7.5-minute, 24000
Aerial Photo Revised 1973

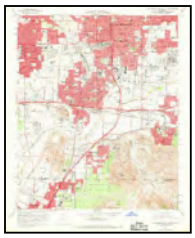
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1967 Source Sheets

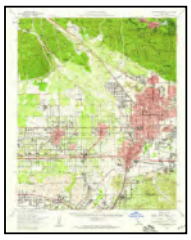


Riverside East
1967
7.5-minute, 24000
Aerial Photo Revised 1966



San Bernardino South
1967
7.5-minute, 24000
Aerial Photo Revised 1966

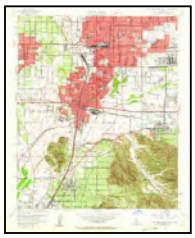
1954 Source Sheets



San Bernardino
1954
15-minute, 62500
Aerial Photo Revised 1952

1953, 1954 Source Sheets

Riverside East
1953
7.5-minute, 24000
Aerial Photo Revised 1951



San Bernardino South
1954
7.5-minute, 24000
Aerial Photo Revised 1952

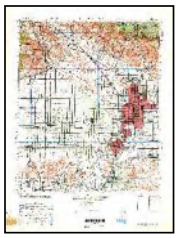
1943 Source Sheets

Colton
1943
7.5-minute, 31680

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1942, 1947 Source Sheets



SAN BERNARDINO
1942
15-minute, 50000

RIVERSIDE
1947
15-minute, 50000

1938, 1942 Source Sheets

Colton
1938
7.5-minute, 31680

RIVERSIDE VICINITY
1942
7.5-minute, 31680

1901 Source Sheets

San Bernardino
1901
15-minute, 62500

Riverside
1901
15-minute, 62500

1898 Source Sheets

San Bernardino
1898
15-minute, 62500

Topo Sheet Key

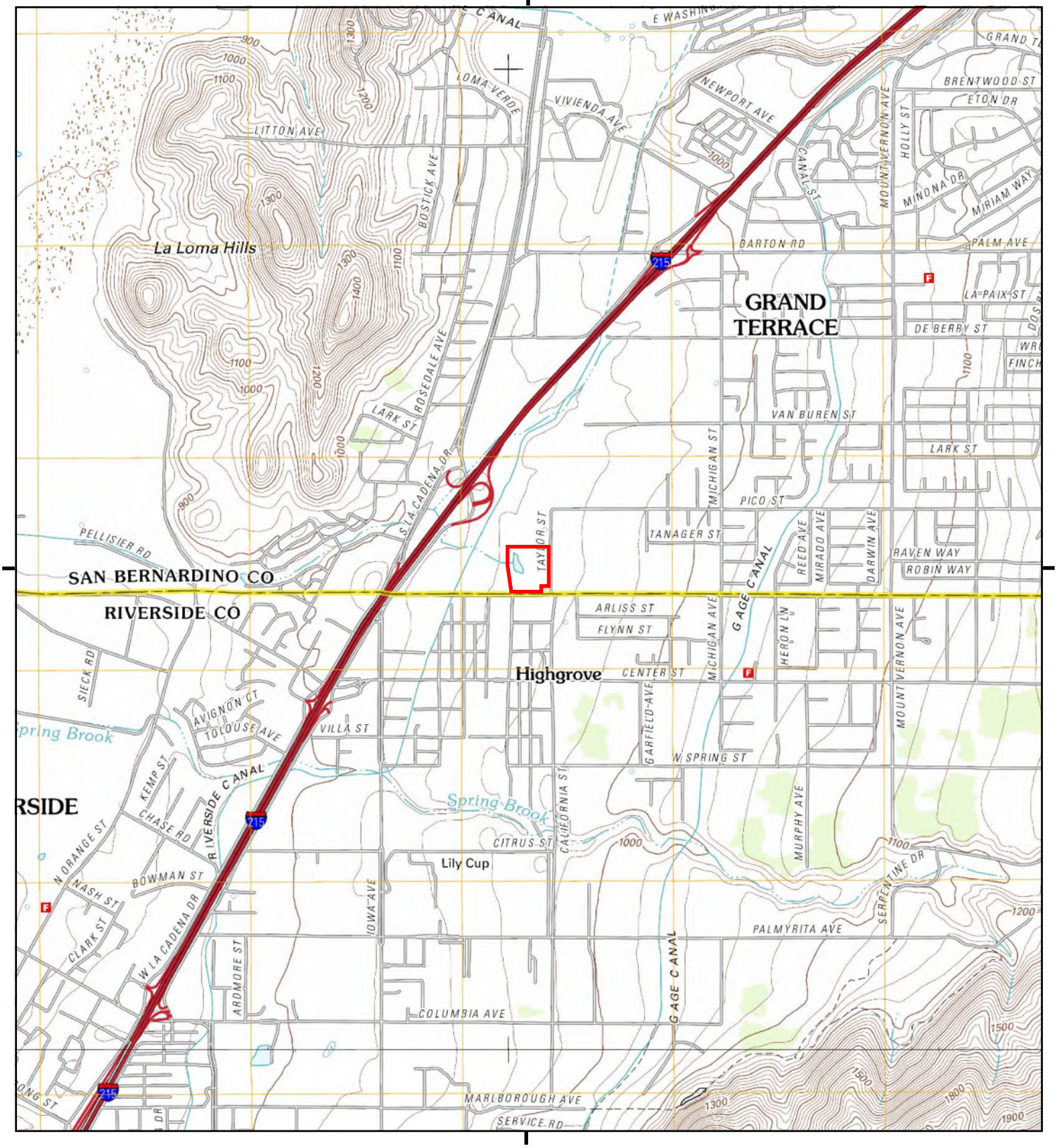
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1896 Source Sheets

San Bernardino
1896
15-minute, 62500

Historical Topo Map

2012



This report includes information from the following map sheet(s).

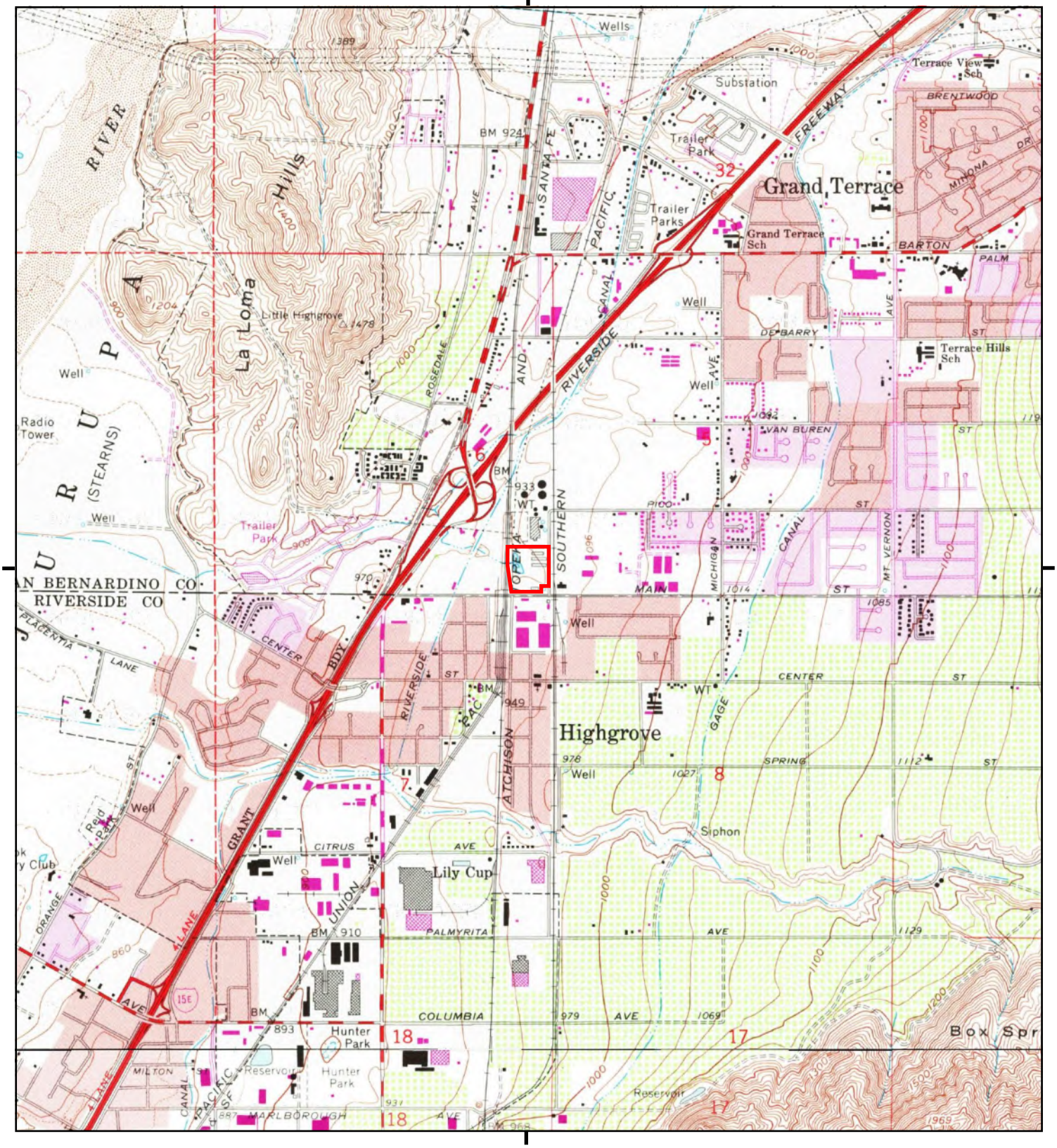
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino South, 2012, 7.5-minute
S, Riverside East, 2012, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

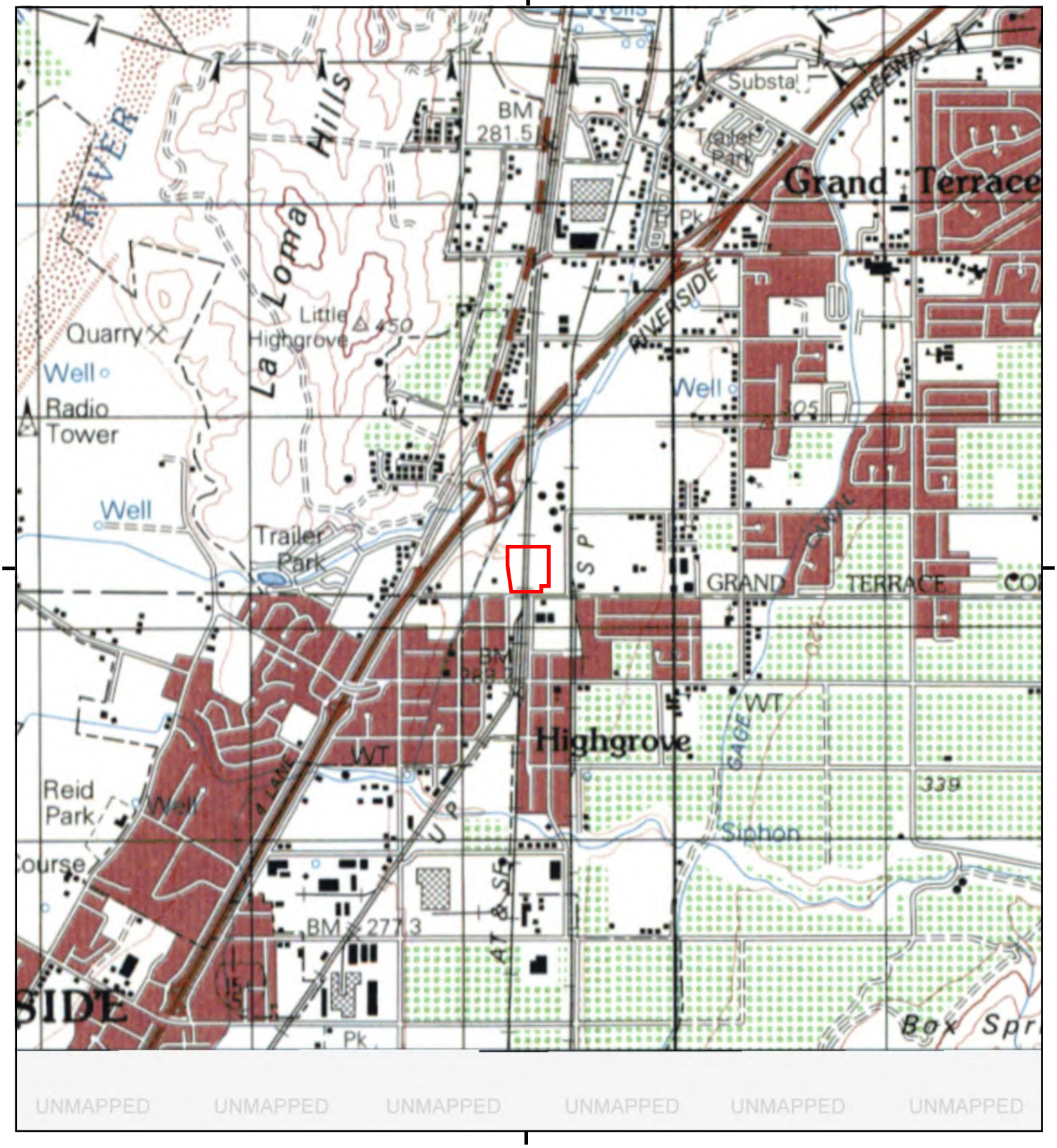
TP, San Bernardino South, 1980, 7.5-minute
S, Riverside East, 1980, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N

Historical Topo Map

1975



This report includes information from the following map sheet(s).

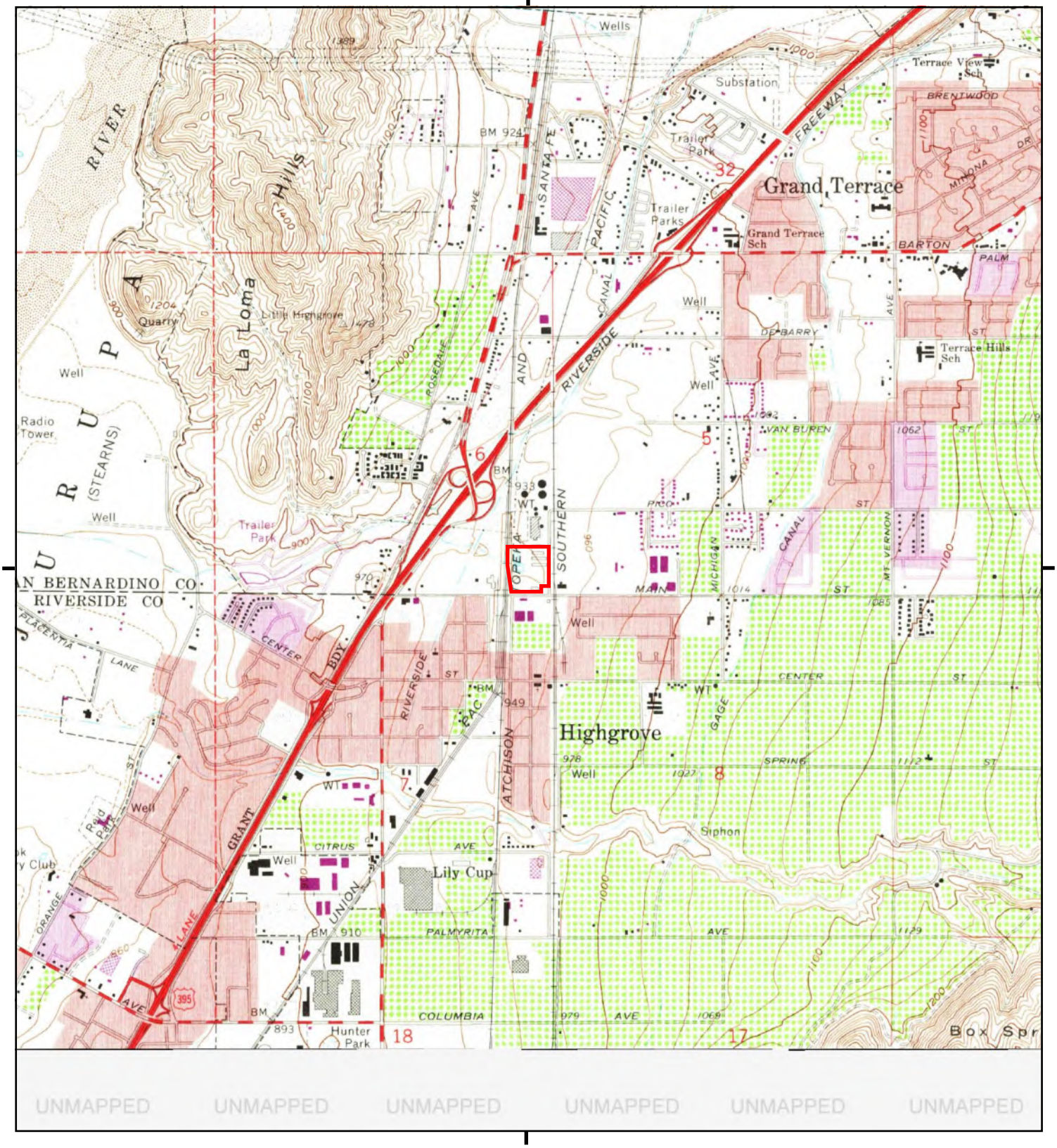
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, SAN BERNARDINO, 1975, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



This report includes information from the following map sheet(s).

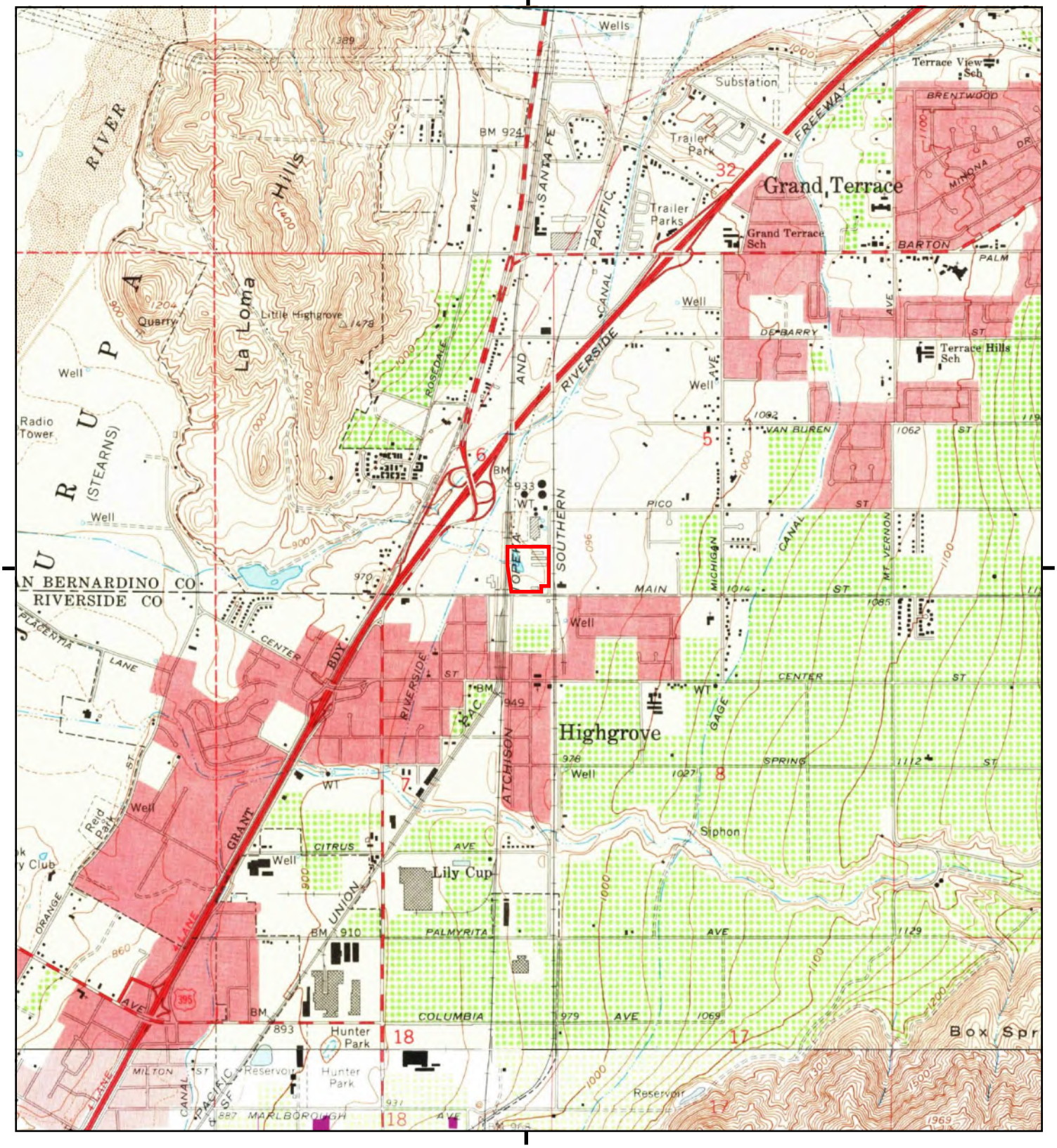
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino South, 1973, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



This report includes information from the following map sheet(s).

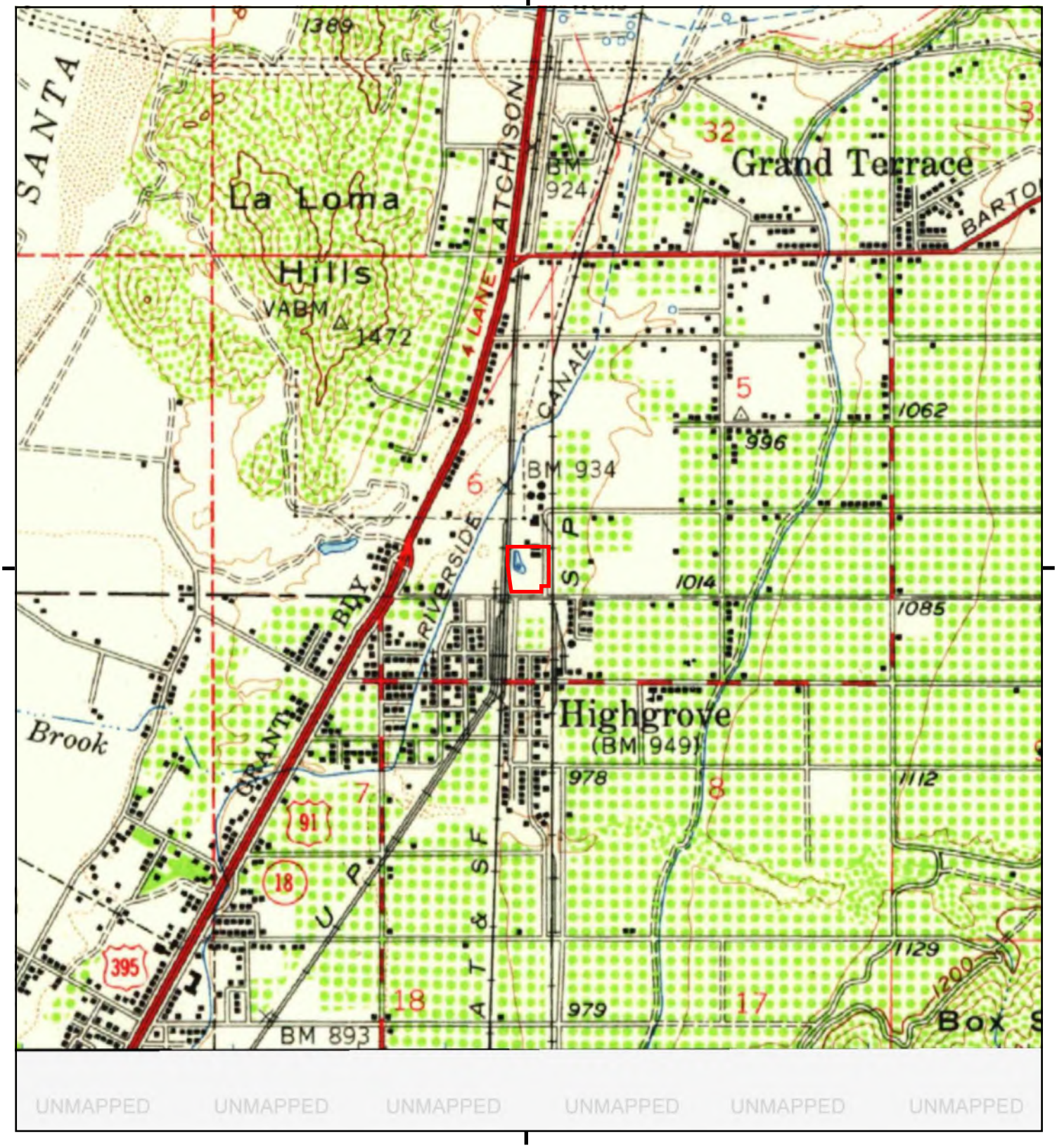
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino South, 1967, 7.5-minute
S, Riverside East, 1967, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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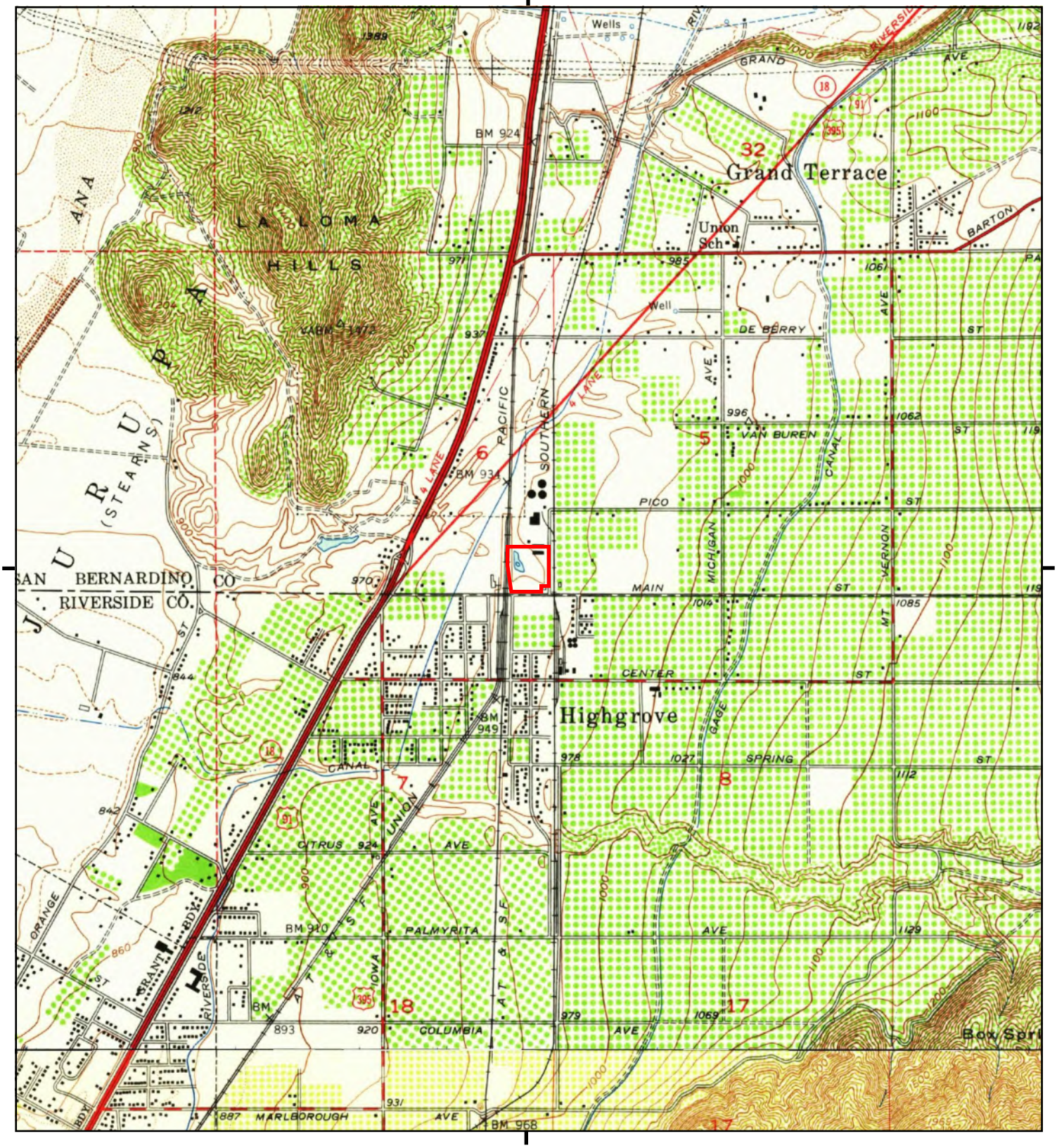
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino, 1954, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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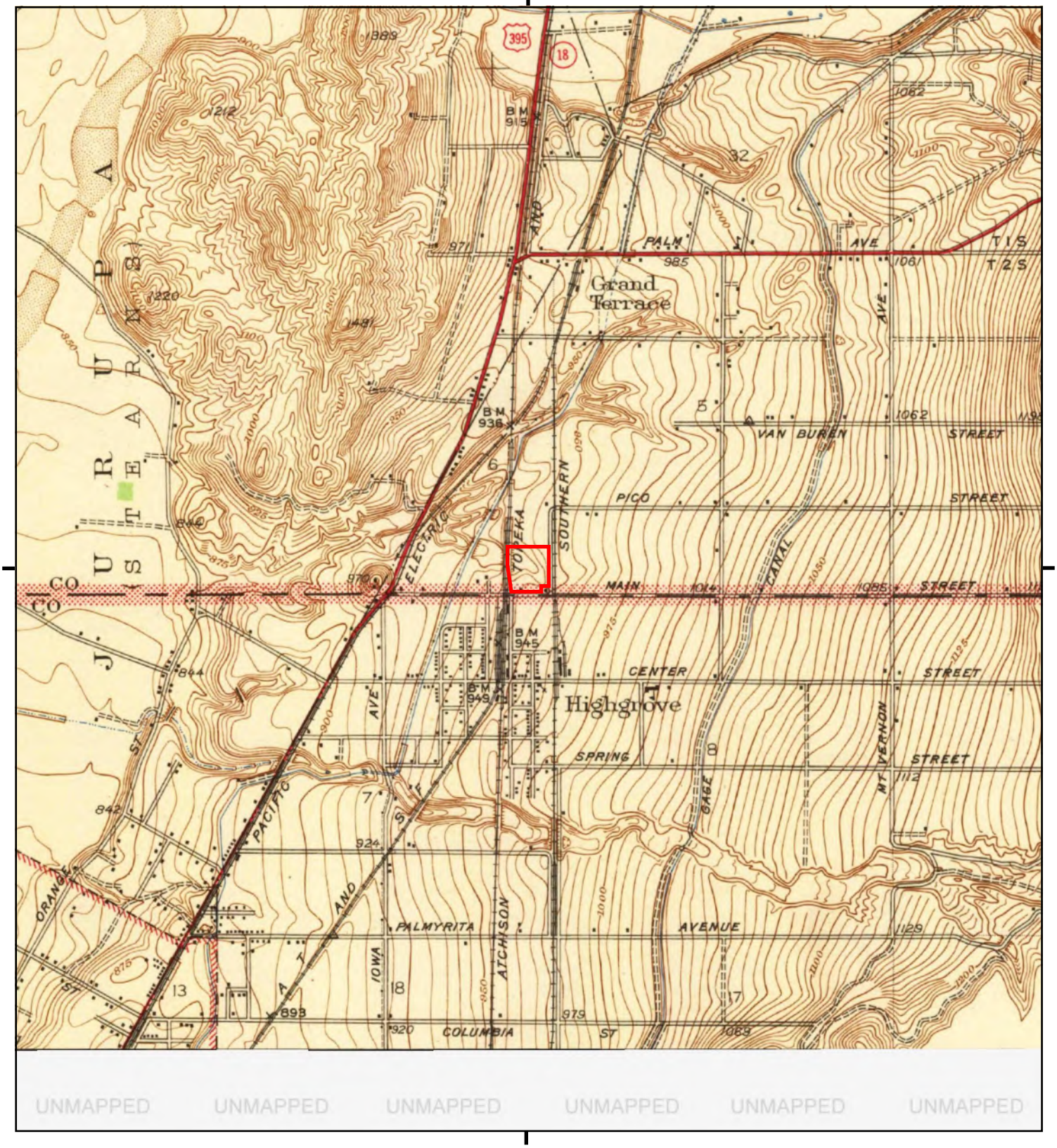
NW N NE
W E
SW S SE

TP, San Bernardino South, 1954, 7.5-minute
S, Riverside East, 1953, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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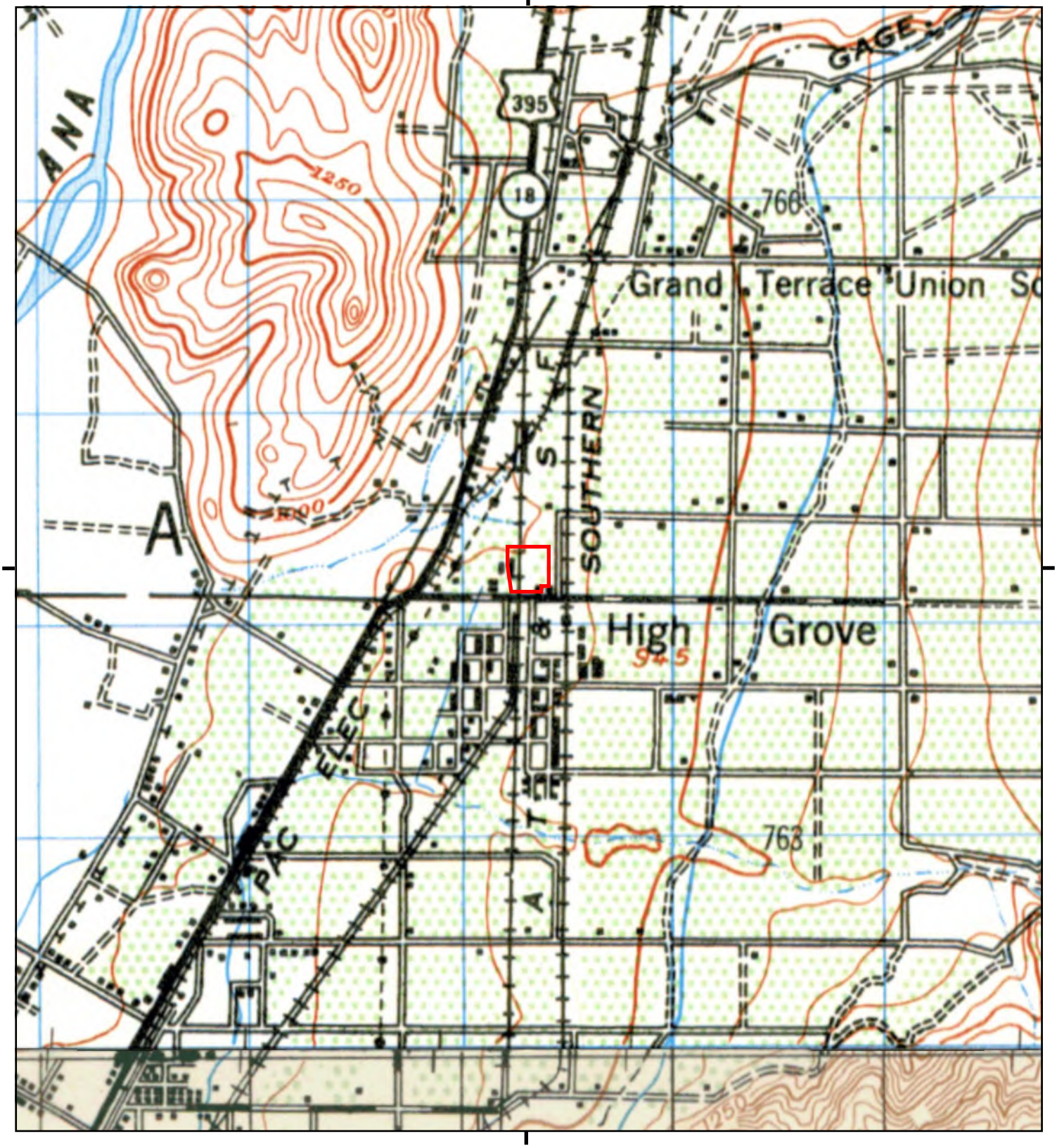
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Colton, 1943, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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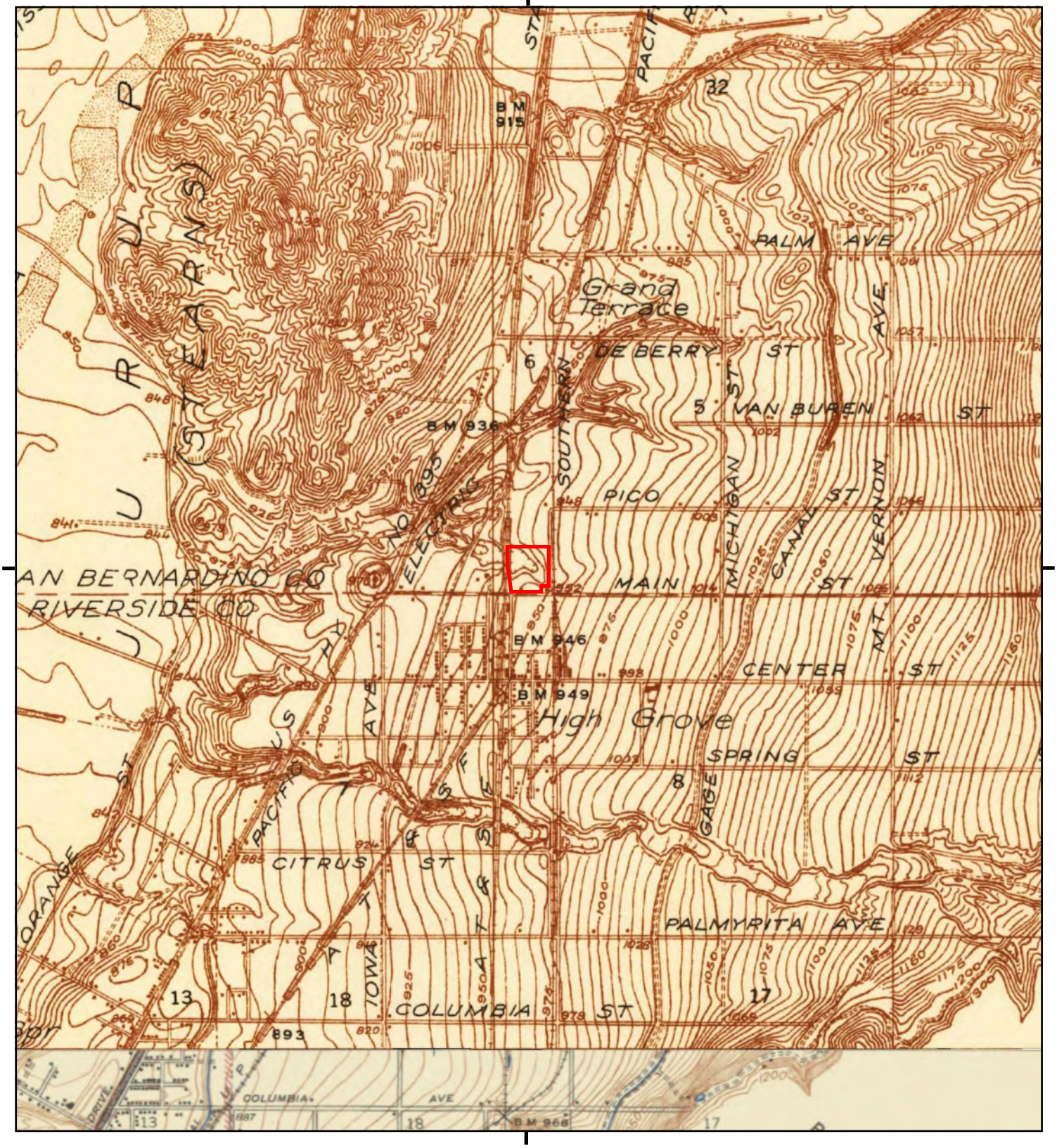
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, SAN BERNARDINO, 1942, 15-minute
S, RIVERSIDE, 1947, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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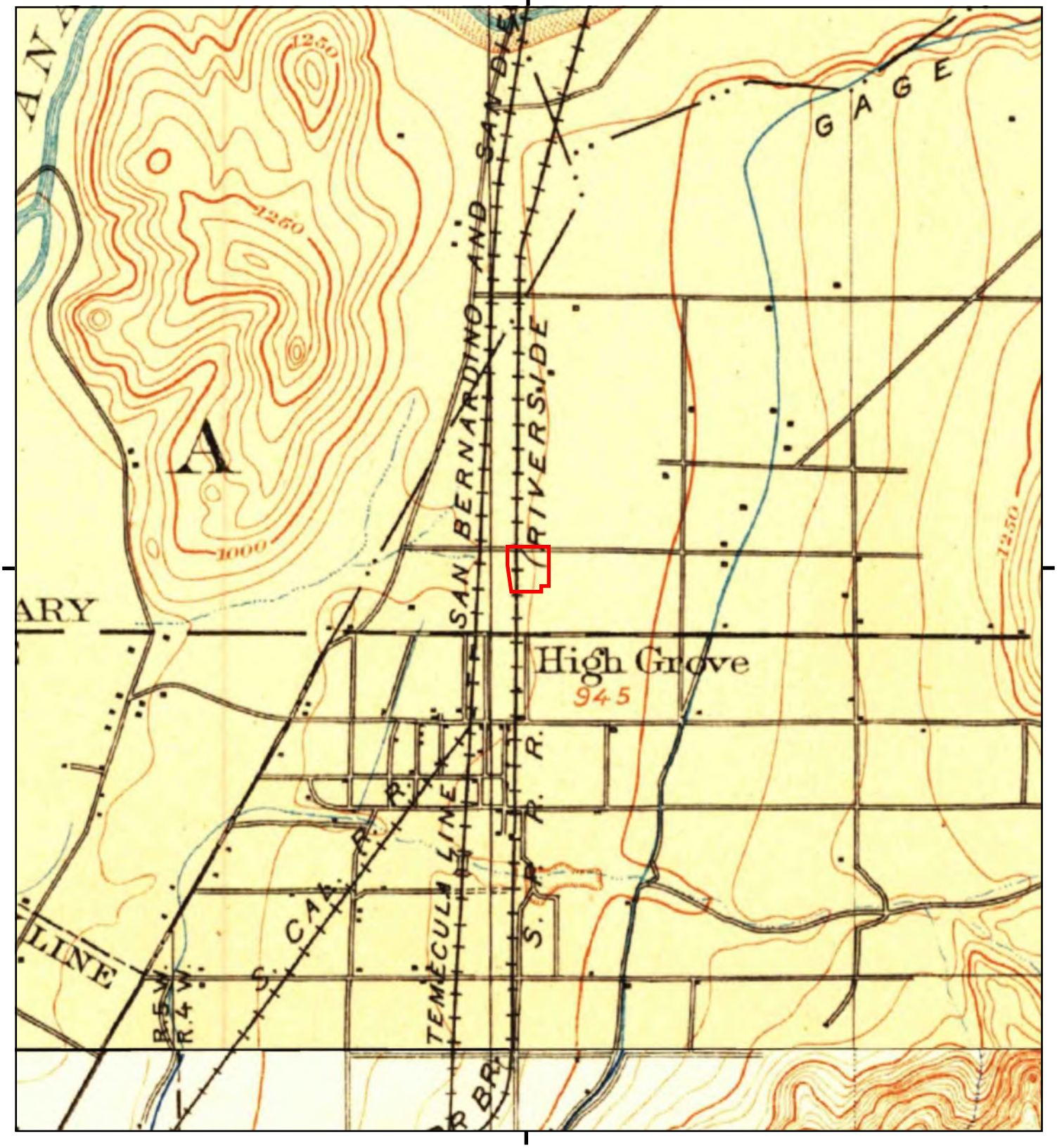
NW N NE
W E
SW S SE

TP, Colton, 1938, 7.5-minute
SW, RIVERSIDE VICINITY, 1942, 7.5-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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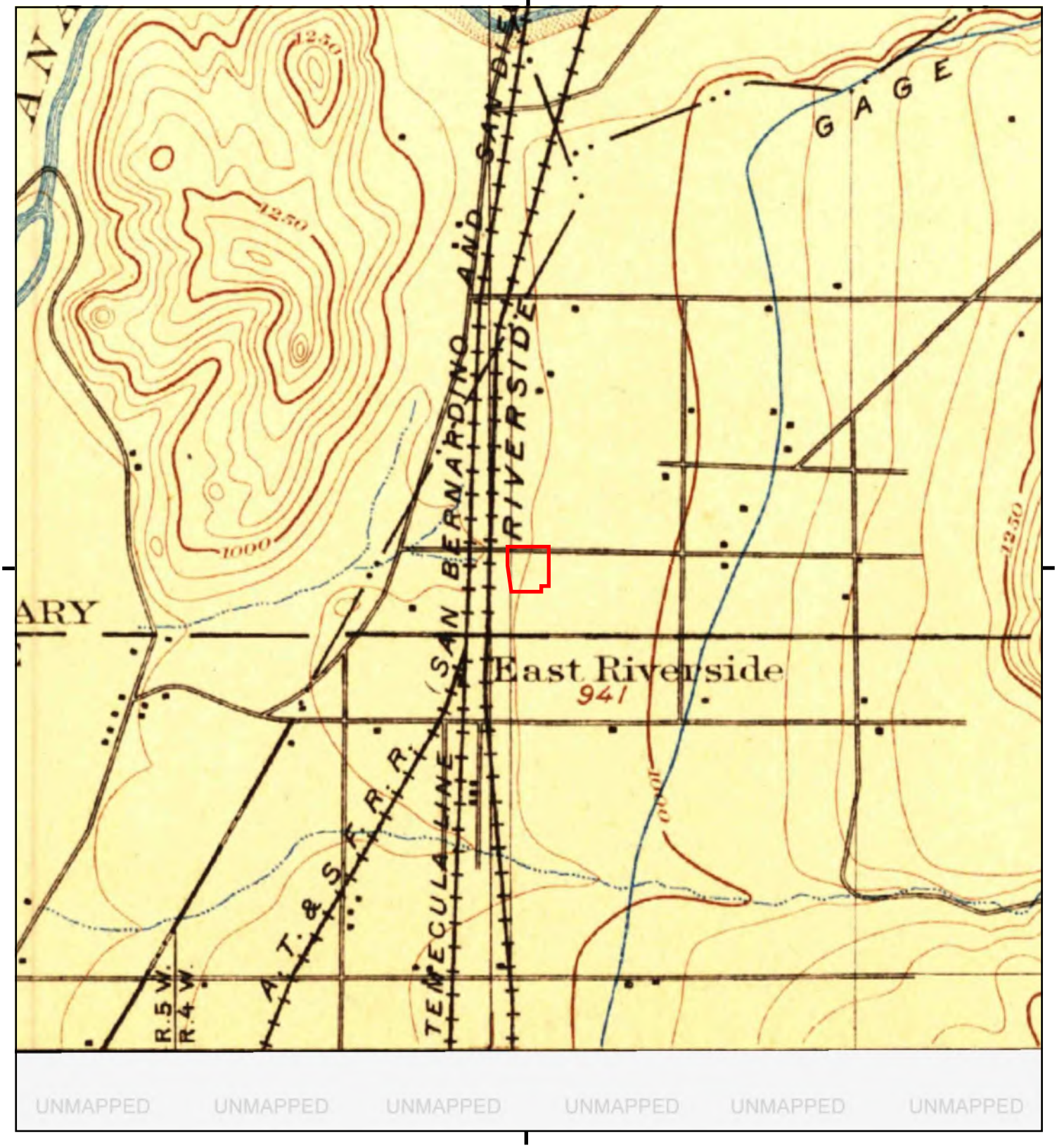
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino, 1901, 15-minute
S, Riverside, 1901, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N



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0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino, 1898, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Bernardino, 1896, 15-minute

SITE NAME: Cage Park
ADDRESS: 21660 Main Street
Grand Terrace, CA 92313
CLIENT: Alta Environmental

N

Appendix F

Interview Documentation

Eric Fraske

From: Max Margolin <max@upstreamcleanenergy.com>
Sent: Wednesday, October 14, 2020 11:02 AM
To: Eric Fraske
Subject: FW: Grand Terrace Property Questions

See answers below the highlight. Let me know if you have any additional questions.

Thanks,
Max

From: Han Liu <irealtorca@gmail.com>
Date: Wednesday, October 14, 2020 at 11:00 AM
To: Max Margolin <max@upstreamcleanenergy.com>
Subject: Re: FW: Grand Terrace Property Questions

Dear Max,

Please see below reply from Seller:

Hi Han

Please see answers below thanks.

1. Are you aware of any underground storage tanks, wells, vaults, clarifiers, or septic tanks at the Site?
   - No
2. The previous Phase I report indicated there was a monitoring well located on the central portion of the Site. I didn't see the well during our site walk. Is the well still there? Was it abandoned? If abandoned, do you have a well abandonment report?
   - We have not attempted to locate the well and do not know what condition it is in.
3. What was the past use of the warehouse building at the Site?
   - We are not sure.
4. Are you aware of any soil or groundwater contamination at the Site?
   - No
5. During your ownership of the Site, was the property used for anything or did it remain vacant?

- The property remained vacant

BEST,

Han Liu
REALTOR®, e-PRO®, BRE # 01022680
Direct: 626-757-9977 FAX: 626-430-7635
http://Han-Liu.com
Helping People Achieve their American Dream, One Family at a time.
Aggressive • Productive • Dependable
Your Real Estate Partner, for Life.

Treeline Realty
9168 Las Tunas Drive, Temple City, CA 91780

On Tue, Oct 13, 2020 at 10:11 PM Max Margolin <max@upstreamcleanenergy.com> wrote:

> Hi Han –
>
> Please see the email and questions below from Eric at NV5. Will you please work with the landowner to get these questions answered?
>
> Thank you,
>
> Max
>
> **Max Margolin**
>
> **Development Associate | Upstream Energy Services**
>
> 7650 Girard Avenue, Suite 300
>
> La Jolla, CA 92037
>
> 239.728.8476
>
> ---
>
> **From:** Eric Fraske <Eric.Fraske@nv5.com>
> **Date:** Tuesday, October 13, 2020 at 6:51 PM

To: Max Margolin <max@upstreamcleanenergy.com>
Subject: Grand Terrace Property Questions

Hi Max,

Can you pass the following questions on to the owner for me?

1. Are you aware of any underground storage tanks, wells, vaults, clarifiers, or septic tanks at the Site?

2. The previous Phase I report indicated there was a monitoring well located on the central portion of the Site. I didn't see the well during our site walk. Is the well still there? Was it abandoned? If abandoned, do you have a well abandonment report?

3. What was the past use of the warehouse building at the Site?

4. Are you aware of any soil or groundwater contamination at the Site?

5. During your ownership of the Site, was the property used for anything or did it remain vacant?

Thanks,

Eric Fraske | Senior Engineer III | **NV5** | Site Assessment and Remediation

3777 Long Beach Boulevard, Annex Building | Long Beach, CA 90807 | P: 562.495.5777 | C: 562.544.3910

eric.fraske@nv5.com | www.altaenviron.com | www.nv5.com | Electronic Communications Disclaimer

I am working from home and can be reached via cell at 562.544.3910.

Alta Environmental is now NV5.

ALTA ENVIRONMENTAL

3777 LONG BEACH BLVD, ANNEX BLDG. LONG BEACH CA 90807 altaenviron.com o.562.495.5777 f.562.495.5877

PHASE I ESA QUESTIONNAIRE

ASTM E-1527-13 provides Landowner Liability Protections to purchasers of commercial property if All Appropriate Inquiry (AAI) is completed during property acquisition. The answers to the questions below provide information to the Environmental Professional to assist the User of the referenced Phase I ESA to comply with the User Responsibilities of AAI.

Property Description			
Property Address:	21660 Main Street, Grand Terrace, CA 92313		
Current Occupant:	None		
Current Owner:	APS Auto Parts Specialist, Inc	Phone:	N/A
Site Contact:	N/A	Phone:	N/A
Potable Water Provider:	Uknown		
Electricity Provider:	SCE		
Natural Gas Provider:	Unknown		
Sanitary Sewer Provider:	Unknown		
Solid Waste Disposal Provider:	Unknown		
Hazardous Waste Disposal:	Unknown		
Reason for Performing ESA	Due diligence to acquire property		

Are you aware of any environmental liens that have been filed or recorded under Federal State, local or tribal law? If yes provide details.

□ Yes ☒ No

Are you aware of any activity or land use limitations (AULs), engineering controls or land use limitations that have been filed or recorded under Federal, State, Local or Tribal Law? If yes, provide details.

□ Yes ☒ No

Do you have any specialized knowledge of the property or experience related to the subject property or nearby properties so that you would have knowledge of chemicals or processes used at the property? If yes, provide details.

□ Yes ☒ No

Is the acquisition price differing from the fair market value of the property?
□ Yes ☒ No
If there is a difference, have you considered a lower price is due to contamination known or believed to be present at the property? Please provide details.
□ Yes ☒ No

As the user of this ESA, based on your knowledge and experience with the property, are there any obvious indications of the presence or likely presence of contamination at the property? If yes, provide details.
□ Yes ☒ No

Are you aware of any information that would help the environmental professional identify conditions indicative of releases or potential releases, including past uses of the property, uses of chemicals at the property, or environmental cleanups that have taken place at the property? If yes, provide details.
□ Yes ☒ No

Do you know of any pending, past or threatened litigation or administrative proceedings related to hazardous substances or petroleum products on, in or from the property or any notices regarding possible violations of environmental laws or possible liability related to hazardous substances or petroleum products? If yes, provide details.
□ Yes ☒ No

Are there any chemical storage areas or hazardous material storage areas located at the subject property?
If yes, provide details.
□ Yes □ No

Unknown

Are there any current or historical Aboveground Storage Tanks or Underground Storage Tanks?
If yes, provide details.
□ Yes □ No

Uknown

Are there any current or historical wastewater treatment systems, clarifier/interceptor systems, or grease trap systems associated with the subject property? If yes, provide details.
□ Yes □ No

Unknown

Are you aware of the existence or location of the following documents related to the subject property, and if yes, can copies be made available for review by the Environmental Professional?

☒ Previous Environmental Site Assessment reports or Investigation reports
□ Environmental Permits
□ Registrations for underground storage tanks (USTs)
□ Spill Prevention Containment and Contingency Plans (SPCC)
□ Stormwater Pollution Prevention Plans (SWPPP)
□ Risk Assessments
□ Hydrogeologic Reports related to the property or surrounding area
□ Notices of Violation from governmental agencies regarding past or current violations of environmental laws or related to environmental liens encumbering the property
□ Hazardous waste manifests or generation reports
□ Recorded land and activity use limitations
□ Geotechnical Studies

Keith A Latham
(Name- Authorized User Representative)

Tenaska, Inc.
(Company/Title)

Keith A Latham
(Signature)

October 7, 2020
(Date)

DCI Environmental Services

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

for

Industrial Property
12700 Taylor Street
Grand Terrace, CA. 92313

Prepared For:

Lee & Associates

February 12th, 2014

(Revised)

DCI Project No.: 26008

DCI Environmental Services 9795 Cabrini Dr., Suite 104 Burbank, CA 91504
TEL: (818) 767-3894 FAX: (818) 767-2757 WEB: http://www.dciservices.com

TABLE OF CONTENTS

1. Executive Summary

Lee & Associates retained DCI Environmental Services to perform a Phase I Environmental Site Assessment, in accordance with ASTM Standard E 1527-05, on the Subject Property located at 12700 Taylor Street, in the City of Grand Terrace, California.

The purpose of this due diligence investigation was to assess the Subject Property for evidence of hazardous waste contamination and the possibility of underground storage tanks, in an effort to minimize the exposure of the Subject Property owner to liability pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), known generally as the "Innocent Landowner Defense". A rigorous records review and environmental database survey of the Subject Property and surrounding properties were performed. In addition, a site reconnaissance survey was conducted on January 2nd, 2014.

The Subject Property consists of the southern portion of a recently subdivided industrial parcel of land located at 12700 Taylor Street, in Grand Terrace, California. A private park (*Cage Park*) and thermoelectric power plant (*Highgrove Generating Station*) previously occupied the Subject Property for nearly 65 years. The power plant ceased operations and no production has occurred since 2001. All of the equipment formerly at the Subject Property has been removed. Hazardous materials are not being handled or stored at the site. The Subject Property was observed to be relatively clean and maintained in good condition overall. No staining, corrosion, or other signs of chemical releases was observed at the site.

The Subject Property address of 12700 Taylor Street is listed on the ERNS, CORRACTS, NFA-CALSITES, RCRA-G, PCS, AFS, HWIS, and UST databases. *California Electric Power Company* installed four cooling towers and auxiliary equipment on the Subject Property in the early 1950's. *Southern California Edison* merged with *California Electric Power Company* and operated the power plant from 1964 through 2000. The facility transferred ownership two more times, however *Southern California Edison* retained full responsibility for all environmental liabilities associated with past facility operations and adjoining properties. The cooling towers were installed in the northeast corner of Subject Property. Wastewater from the cooling towers was discharged into a small natural pond located at *Cage Park* to the west. Golder Associates installed a monitoring well (MW-1) between the cooling towers and *Cage Park* as part of groundwater sampling for total petroleum hydrocarbons (TRPH) and volatile organic compounds (VOC's) in 1998. No TRPH or VOC's were detected above RWQCB's maximum screening levels for groundwater samples collected from this monitoring well. Terracon Environmental completed a RCRA Facility Investigation at the *Highgrove Generating Station* and *Cage Park.* Two solid waste management units and 11 separate areas of concern were investigated at the Subject Property. Sampling results confirmed that no significant releases have occurred at the Subject Property. Elevated arsenic levels discovered onsite were determined to be natural occurring background concentrations typical for soils in San Bernardino County. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" letter was issued by DTSC on December 17th, 2013.

The Regulatory Records Search identified several properties with environmental concerns within a 1/2-mile radius of the Subject Property. However, there is no active listing located within the primary area of concern for possible vapor intrusion onto the Subject Property (1/10-mile). The nearest site listing is a "case closed" CERCLA site across the street to the southeast at K J Plating Inc. (21750 W. Main St.). A subsurface investigation determined that storm water run-off entering the lot from the K J Plating property does not appear to be impacting the Subject Property. No conditions were observed that indicate potential impact to the Subject Property from this nearby source of hazardous wastes. Any properties under remediation for soil and/or groundwater contamination in the vicinity of the site appear unlikely to adversely impact the Subject Property.

Considering our findings, DCI Environmental Services has no recommendation for additional investigation of the Subject Property, at this time. The open monitoring well (MW-1) at the site seems to be the only environmental issue requiring agency oversight for legal closure. No conditions were observed that indicate significant impact to the Subject Property from this open well.

2. Introduction

Lee & Associates retained DCI Environmental Services to perform a Phase I Environmental Site Assessment (ESA) on the Subject Property located at 12700 Taylor Street, in the City of Grand Terrace, California.

2.1. Purpose

The purpose of this environmental site assessment was intended to identify, to the extent feasible pursuant to the processes prescribed by ASTM E 1527-05, "recognized environmental conditions" in connection with the Subject Property. Recognized environmental conditions include, but are not limited to, the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. This investigation was performed in an effort to minimize the exposure of the prospective property owner to liability pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and should constitute "all appropriate inquiries" for purposes of protection from CERCLA liability as an innocent landowner, bona fide prospective purchaser, or a contiguous property owner as defined in Title 40 CFR § 312.21 *et seq.*

2.2. Detailed Scope of Services

DCI Environmental Services will attempt to obtain all reasonably ascertainable information related to the Subject Property that may help identify recognized environmental conditions in connection with the property. As per ASTM E 1527-05, a Phase I ESA includes four components. The first component of the Phase I is a records review, which typically includes

the standard Federal and State environmental record sources, additional Regional and Local environmental record sources, physical setting sources, and historical use information.

The second component is the site reconnaissance, which may include, but is not limited to observations of current and past uses of the Subject Property and adjoining properties, visible hydrogeologic and topographic conditions, structures, roads, and water systems. The site reconnaissance attempts to make observations regarding the presence of hazardous substances and petroleum products, storage tanks, polychlorinated byphenols (PCB's), and other potentially hazardous substances or materially threatening practices.

The third component of the Phase I ESA comprises interviews with the Subject Property's owner, key management personnel, commercial occupants, and relevant government officials. The fourth component is a report summarizing the findings of the records review, site reconnaissance, and interviews, and presenting a professional opinion regarding the existence of any recognized environmental conditions in connection with the Subject Property.

2.3. Significant Assumptions

The only significant assumptions made during this investigation were that the information DCI obtained from outside sources (environmental and historical records) was accurate and up-to-date at the time this report was prepared, and that no information was withheld from DCI by any persons with actual knowledge of recognized environmental conditions associated with the Subject Property.

2.4. Limitations and Exceptions

This environmental site assessment report was prepared in accordance with ASTM E 1527-05, and generally accepted practices and principles. The ASTM E 1527-05 standard states, that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of a Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, while recognizing the limits of time and cost. No sampling or analysis of soil, water, building materials, or air is conducted as part of this assessment. This study is not intended to be a definitive investigation of recognized environmental conditions at the Subject Property and is not inclusive of all possibilities. Opinions expressed herein reflect conditions existing at the time of our investigation, and may change at any time.

2.5. Special Terms and Conditions

In accordance with ASTM E 1527-05, this report is considered to be valid up to 180 calendar days from the date it was finished. Any use of this report after such time is not recommended by DCI and is not in accordance with the appropriate standards and practices. All information in this report is considered to be privileged and confidential. DCI shall release the report only to the client. DCI shall not release the report, or make disclosures or notifications to any others, including government agencies, unless so authorized by the client in writing. DCI does not authorize the use of the report or portions thereof by any third party.

2.6. User Reliance

The opinions expressed in this report are based on all reasonable ascertainable information obtained through a rigorous records review, site reconnaissance, and personal interviews. Although DCI believes that the information contained herein is reliable, no guarantee can be made as to the accuracy of information provided to DCI by others.

3. Site Description

3.1. Site Location and Legal Description

The Subject Property, located at 12700 Taylor Street, in Grand Terrace, California, is on the northwest corner of Taylor Street and Main Street, and is legally described as APN #1167-151-67. The Subject Property can be located on Thomas Brothers Map (Riverside County) page 646, grid B-6. A Site Location Map is included in Appendix A.

3.1. Site Vicinity and Characteristics

The overall character of the surrounding neighborhood is a mixture of industrial, commercial, and agricultural land. Light industrial/commercial businesses and high school surround the Subject Property (see Site Location Map - Appendix A).

3.2. Current Use of Property

The Subject Property consists of the southern portion of a recently subdivided industrial parcel of land located at 12700 Taylor Street, in Grand Terrace, California. A private park (*Cage Park*) and thermoelectric power plant (*Highgrove Generating Station*) previously occupied the Subject Property for nearly 65 years. The power plant ceased operations and no production has occurred since 2001. All of the equipment formerly at the Subject Property has been removed. Hazardous materials are not being handled or stored at the site.

3.3. Descriptions of Structures, Roads, Other Improvements on the Site

A metal warehouse building and block restroom building on concrete foundations are the only structures located onsite. No access was available to the interiors of either building. No spills, staining, corrosion, or other signs of chemical releases was observed around the buildings.

Access to the site is via Taylor Street and Main Street, only. There is no onsite pavement or designated parking lot area. The lot is covered with exposed soils, native vegetation, mature trees, and small pond. A single monitoring well is installed near the center lot area. A cement swale directs surface water drainage across the site into the small pond on the northwest corner of lot. Storm water runoff enters the site from the north and east. Regulated hazardous materials are not being handled or stored on the exterior lot. All municipal services — including sewer, water, telephone, gas, and electric are available to the site. See photographs are included in Appendix C.

3.4. Current Uses of Adjoining Properties

The sites directly adjacent to the Subject Property are described below:

North: The northern portion of *SCE Highgrove Generating Station* located at 12700 Taylor Street.

South: Across the street is a distribution company (TM Cobb Co.) located at 960 Main Street.

East: A municipal water well (Riverside Highland Water Co.). Across the street is a new school (Grand Terrace High School) located at 21810 Main Street.

West: Across the railroad track easement are high-tension power-lines.

4. User Provided Information

The user provided the following information to DCI regarding the Subject Property.

4.1. Title Records

Title record documents were provided for review by DCI from the user. These records would indicate that the Subject Property was vacant land prior to the power plant development.

4.2. Environmental Liens or Activity and Use Limitations

No information regarding environmental liens on the Subject Property was provided to DCI. A California Grant Deed filed in April 1998 indicates that the document transfer tax was computed on the full value of the interest in the property conveyed without any liens or encumbrances remaining at the time of transfer. Further, there are no known activity or use limitations in connection with the property.

4.3. Specialized Knowledge

According to ASTM E 1527-05, if the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the Subject Property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience to DCI prior to the site reconnaissance. The user has not communicated any specialized knowledge to DCI.

4.4. Valuation Reduction for Environmental Issues

In a transaction involving the purchase of a parcel of commercial real estate, if a user has actual knowledge that the purchase price of the property is significantly less than the purchase price of comparable properties, the user should attempt to identify an explanation for the lower price and to make a written record of such explanation. If the information in this report concludes that there are recognized environmental conditions connected to the Subject Property, such information may be used to explain a valuation reduction.

4.5. Owner, Property Manager, and Occupant Information

The owner's representative of the Subject Property was unavailable for interview with DCI personnel during the site reconnaissance. DCI contacted Mr. Rick John who provided the following information regarding occupants of the Subject Property:

1) The contact person given to DCI for this site was Mr. Rick John. He stated that to the best of his knowledge, "*Southern California Edison* previously occupied the site. Subsurface investigations performed on the Subject Property and adjacent parcel to the north determined there was no significant contamination. The site is safe for a proposed school development. There is no history of underground storage tanks at the Subject Property."

4.6. Reason for Performing Phase I ESA

It is assumed that the reason this Phase I Environmental Site Assessment was requested in order to qualify for the "innocent landowner defense" to CERCLA liability associated with a commercial real estate transaction. Another reason for performing a Phase I ESA might include the need to understand potential environmental conditions that could materially impact the operation of a business associated with the Subject Property.

5. Records Review

5.1. Standard Environmental Record Sources

BBL of Solana Beach provided DCI Environmental Services with a report containing (at a minimum) all federal, state, and tribal environmental databases required by ASTM E 1527-05 to determine any potential recognized environmental conditions connected to the Subject Property from onsite or in the vicinity of the Subject Property. The environmental databases are included in the Environmental Records Search (ERS) in Appendix E.

Several of the databases included in the ERS report contain information not relevant to this investigation, have duplicate information, or contain no sites within a one-mile radius of the Subject Property. Lists of concern are discussed in the following within their respective minimum search distances defined in ASTM E 1527-05 § 7.2.1.1.

5.1.1. Federal Environmental Record Sources

Federal NPL (within 1.0 miles)

The United States Environmental Protection Agency (US EPA) has compiled this list from the designated CERCLIS list. The National Priority List (NPL) sites are prioritized as to their significant risk to human health and the environment. The list targets those sites to receive remedial funding under the Comprehensive Environmental Response Conservation and Liability Act (CERCLA). The NPL lists the nation's highest priority sites for remedial action. Only NPL sites can receive CERCLA funds. The Subject Property and adjacent properties were not on the NPL list. There are no NPL site listings located within a one-mile radius of the Subject Property.

Federal Deleted NPL (within 1.0 miles)

The United States Environmental Protection Agency (US EPA) has compiled this list from the designated CERCLIS list. National Priority List (NPL) sites are prioritized as to their significant risk to human health and the environment. Deleted NPL sites have completed the remedial action/investigation through CERCLA funding. The Subject Property and adjacent properties were not on the Deleted NPL list. There are no Deleted NPL site listings located within a one-mile radius of the Subject Property.

Federal CERCLIS (within 1.0 miles)

The EPA has compiled this list of contaminated properties for designation under the Federal Superfund Program pursuant to the Comprehensive Environmental Response Conservation and Liability Act (CERCLA). These sites represent environmental concern for the discharge of hazardous materials by hazardous waste generators, treatment and storage facilities, and hazardous waste disposal sites. The Subject Property was not on the CERCLIS list. The nearest of the two CERCLIS site listings located within a one-mile radius is across the street to the southeast at K J Plating Inc. (21750 Main St.). Final closure has been issued with deed restrictions. A subsurface investigation determined that surface water run-off from the K J Plating property does not appear to be impacting the Subject Property. No conditions were observed that indicate significant impact to the Subject Property from this nearby source of hazardous wastes.

Federal CERCLIS NFRAP (within 1.0 miles)

As of February 1995, CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed these NFRAP sites from CERCLIS to lift unintended barriers to the redevelopment of these properties. The Subject Property and adjacent properties were not on the NFRAP list. There are no NFRAP site listings located within a one-mile radius of the Subject Property.

Federal RCRA CORRACTS (within 1.0 mile)

The Resource Conservation and Recovery Act of 1976 provides for "cradle to grave" regulation of hazardous wastes. RCRA requires regulation of hazardous waste generators, transporters, and storage/treatment/disposal sites. Evaluation of potential violations ranging from manifest requirements to hazardous waste discharges are typically conducted by the US EPA. This database is also known as Corrective Action Report (CORRACTS). If enforcement action is required it is typically delegated to a State Agency. The Subject Property was the only CORRACTS site listing located within a one-mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013.

Federal RCRA-D non-CORRACTS TSD (within 1.0 miles)

The Environmental Protection Agency regulates the treatment, storage and disposal of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form as well as part A (EPA form 8700-23) and Part B of their Hazardous Waste Permit Application. The Subject Property and adjacent properties were not on the RCRA-D list. There are no RCRA-D site listings located within a one-mile radius of the Subject Property.

Federal RCRA-G Generators (within 0.25 miles)

The Environmental Protection Agency regulates generators of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste generators are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form. The notification form provides basic identification information and specific waste activities. The Subject Property was among the eight RCRA-G site listings located within a one-quarter mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013. The nearest offsite RCRA-G listing is across the street to the southeast at K J Plating (21750 Main St.). Based on the current status and observations of the site, DCI does not consider these RCRA-G site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

Federal ERNS (within 0.25 miles)

The Emergency Response Notification System (ERNS) list is a database of reported releases of oil or other hazardous materials. The Subject Property was among the two ERNS site listings located within a one-quarter mile radius. *EPTC Highgrove* reported a mercury spill from a broken thermometer in January 2011. The nearest offsite ERNS listing is actually more than one-quarter mile west of the Subject Property, and too distant to be of concern.

Federal Institutional Control/Engineering Control Registries (property)

Federal Institutional Control and Engineering Control Registries include properties receiving government funding and are found listed with deed restrictions in the Federal CERCLA and CORRACTS databases. There are no Federal Institutional Control/Engineering Control registries found on the Subject Property from the records search at the San Bernardino County Clerks Office.

5.1.2. State Environmental Record Sources

State Response Sites-Federal Lead (within 1.0 miles) (NPL equivalent)

The Site Mitigation and Brownfield's Reuse Program Federal Lead (FL) database identifies high priority hazardous waste sites where the US EPA is the lead agency. These sites are typically proposed on or delisted from the National Priority List. The Subject Property and adjacent properties were not on the FL list. There are no FL site listings located within a one-mile radius of the Subject Property.

State Response Sites (within 0.5 miles) (CERCLIS equivalent)

The Site Mitigation and Brownfield's Reuse Program State Response Sites (SR) database identifies certain potential hazardous waste sites. These sites are confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity and deemed generally high-priority and high potential risk. The Subject Property and adjacent properties were not on the SR list. There are no SR site listings located within a one-mile radius of the Subject Property.

Voluntary Clean-up Program VCP (within 0.5 miles)

The State of California Voluntary Cleanup Program (VCP) list contains low threat level properties with either confirmed or unconfirmed releases, and requested DTSC to oversee investigation and cleanup activities, and have agreed to provide coverage for DTSC costs. The Subject Property was among the two VCP site listings located within a one-half mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013. The nearest offsite VCP listing is across the street to the southeast at K J Plating (21750 Main St.). K J Plating is certified as complete with deed restrictions. Based

on the current status and observations of the site, DCI does not consider these VCP site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

Further Evaluation FE (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Database list was previously known as the Abandoned Site Program Information System (ASPIS). Further Evaluation (FE) properties are suspected of being contaminated that need to be assessed using the PEA process. The Subject Property was not on the FE list. The only FE site listing located within a one-half mile radius is across the street to the southeast at K J Plating (21750 Main St.). Final closure has been issued with deed restrictions. A subsurface investigation determined that surface water run-off from the K J Plating property does not appear to be impacting the Subject Property. No conditions were observed that indicate significant impact to the Subject Property from this nearby source of hazardous wastes.

Military Evaluation ME (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Program Military Evaluation Sites (ME) database contains formerly Used Defense Sites (FUDS) and open/closed military facilities with confirmed or unconfirmed releases and where DTSC is involved in investigation and/or remediation, either in a lead or support capacity. The Subject Property was among the two ME site listings located within a one-half mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013. The nearest offsite ME listing is across the street to the southeast at K J Plating (21750 Main St.). K J Plating is certified as complete with deed restrictions. Based on the current status and observations of the site, DCI does not consider these ME site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

Expedited Remedial Action Program EP (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Program Expedited Remedial Action Program (EP) database is a pilot program limited to 30 sites. These are confirmed release sites worked on by Responsible Parties with oversight of the cleanup by DTSC. The Subject Property and adjacent properties were not on the EP list. There are no EP site listings located within a one-half mile radius of the Subject Property.

Border Zone BZ (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Program Border Zone Expedited Remedial Action Program (BZ) database have gone through the Hazardous Waste Property or Border Zone Property evaluation and formal determination process. The Subject Property and adjacent properties were not on the BZ list. There are no BZ site listings located within a one-half mile radius of the Subject Property.

School Evaluation SCH (within 0.25 miles)

The Site Mitigation and Brownfield's Reuse Database list was previously known as the Abandoned Site Program Information System (ASPIS). School Property Evaluation Program (SCH) properties are being evaluated by DTSC for possible hazardous materials contamination. The Subject Property was among the two SCH site listings located within a one-half mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013. The nearest offsite SCH listing is across the street to the southeast at High School #3 (Main St. & Taylor St.). Remedial action/investigation has been completed at this facility. Based on the current status and observations of the site, DCI does not consider these SCH site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

Land Use Restrictions LUR (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Database list was previously known as the Abandoned Site Program Information System (ASPIS). Brownfield's Reuse Program Facility Sites with Land Use Restriction (LUR) properties are sites cleaned up under the programs oversight and generally do not include current or former hazardous waste facilities that required a hazardous waste facility permit. This list represents land use restrictions that are active. The Subject Property and adjacent properties were not on the LUR list. There are no LUR site listings located within a one-half mile radius of the Subject Property.

Deed Restrictions DR (within 0.5 miles)

The DTSC Hazardous Waste Management Program Deed Restriction (DR) database has developed a list of current or former hazardous waste facilities that have recorded land use restrictions at the local county recorders office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain onsite after the facility has been closed or cleaned up. The types of land use restrictions include deed notice, deed restriction, or a land use restriction that binds current and future owners. The Subject Property and adjacent properties were not on the DR list. There are no DR site listings located within a one-half mile radius of the Subject Property.

Corrective Action CA (within 0.5 miles)

The DTSC Hazardous Waste Management Program Permitted and Corrective Action (CA) database contains permitted and corrective action sites that are RCRA-permitted facilities undergoing cleanup activities or permitted to handle hazardous wastes. The Subject Property was the only CA site listing located within a one-half mile radius. *EPTC Highgrove* completed a RCRA Facility Investigation on two solid waste management units and 11 separate areas of concern at the Subject Property parcel. The results indicated there were no releases of hazardous substances that would adversely impact human health and the

environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" determination letter was issued on December 17th, 2013.

Historical Sites HIS (within 0.5 miles)

The Site Mitigation and Brownfield's Reuse Program Historical Site (HIS) database contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. The Subject Property was not on the HIS list. The only HIS site listing located within a one-half mile radius is across the street to the southeast at K J Plating (21750 Main St.). No conditions were observed that indicate potential impact to the Subject Property from this nearby source of hazardous wastes.

State Institutional Control/Engineering Control Registries (property)

State Institutional Control and Engineering Control Registries include properties registered with California Environmental Protection Agency and Department of Toxic Substances Control. These properties are identified with deed and land use restrictions in the State of California VCP and HWMP databases. There are no California Institutional Control/Engineering Control registries found on the Subject Property from the records search at the San Bernardino County Clerk's Office.

Solid Waste Information System SWIS (within 1.0 miles)

The Solid Waste Management Board maintains this list pursuant to the Solid Waste Management and Resource Recovery Act of 1972. The list contains the most current inventory of active, inactive, and closed solid waste disposal and transfer facilities. The Subject Property and adjacent properties were not on the SWIS list. The only SWIS site listing located within a one-mile radius is over one-half mile north of the Subject Property, and too distant to be of concern.

Leaking Underground Storage Tanks LUST (within 0.5 miles)

The California Water Resources Control Board's Leaking Underground Storage Tank (LUST) database identifies properties with possible environmental hazards. According to the State of California's WRCB LUST list, the Subject Property and adjacent properties were not on the LUST list. The nearest of the three LUST site listings located within a one-half mile radius is approximately 1,000 feet northwest of the Subject Property at Shell Station (2718 Iowa Ave.). Soil contamination has been mitigated at this location. Based on the current status, distance and direction from the site, DCI does not consider this LUST site listing or other such listings to be significant environmental concerns with respect to the Subject Property.

Underground Storage Tanks UST (within 0.25 miles)

The California Water Resources Control Board also provides a list of all permitted underground tanks containing hazardous substances (UST). This database provides information on all registered underground storage tanks. According to information provided, the Subject Property was among the nine UST site listings located within a one-quarter mile radius. *Highgrove Generating Station/Riverside Canal Power Company* removed all of the underground storage tanks from the Subject Property. The nearest offsite UST listing is approximately 500 feet east of the Subject Property at Inland Timber Company (21850 Main St.). Based on the current status, distance and direction from the site, DCI does not consider these UST site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

5.2. Additional Environmental Record Sources

Several sources of environmental records, in addition to those required by ASTM E 1527-05 § 7.2.1.1, were obtained by DCI and are described below.

5.2.1. Federal

FEDFAC Federal Facilities

As part of the CERCLA program, federal facilities with known or suspected environmental problems, the Federal Facilities Hazardous Waste Compliance Docket is tracked separately to comply with a Federal Court order. The Subject Property and adjacent properties were not on the FEDFAC list. There are no FEDFAC site listings located within a one-half mile radius of the Subject Property.

Site Enforcement Tracking System (SETS)

When expanding Superfund monies at a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) Site, EPA must conduct a search to identify parties with potential financial responsibility for remediation of uncontrolled hazardous waste sites. EPA regional Superfund Waste Management Staff issue a notice letter to the potentially responsible party (PRP). The status field contains the EPA ID number and name of the site where the actual pollution occurred. The Subject Property and adjacent properties were not on the SETS list. The nearest of the two SETS site listings located within a one-mile radius is across the street to the southeast at Riverside Plating (21750 Main St.). Remedial action/investigation has been completed at this facility. Based on the current status and observations of the site, DCI does not consider this SETS site listing or other such listings to be significant environmental concerns with respect to the Subject Property.

Enforcement Docket System (DOCKET)/Consent Decree Tracking System (CDETS)

DOCKET tracks civil judicial cases against environmental polluters, while CDETS processes court settlements, called consent decrees. The Subject Property and adjacent properties were not on the DOCKET list. There are no DOCKETS site listings located within a one-mile radius of the Subject Property.

Criminal Docket System (C-DOCKET)

The Criminal Docket System is a comprehensive automated system for tracking criminal enforcement actions. C-Docket handles data for all environmental statues and tracks enforcement actions from the initial stages of investigations through conclusion. The Subject Property and adjacent properties were not on the C-DOCKET list. There are no C-DOCKET site listings located within a one-mile radius of the Subject Property.

Federal Enforcement Dockets

The US EPA, Office of Enforcement, maintains a list of sites under enforcement by the US EPA. The Subject Property and adjacent properties were not on the FED list. There are no FED site listings located within a one-quarter mile radius of the Subject Property.

5.2.2. State

CALSITES - No Further Action

This section includes the sites on the CALSITES list, which have been flagged for no further action by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code. The Subject Property was among the three NFA-CALSITES listings located within a one-quarter mile radius. *Southern California Edison Highgrove Generating Plant* was investigated by DTSC and found to require no further action after a drive-by inspection of the facility in 1983. Based on the current status and observations of the site, DCI does not consider this NFA-CALSITES listing or other such listings to be significant environmental concerns with respect to the Subject Property.

State of California Office of Planning and Research (CORTESE)

This database is a consolidation of information from various sources. It is maintained by the State Office of Planning and Research and lists potential and confirmed hazardous waste or substances sites. Facilities that have been reported elsewhere in this report will not be included in the listing below. The Subject Property and adjacent properties were not on the CORTESE list. There are no CORTESE site listings located within a one-half mile radius of the Subject Property.

Well Investigation Program (WIP)

The Well Investigation Program (AB1803) identifies groundwater that is already contaminated and empowers the California Department of Health Services and local health officers to order ongoing monitoring programs. The focus of this program is to monitor and protect drinking water. The Subject Property and adjacent properties were not on the WIP list. There are no WIP site listings located within a one-mile radius of the Subject Property.

Drinking Water Program

In order to provide for the orderly and efficient delivery of safe drinking water the California State Department of Health Services collect information on the quality of public drinking water wells under the California Drinking Program. Below, the latest and maximum analyses of contaminants are reported (only positive readings are included). The Subject Property and adjacent properties were not on the WQ list. There are no WQ site listings located within a one-half mile radius of the Subject Property.

5.2.3. Regional

The Regional Sources list consists of sites tracked by the State of California Water Resources Control Board and the Regional Water Quality Control Board for program tracking and inventory of waste management units.

Toxic Releases

The California Regional Water Quality Control Boards or local Department of Health Services keeps track of toxic releases to the environment. These lists are known as Unauthorized Releases, Spill, Leaks, Investigations and Cleanups (SLIC), Non-Tank Releases, Toxics List or similar, depending on the local agency. The Subject Property and adjacent properties were not on the SLIC list. The nearest of the two SLIC site listings located within a one-half mile radius is over one-half mile southwest of the Subject Property, and too distant to be of concern.

Toxic Pits

The Toxic Pits Clean-Up Act (Katz Bill) places strict limitations on the discharge of liquid hazardous wastes into surface impoundment, toxic ponds, pits and lagoons. Regional Water Quality Control Boards are required to inspect all surface impoundment annually; in addition, every facility was required to file a Hydrogeological Assessment Report. Recent legislation allows the Department of Health Services to exempt facilities that closed on or before December 31, 1985, if a showing is made that no significant environmental risk remains (AB1046). Special exemption provisions have been created for surface impoundments that receive mining wastes. The Subject Property and adjacent properties were not on the TP list. There are no TP site listings located within a one-mile radius of the Subject Property.

Solid Waste Assessment Test (SWAT)

This program, provided for under the Calderon legislation (Section 13273 of the Water Code), requires that disposal sites with more than 50,000 cubic yards of waste provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment. Site operators are required to file Solid Waste Assessment Test reports on a staggered basis. Operators of the 150 highest ranking (Rank 1) sites were required to submit Solid Waste Assessment Tests by July 1, 1987, Rank 2 in 1988 and so on. Operators submit water quality tests to the Regional Water Quality Control Board, describing surface and groundwater quality and supply; and the geology within one-mile of the site. Air quality tests are

submitted to the local Air Quality Management District or Air Pollution Control District. The Subject Property and adjacent properties were not on the SWAT list. There are no SWAT site listings located within a one-mile radius of the Subject Property.

5.2.4. Federal and State Operating Permits

Various agencies issue operating permits or regulate the handling, movements, storage and disposal of hazardous materials and require mandatory reporting. The inclusion in this section does not imply that an environmental problem exists presently or has in the past. The sources referenced below have been searched within half a mile radius, unless otherwise stated, of the Subject Property.

SARA Title III, section 313 (TRIS)

Title III of the Superfund Amendments and Reauthorization Act, Section 313, also known as Emergency Planning and Community Right-to-Know Act of 1986 requires owners or operators of facilities with more than 10 employees and are listed under Standard Industrial Classification (SIC) Codes 20 through 39 to report the manufacturing, processing or use of more than a threshold of certain chemical or chemical categories listed under section 313. This database is also known as Toxic Release Information System (TRIS). The Subject Property and adjacent properties were not on the SARA list. The only SARA site listing located within a one-mile radius is over 800 feet southeast of the Subject Property, and too distant to be of concern.

Nuclear Regulatory Commission Licensees

The Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards has been mandated (10 CFR Ch 1.42) to protect the public health and safety, the common defense and security, and the environment by licensing, inspection, and environmental impact assessment for all nuclear facilities and activities, and for the import and export of special nuclear material. The Subject Property and adjacent properties were not on the NRC list. There are no NRC site listings located within a one-quarter mile radius of the Subject Property.

PCB Waste Handlers Database

The U.S. Environmental Protection Agency tracks generators, transporters, commercial stores and/or brokers and disposers of PCB's in accordance with the Toxic Substance Control Act. The Subject Property and adjacent properties were not on the PCB waste list. There are no PCB site listings located within a one-mile radius of the Subject Property.

Permit Compliance System (PCS)

PCS contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS was developed by The U.S. Environmental Protection Agency to meet the information needs of the NPDES program under the Clean Water Act. The PCS tracks permits, compliance and enforcement statues of NPDES facilities. The Subject Property was the only PCS site listing located within a one-half mile radius. No conditions were observed that indicate potential impact to the Subject Property from any active pollution discharges.

AIRS Facility System

AFS contains emissions and compliance data on air pollution point sources tracked by the U.S. EPA and state and local environmental regulatory agencies. There are seven "criteria pollutants" for which data must be reported to EPA and stored in AIRS: PM10 (particulate matters less than 10 microns in size), carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, reactive volatile organic compounds (VOC), and ozone. AFS replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aeromatic Data (SAROAD). The Subject Property was among the four AFS site listings located within a one-quarter mile radius. No conditions were observed that indicate potential impact to the Subject Property from any active pollution discharges.

Section Seven Tracking System (SSTS)

SSTS evolved from the FIFRA and TSCA Enforcement System (FATES). SSTS tracks the registration of all pesticide producing establishments and tracks annually the types and amounts of pesticides, active ingredients, and devices that are produced, sold or distributed each year. The Subject Property and adjacent properties were not on the SSTS list. There are no SSTS site listings located within a one-quarter mile radius of the Subject Property.

FIFRA/TSCA Tracking System/ National Compliance Database (FTTS/NCDB)

NCDB supports implementation of the Federal Insecticide, Fungicide and Rodenticide Control Act (FIFRA) and the Toxic Substance Control Act (TSCA). The Subject Property and adjacent properties were not on the FIFRA/TSCA list. There are no FIFRA/TSCA site listings located within a one-quarter mile radius of the Subject Property.

Federal Facilities Information System (FFIS)

Federal Facilities Information System (FFIS) contains a list of all Treatment Storage and Disposal Facilities (TSDs) owned and operated by federal agencies. The Subject Property and adjacent properties were not on the FFIS list. There are no FFIS site listings located within a one-quarter mile radius of the Subject Property.

Chemicals in Commerce Information System (CICIS)

Chemicals in Commerce Information System (CICIS) contains inventory of chemicals manufactured in commerce or imported for Toxic Substances Control Act regulated commercial purposes. CICIS allows EPA to maintain a comprehensive listing of over 70,000 chemical substances that are manufactured or imported and are regulated under TSCA. The Subject Property and adjacent properties were not on the CICIS list. There are no CICIS site listings located within a one-quarter mile radius of the Subject Property.

FINDS EPA Facility Index System

The U.S. Environmental Protection Agency maintains an index system of all facilities, which are regulated or have been assigned an identification number for other purposes. Facilities that have been reported elsewhere in this report will not be included in the listing below. The Subject Property was not on the FINDS list. The nearest of the two FINDS site listings located within a one-quarter mile radius is across the street to the southeast at Riverside Plating Co. (21750 Main St.). Based on the current status, distance and direction from the site, DCI does not consider this FINDS site listing or other such listings to be significant environmental concerns with respect to the Subject Property.

Hazardous Waste Information System (HWIS)

The Department of Toxic Substance Control, California Environmental Protection Agency, maintains a database keeping track of the movement and disposal of hazardous waste. The data is used to support the Tanner legislation, AB 2948. The Subject Property was among the twenty-nine HWIS site listings located within a one-half mile radius. *Riverside Canal Power Company & EPTC Highgrove* maintain(ed) permits to generate hazardous wastes at the Subject Property. The nearest offsite HWIS listing is across the street to the southeast at K J Plating (21750 Main St.). Based on the current status, distance and direction from the site, DCI does not consider these HWIS site listings or other such listings to be significant environmental concerns with respect to the Subject Property.

5.2.5. Other Regional and Local Sources

Grand Terrace – Building Department

DCI requested building permits for the Subject Property for information concerning the past use of the property and for the possible installation of UST's, clarifiers and other substantial sources of hazardous wastes that could have impacted soil and groundwater. The earliest permit information on-file was for construction of the adjacent power plant at the Subject Property in 1949. Subsequent permits are for electrical, plumbing, and minor alterations to the buildings.

Department of Toxic Substances Control

DCI reviewed records from the Department of Toxic Substances Control, for information regarding uncontrolled releases, posted violations, and investigations at the Subject Property. According to DTSC records, Terracon Environmental completed a RCRA Facility Investigation at *Highgrove Generating Station* and *Cage Park.* The files for the *Highgrove Generating Station* identified site assessment and soil remediation activities associated with the former power plant operations. The work included aboveground tank and underground tank abandonment, and sump pit removals. Two solid waste management units and 11 areas of concern have been investigated at the Subject Property. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. DTSC issued a "no further action/remedy completed" letter on December 17th, 2013.

San Bernardino County – Fire Department (CUPA)

DCI submitted a records request to the San Bernardino County Fire Department Hazardous Materials Division, for information regarding hazardous materials use, underground storage tanks, industrial waste discharges, and/or posted violations at the Subject Property. Records for the *Highgrove Generating Station* at this agency begin in the early 1980's. The file information includes other facilities known as *Southern California Edison* and *Riverside Canal Power Company*. *Riverside Canal Power Company* maintains active permits to handle hazardous materials and generate hazardous wastes on the Subject Property located at 12700 Taylor Street, in Grand Terrace, California. No violations were found during the most recent inspection of the facility in June 2012. Inspector notes confirm *Southern California Edison* was in process of remedial action/investigation through DTSC oversight for closure.

Cal-State University, Northridge

DCI reviewed available Historical Topographic Maps, Sanborn Fire Insurance Rate Maps, and Aerial Photographs to establish and historical use of the Subject Property. Historic Topographic Maps produced in 1925 identify the Subject Property and surrounding properties as vacant land or developed residentially. Sanborn Fire Insurance Rate Maps were not available for the Subject Property. ASCS-USDA aerial photographs taken in 1954 show the Subject Property as developed with a private park, warehouse building, and four cooling towers. Vacant land, agricultural fields, and ranch style dwellings surround the Subject Property.

Regional Water Quality Control Board

DCI researched records from the Regional Water Quality Control Board for information on leaking underground storage tanks, toxic releases, posted violations, and active investigations for the Subject Property. According to Geo-tracker web-based information, *Highgrove Generating Station* is reported with several investigations related to power plant operations at 12700 Taylor Street, in Grand Terrace, California. DTSC issued a "no further action/remedy completed" letter on December 17th, 2013.

State of California, Department of Health Services

Records indicate that the Subject Property is not licensed through this agency.

State of California – Division of Oil, Gas, and Geothermal Resources

The Subject Property is not located within any oil or gas field boundary - see Appendix D. Also, there is no known producing and/or abandoned oil well located within 1,500 feet of the Subject Property.

South Coast Air Quality Management District

DCI performed a records search at this agency's web site regarding permits to operate and notices of violations for regulated air-emissions at the Subject Property. According to SCAQMD files, *Southern California Edison Highgrove Facility / AES Highgrove LLC /*

Energy Support Systems Inc. / WCS International Inc. maintain(ed) permits to operate storage tanks, boilers, turbine engines, cooling towers, flares, afterburner, and other regulated emissions at the Subject Property from as early as 1981 through 2000. Minor violations have been corrected. See AQMD records in Appendix B.

5.3. Physical Setting Sources

The physical setting of the Subject Property and vicinity is described in terms of topographic, geologic, and hydrogeologic features in the following text.

5.3.1. Topographic Features

A topographic map of the immediate vicinity of the Subject Property is included in Appendix D. DCI reviewed current USGS 7.5 Minute Topographic maps to determine the general topographic features of the Subject Property and surrounding areas. The Subject Property is located on flat terrain with a shallow downward slope towards the west.

5.3.2. Geologic Features

The Subject Property is situated in the Santa Ana Groundwater Basin, at an elevation of approximately 940' feet above mean sea level. According to boring logs from boreholes at nearby locations, the soil consists of sand, gravel, clay and silts to a depth of several hundred feet and thence more coarse-grained sediments below. Poorly consolidated Holocene and Pleistocene Age alluvial deposits occur within the Santa Ana Groundwater Basin. Tertiary age sediments underlying the Subject Property are semi-consolidated (non-water bearing) sedimentary rocks.

5.3.3. Groundwater Hydrogeology

Groundwater flow direction could not be determined specifically for the Subject Property. It is typical that the groundwater flow direction follows the ground surface topography, which generally appears to be in a southwesterly direction. Based on information provided by the DTSC and consultants, depth to shallow groundwater at the Subject Property was measured at approximately 100' feet below ground surface in 1998.

5.4. Historical Use Information of the Property and Adjoining Properties

5.4.1. Aerial Photographs

Fairchild aerial photographs taken in 1930 show a small building (possible dwelling) located on the southern portion of Subject Property off Main Street. An ephemeral creek channel traverses the parcel from southeast to northwest. The remainder of site appears to be fallow agricultural land. Agricultural fields are across both streets to the east and south. Railroad tracks are adjacent to the west. There were no significant changes to the Subject Property or adjacent properties in USGS aerial photographs taken in 1948. USGS aerial photographs taken in 1952 show the Subject Property developed with the present warehouse building and two cooling towers. A small lake has formed in the northwest portion of site. A steam power plant is constructed on the adjacent property to the north. An industrial building and citrus groves are across the street to the east. Citrus groves are across the street to the south. Two

additional cooling towers have been added to the northeast and abundant new growth vegetation covers the remaining areas of the Subject Property in USGS aerial photographs taken in 1966. Nearly all of the surrounding agricultural fields are vacant land. There were no significant changes to the Subject Property in USGS aerial photographs taken in 1980. A new commercial building is across the street to the south. USGS aerial photographs taken in 1988 show the adjacent commercial building removed. Another light industrial building has been constructed across the street to the south in USGS aerial photographs taken in 1994. The Subject Property remains developed with four cooling towers, warehouse, and park. The four cooling towers and auxiliary equipment have been removed from the Subject Property in USDA aerial photographs taken in 2010.

5.4.2. Fire Insurance Maps

Sanborn Fire Insurance Rate Maps were not available for the Subject Property.

5.4.3. Property Tax Files

DCI did not research Property Tax Files for the Subject Property based on the history of use.

5.4.4. Recorded Land Title Records

DCI did not research Land Title Records for the Subject Property based on the history of use.

5.4.5. USGS 7.5 Minute Topographic Maps

DCI reviewed current USGS 7.5 Minute Topographic maps to establish the historical use of the Subject Property. On a Historic Topographic Map produced in 1925, the Subject Property and adjacent properties are vacant land. On a map dated 1998 (Grand Terrace map photo-revised in 1998 using 1978 aerial photographs) the Subject Property appears to be fully developed. All of the adjacent properties are developed.

5.4.6. Local Street Directories

DCI did not research Local Street Directories for the Subject Property located at 12700 Taylor Street, in Grand Terrace, California. Tenant history was established through records searches with the City of Grand Terrace, San Bernardino County, State and Federal sources, and interviews with persons familiar with the Subject Property. *California Electric Power Company* constructed the power plant in the early 1950's. *Southern California Edison* merged with *California Electric* and operated the *Highgrove Steam Plant* from the early 1950's to 2000. *Thermo Ecotek* purchased the power plant and created the *Riverside Canal Power Company*. *AES Corporation* purchased the power plant in 2001.

5.4.7. Building Department Records

DCI reviewed building permits for the Subject Property for information concerning the past use of the property and for the possible installation of UST's, clarifiers and other substantial sources of hazardous wastes that could have impacted soil and groundwater. No permits were found indicating the installation of any underground storage tanks or interceptors at the Subject Property parcel.

5.4.8. Zoning/Land Use Records

Records indicate that the Subject Property is zoned for industrial use.

6. Site Reconnaissance

A site reconnaissance of the Subject Property was conducted to look for signs of any recognized environmental conditions at the Subject Property and its adjoining properties.

6.1. Methodology and Limiting Conditions

A site reconnaissance generally consists of a brief meeting onsite with the property owner (or owner's representative), a walk through visual inspection of the property itself, and a visual inspection of the interior and exterior of any existing onsite structures. Conclusions drawn from the site reconnaissance regarding recognized environmental conditions are only based on surface evidence. This conclusion does not apply if surface evidence was concealed from view or altered beyond recognition. A subsurface investigation to detect the presence of UST's, hazardous substances, or petroleum products was not part of this investigation.

6.2. General Site Setting

The Subject Property is level terrain, mostly undeveloped light industrial/commercial land. A power plant occupied part of the Subject Property from the early 1950's to 2001.

6.3. Exterior Observations

DCI found no adverse environmental impact due to hazardous materials use or storage on the Subject Property. No evidence of releases, such as heavy staining or corrosion, was observed at the Subject Property.

6.3.1. Hazardous Substances and Petroleum Products (Containers)

There are no hazardous substances present that pose a significant threat to the environmental integrity of the Subject Property. There was no evidence of illegal dumping of chemicals or suspicious containers identified on the Subject Property.

6.3.2. Underground Storage Tanks

There are no active registered underground storage tanks operating at the Subject Property or adjacent properties.

6.3.3. Polychlorinated Byphenols (PCBs)

Pole-mounted transformers are located along the south side of site. The transformers appear to be newer models owned and maintained by Southern California Edison. Transformers are a concern because of the presence of PCB's in the coolant of some earlier models. Current (new) transformers utilize mineral oil as the insulating or cooling fluid exclusively. In a recent statistically-valid test of over 20,000 distribution transformers, it was determined that the concentration of PCB's in mineral oil was less than fifty parts per million in over ninety-six percent of the transformer units tested. No leaks or staining was observed on the pavement beneath the transformers.

6.3.4. Pits, Ponds, or Lagoons

DCI observed a small pond located on the northwest portion of the Subject Property.

6.3.5. Stained Soil or Pavement

DCI did not observe any significantly stained soils or pavement on the Subject Property and adjacent properties currently present or in past historical data.

6.3.6. Stressed Vegetation

DCI did not observe distressed vegetation on the Subject Property and adjacent properties currently present or in past historical data.

6.3.7. Solid Waste

No solid waste dump containers were observed on the Subject Property. No spills, staining, odors, or suspicious containers suggestive of the improper disposal of hazardous materials were present. DCI observed no vegetative stress or staining suggestive of illegal dumping.

6.3.8. Wastewater Treatment / Discharge

DCI did not observe any interceptor or clarifier operating at the Subject Property.

6.3.9. Septic Systems

DCI did not observe any septic tank systems located on the Subject Property. Public sewer connections are available through the City of Grand Terrace, Building Department.

6.3.10. Wells

DCI observed a monitoring well (MW-1) located in the center of the Subject Property.

6.4. Interior Observations

No access was available to the warehouse buildings interior.

6.4.1. Heating/Cooling (gas, electric, steam boiler with furnace, etc.)

DCI did not observe any gas and electrical appliances located on the Subject Property.

6.4.2. Stains or Corrosion

DCI observed standing water in a concrete swale located on the Subject Property. No significant staining or corrosion was observed in this area.

6.4.3. Drains and Sumps

DCI observed storm water discharge sources draining onto the Subject Property. No staining or odors were detected within these areas.

6.4.4. Asbestos Containing Materials (ACM's)

Sampling for Asbestos Containing Materials (ACM's) was not a part of the scope of services for this report. It should be noted that both friable and non-friable forms of ACM might be present in building materials used prior to 1978. Based on the age of the building improvements, it is likely that ACM's are located on the Subject Property.

6.4.5. Lead Based Paints

Sampling for Lead Based Paints was not a part of the scope of services for this report. It should be noted that Lead Based Paints might be present in painted construction. Based on the age of construction, it is likely that Lead Based Paints are located on the Subject Property.

7. Interviews

7.1. Interview with Owner

The owner's representative of the Subject Property was identified as Mr. Rick John. Rick indicated that the owner is responsible for the day-to-day management of the Subject Property. "Hazardous substances are not being handled or stored onsite. There are no posted violations or non-compliance issues for the power plant business at the Subject Property."

7.2. Interview with Site Manager

Same as above

7.3. Interviews with Occupants

According to nearby neighbors, there is no history of any significant hazardous materials use, posted violations, or illegal business operations at the Subject Property.

7.4. Interviews with Local Government Officials

Grand Terrace Building Permit Technicians assisted DCI personnel with file research on past development for the Subject Property. They indicated that the Building Department maintains the permits for the site address located at 12700 Taylor Street, in Grand Terrace.

8. Findings and Opinions

The Subject Property consists of the southern portion of a recently subdivided industrial parcel of land located at 12700 Taylor Street, in Grand Terrace, California. A private park (*Cage Park*) and thermoelectric power plant (*Highgrove Generating Station*) previously occupied the Subject Property for nearly 65 years. The power plant ceased operations and no production has occurred since 2001. All of the equipment formerly at the Subject Property has been removed. Hazardous materials are not being handled or stored at the site. The Subject Property was observed to be relatively clean and maintained in good condition overall. No staining, corrosion, or other signs of chemical releases was observed at the site.

The Regulatory Records Search identified several properties with environmental concerns within a 1/2-mile radius of the Subject Property. However, there is no active listing located within the primary area of concern for possible vapor intrusion onto the Subject Property (1/10-mile). The nearest site listing is a "case closed" CERCLA site across the street to the southeast at K J Plating Inc. (21750 W. Main St.). A subsurface investigation determined that storm water run-off entering the lot from the K J Plating property does not appear to be impacting the Subject Property. No conditions were observed that indicate potential impact to the Subject Property from this nearby source of hazardous wastes. Any properties under remediation for soil and/or groundwater contamination in the vicinity of the site appear unlikely to adversely impact the Subject Property.

9. Conclusions

DCI Environmental Services has performed a Phase I Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice E 1527-05, at 12700 Taylor Street, in Grand Terrace, California. Any exceptions to, or deletions from, this practice are described in Section 13 of this report. This assessment has revealed no recognized environmental conditions in connection with the Subject Property, except for the following:

The Subject Property address of 12700 Taylor Street is listed on the ERNS, CORRACTS, NFA-CALSITES, RCRA-G, PCS, AFS, HWIS, and UST databases. *California Electric Power Company* installed four cooling towers and auxiliary equipment on the Subject Property in the early 1950's. *Southern California Edison* merged with *California Electric Power Company* and operated the power plant from 1964 through 2000. The facility transferred ownership two more times, however *Southern California Edison* retained full responsibility for all environmental liabilities associated with past facility operations and adjoining properties. The cooling towers were installed in the northeast corner of Subject Property. Wastewater from the cooling towers was discharged into a small natural pond

located at *Cage Park* to the west. Golder Associates installed a monitoring well (MW-1) between the cooling towers and *Cage Park* as part of groundwater sampling for total petroleum hydrocarbons (TRPH) and volatile organic compounds (VOC's) in 1998. No TRPH or VOC's were detected above RWQCB's maximum screening levels for groundwater samples collected from this monitoring well. Terracon Environmental completed a RCRA Facility Investigation at the *Highgrove Generating Station* and *Cage Park.* Two solid waste management units and 11 separate areas of concern were investigated at the Subject Property. Sampling results confirmed that no significant releases have occurred at the Subject Property. Elevated arsenic levels discovered onsite were determined to be natural occurring background concentrations typical for soils in San Bernardino County. The results indicated there were no releases of hazardous substances that would adversely impact human health and the environment and that the former power plant site is acceptable for unrestricted use. A "no further action/remedy completed" letter was issued by DTSC on December 17th, 2013.

Considering our findings, DCI Environmental Services has no recommendation for additional investigation of the Subject Property, at this time. The open monitoring well (MW-1) at the site appears to be the only environmental issue requiring agency oversight for legal closure. No conditions were observed that indicate significant impact to the Subject Property from this open well.

10. Data Gaps

There does not appear to be any significant Data Gaps in connection with the Subject Property. Based on records to date, remedial action/investigations have been completed on the Subject Property located at 12700 Taylor Street, in Grand Terrace, California.

11. Additional Services

No additional services outside the Detailed Scope of Services described in Section 2.2 were employed.

12. References

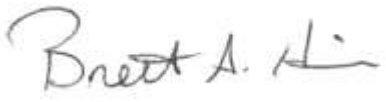
1. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. ASTM E1527-05, ASTM Committee E-50 (November, 2005).
2. *GeoFinder* for Windows by Thomas Brothers Maps.
3. *TopoUSA* for Windows by Delorme.
4. State of California, Department of Conservation, *Division of Oil, Gas, and Geothermal Resources* (W1-5).
5. Planert, M. and Williams, J.S. *USGS Ground Water Atlas of the United States - Segment 1 California/Nevada*, Online Version (http://ca.water.usgs.gov/gwatlas/).
6. Grand Terrace Department of Building & Safety, *Records Division*.
7. BBL of Solana Beach, *Environmental Records Search*
8. San Bernardino County Fire Department CUPA, *Public Health Investigations*

9. Cal-State University of Northridge, Library, *Historical Records Department*
10. Fairchild Aerial Photographs, *Aerial Photographs*
11. Teledyne Aerial Photographs, *Aerial Photographs*
12. U.S Department of Interior, Geological Survey, *Aerial Photographs.*
13. South Coast Air Quality Management District, *Records Division.*

13. Deviations

Any additions, deletions, or deviations from the standard practice outlined in ASTM E 1527-05 are noted here.

14. Signature(s) of Environmental Professionals



Brett A. Herion, REPA #872414
Project Manager

Dated: February 12th 2014

15. Environmental Professional(s) Statement

I declare to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional(s) as defined in Section 312.10 of Title 40 Code of Federal Regulations. I have specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Registered Environmental Professional Assessor No. 872414
California Registered Environmental Assessor No. 7603

DCI Environmental Services

ENVIRONMENTAL CONTRACTOR'S CERTIFICATION

Contractor's Name: DCI Environmental Services

Contractor's Address: 9795 Cabrini Drive, Suite 104, Burbank, CA. 91504

1. Name and title of person performing the audit: Brett A. Herion, REPA #872414

Attach a statement of how long the person has been performing environmental assessments and the education and training the person has received. 25 Years

Identify any certifications and approvals issued to contractor pursuant to an official Federal, State, or local program or policy to conduct environmental assessments:

National Registered Environmental Property Assessor REPA #872414

Describe the generally recognized standard(s) the contractor will use to perform the assessment.

ASTM 1527-05

Disclose the nature of any previous environmental inspections contractor has ever performed for the seller of the property: None

Or the buyer of the property: None

Disclose the nature of any affiliation or association contractor now has or ever had, with the above referenced seller of the property, or the above referenced buyer of the property. NA

Describe/attach evidence of the liability insurance carried by contractor to cover claims in the event that it fails to discover adverse environmental conditions during an environmental inspection.

Admiral Insurance Company (policy #FEI-ECC1156900-3)

The undersigned hereby certifies, under penalty of the criminal and/or civil penalties in 18 U.S.C.# 1001 for false statements to the United States Government, that the above information is true and correct.

Brett A. Herion

February 12th, 2014
Date

Signature

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY): 12/4/2013

PRODUCER
ISU INS SERV - BC ENV BROKERAGE
1037 SUNCAST LANE, SUITE 103
EL DORADO HILLS, CA 95762
(916) 939-1080

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
DOUBLE CHECK, INC. dba: DCI SERVICES
& DCI ENVIRONMENTAL SERVICES
9795 CABRINI DR. STE 104
BURBANK, CA 91504

INSURERS AFFORDING COVERAGE	NAIC#
INSURER A: ADMIRAL INSURANCE COMPANY	24856
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A		GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR X CONT. POLLUTION GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC	FEI-ECC-11569-01	12/04/13	12/04/14	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 50,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
		AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $
		GARAGE LIABILITY ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
		EXCESS/UMBRELLA LIABILITY OCCUR CLAIMS-MADE DEDUCTIBLE RETENTION $				EACH OCCURRENCE AGGREGATE	$ $
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $
A		OTHER PROF. LIAB. CLAIMS MADE	FEI-ECC-11569-01 RETRO: 12/5/05	12/04/13	12/04/14	$1,000,000 OCCURRENCE $2,000,000 AGGREGATE	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER

FOR INFORMATION ONLY

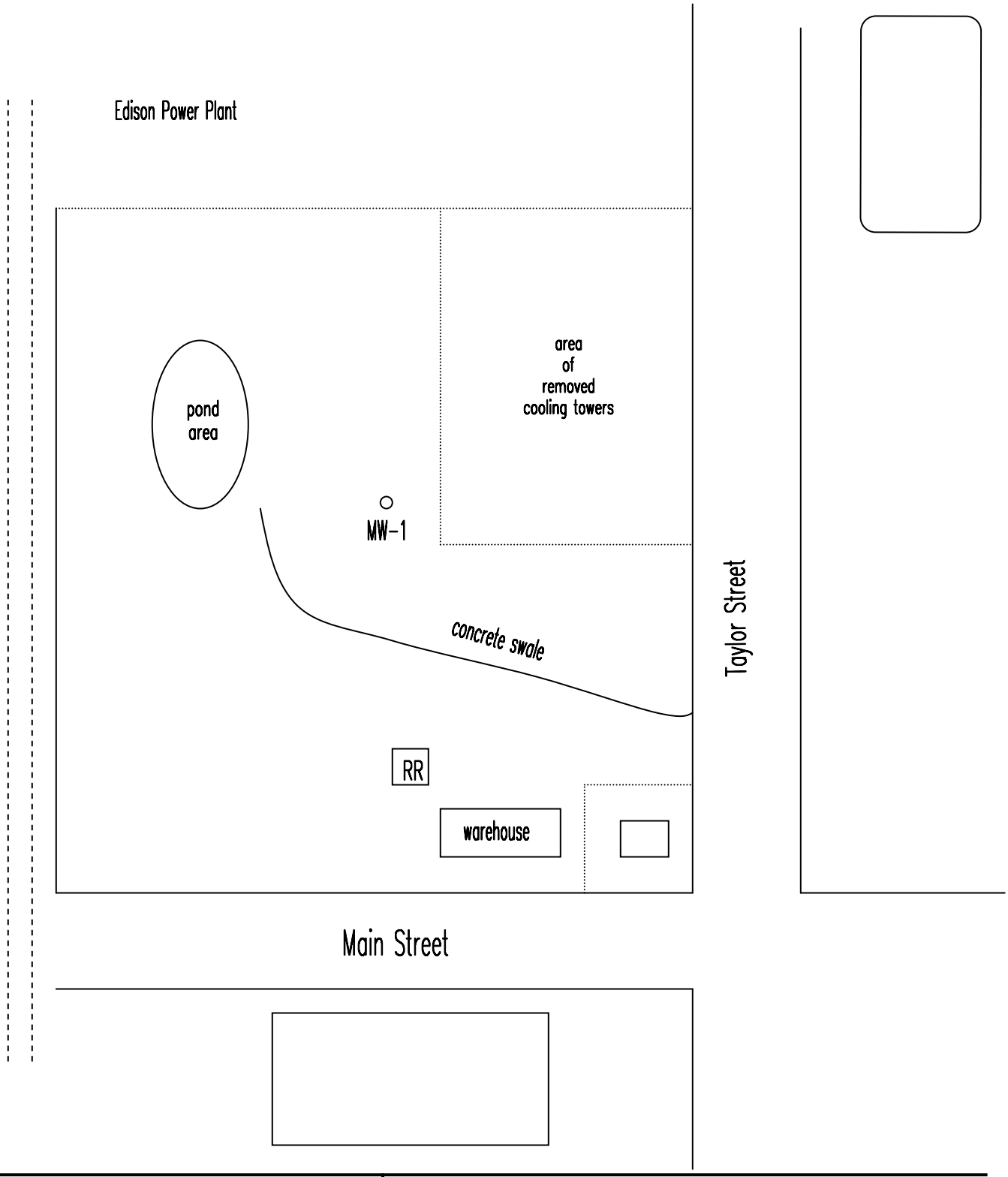
CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED [redacted]

Appendix A

Site Location Map



DCI Environmental Services
9795 Cabrini Dr., #104
Burbank, CA 91504
(818) 767-3894 [tel]
(818) 767-2757 [fax]

Subject Site:	**12700 Taylor St. Grand Terrace, CA 92313**
Project No.:	**26008**
Drawn:	**January 28, 2014**
Drawn by:	**B.H.**

N

Appendix G

References

REFERENCES

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E 1527-13.

American Society for Testing and Materials, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions, ASTM Designation: E 2600-15

Environmental Data Resources, Inc., Milford, Connecticut, The EDR Aerial Photo Decade Package, Inquiry No. 6212139.11, October 2020.

Environmental Data Resources, Inc., Milford, Connecticut, Certified Sanborn Map Report, Inquiry No. 6212139.3, October 2020.

Environmental Data Resources, Inc., Milford, Connecticut, The EDR Historical Topographic Map Report, Inquiry No. 6212139.4, October 2020.

Environmental Data Resources, Inc., Milford, Connecticut, The EDR Radius Map with Geocheck Report, Inquiry No. 6212139.2s, October 2020.

Environmental Data Resources, Inc., Milford, Connecticut, The EDR Environmental Lien and AUL Search, Inquiry No. 6212139.7, October 2020.

Environmental Data Resources, Inc., Milford, Connecticut, The EDR City Directory Image Report, Inquiry No. 6212139.5, October 2020.

State Water Resources Control Board, GeoTracker Online Database, Retrieved from http://geotracker.swrcb.ca.gov/, October 2020.

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Hazards Analysis

Final Report

Condor Energy Storage Project

City of Grand Terrace, California

Prepared for:
Condor Energy Storage, LLC
452 Fifth Avenue, 29th Floor
New York, NY 10018

Prepared by:
MRS Environmental
1306 Santa Barbara Street
Santa Barbara, CA 93101

Date:

June 1, 2021

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Attachment F	Fire Safety Plan
Attachment G	Calculations
Attachment H	Fisher Engineering UL 9540A Test Results Discussion Paper

List of Acronyms and Definitions

Acronym	Definition
Ah	Amp hour
AHJ	Authority Having Jurisdiction
BMS	Battery Management System
BSS	Battery Storage System
CFC	California Fire Code
CGA	Compressed Gas Association
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
ESS	Energy Storage Systems
GWh	Gigawatt hour (equal to 1,000 MWhs)
HVAC	Heating Ventilation and Air Conditioning
IDLH	Immediately Dangerous to Life and Health: developed by National Institute for Occupational Safety and Health (NIOSH)
IEEE	Institute of Electrical and Electronics Engineers
kWh	Kilowatt hour
LEL	Lower Explosive Limit
LFL	Lower Flammability Limit
MWhr	Megawatt hour (equal to 1,000 kWh)
NCA	Lithium Nickel Cobalt Aluminum
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NRTL	OSHAs Nationally Recognized Testing Laboratory
OEHHA	Office of Environmental Health Hazard Assessment
ppm	Parts Per Million
REL	Reference Exposure Level
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SDS	Safety Data Sheet
SOC	State of Charge
TCP	Transmission Control Protocol
Thermal Runaway	During the thermal runaway, the battery temperature increases due to exothermic reactions. In turn, the increased temperature accelerates those degradation reactions and the system destabilizes, potentially releasing flammable and toxic gases.
SFPE	Society of Fire Protection Engineers
UL	Underwriters Laboratory
USDOT	U.S. Department of Transportation
Whr	Watt hour

1.0 Introduction

Condor Energy Storage, LLC proposes to install a battery storage system with a capacity of 200 MW in the City of Grand Terrace, CA (Project). The Project would provide additional capacity to the electrical grid during periods when electrical sources are not generating power or when there is a need for additional power. The Project would provide increased electrical reliability and stability to the local grid, thereby reducing the need to operate fossil-fuel generation systems and reducing the consumption of fossil fuels and associated emissions of greenhouse gases.

This report examines the potential upset and malfunction scenarios for the Project that could result in impacts to nearby receptors from toxic and flammable gas releases. The Project would not cause any impacts from toxic gas or flammable gas releases during normal operations (operations include battery storage and planned and unplanned maintenance activities).

Battery energy storage systems convert electrical energy into a chemically stored form that can later be converted back into electrical energy when needed. The first U.S. battery storage system listed in the Federal Energy Information Administration (EIA) database was a 40 MW system in Alaska in 2003. As of October 2020, the United States has 1,363 MW of total battery storage capacity (EIA 2020) at 188 installations. California leads the U.S. in battery energy storage with 528 MW at 55 installations, with an additional 2,712 MW of battery storage capacity projected to be placed in service by 2024.

Lithium-ion batteries were introduced commercially by Sony in 1991 for use primarily in consumer products, and they since have become the most widely used battery technology for grid-scale energy storage. Lithium-ion batteries are scalable. About 92% of U.S. grid-storage installations utilize lithium-ion batteries (EIA 2020).

2.0 Project Description

The Project site would be located at the corner of Taylor and West Main Street in the City of Grand Terrace, CA on parcel APN: 116-715-177. The proposed Project location would be immediately west of Grand Terrace High School, immediately east of the railroad tracks, north of West Main Street and industrial facilities and south of the Southern California Edison electrical substation. The site is currently undeveloped. See Figure 1.

The Project would involve the installation of 256 self-contained energy storage and management cabinets (called a Megapack) containing battery modules designed and manufactured by Tesla. Each cabinet would hold 17 modules of batteries, with each module holding about 12,636 battery cells. An operations and maintenance (O&M) control enclosure would also be located on the Project site. The Megapack cabinets would be placed at the site outdoors. The Megapacks will have no walk-in or occupied facilities in the proposed Project design, and the Project will not otherwise include any buildings.

Figure 1 Project Location

Source: Google Maps imagery date 3/23/2019

The O&M control enclosure would be a physically small footprint (i.e., similar to a desktop computer) and is typically located within or adjacent to the Megapacks, along with the rest of the Project communications equipment. Access to the O&M control enclosure would be external only; it would not be a walk-in enclosure. The O&M control enclosure houses the external communication interface over TCP (Modbus, DNP3.0 or REST) to the utility and network operator or customer SCADA systems. The Controller communicates to each Megapack over a private TCP network. Each Megapack is controlled by the inverter: based on the signal received from the

controller, the Megapack will trigger the charge or discharge of each battery module. The Controller aggregates real-time information from all the Megapacks and leverages the information to optimize the commands sent to each Megapack.

The Project will be monitored remotely by the Tesla Operations Center. Daily inspections of the Project would also be conducted. The Project would not be manned on-site.

The proposed battery cell type would be Lithium Nickel Cobalt Aluminum (NCA) manufactured by Tesla. This analysis is conducted for an NCA-type battery.

The Project would be equipped with inverters to convert the DC electricity of the battery systems into AC current used by the electrical grid and AC to DC to charge the batteries as required. There would also be a liquid thermal cooling system integrated into the cabinets to provide cooling to the batteries and power electronics.

Fire prevention systems would include proposed cabinets designed to limit or eliminate the potential for fire to spread from one cabinet to another, infrared camera monitoring at the site for external fire detection and onsite fire hydrants. Additional items include video monitoring of the site, site lighting, site security, training, fire access planning and fire water flow design. A Fire Safety Plan is included in Attachment F.

The Battery Management System (BMS) would monitor all cell voltages, currents and temperatures and shut down equipment if unsafe conditions are detected with monitoring and control by the Tesla Operations Center.

The Megapacks are equipped with ventilation systems which allow for the removal and combustion of off-gassed emissions. The design of Megapack includes 33 pressure-sensitive vents (over-pressure vents) and a sparker system. The sparker system utilizes an igniter to produce a spark sufficient to produce ignition of flammable gases on a periodic basis. The over-pressure vents and sparker system work in combination with each other to mitigate the risks of deflagration and overpressure events by combusting flammable off-gassed emissions before they reach the Project enclosure's lower flammability limit (LFL). This design essentially ignites the gases very early in a thermal runaway scenario, before there is time for the gas volume to build up within the enclosure and become an explosion hazard. Eight sparkers per Megapack are installed at the top of the Megapack bays, just below the over-pressure vents installed within the roof. The sparkers enable a rapid combustion of the hot gases and opening of the closest over-pressure vents. This ensures products of combustion and flames will exit through the roof, without creating a pressure scenario within the Megapack large enough to blow open doors or expel projectiles from the unit. By keeping all the doors shut during the fire, this also helps ensure that the fire will not propagate to adjacent Megapacks. In addition, the Project would be equipped with fire detection and gas detection systems.

Thermal management of a Megapack is achieved via liquid cooling using a 50/50 mixture of ethylene glycol and water. A typical Megapack includes about 540 liters of coolant. Mechanical damage of a Tesla Energy Product could result in leakage of the coolant.

The Megapack thermal management system also includes 7.6 kg of R134a refrigerant in a sealed system. Mechanical damage of a Megapack could result in a release of the refrigerant. R134a is non-flammable.

The electrolyte within Megapack cells includes a volatile hydrocarbon-based liquid and a dissolved lithium salt (which is a source of lithium ions) such as lithium hexafluorophosphate. The electrolyte in a Megapack cell is absorbed in electrodes within individual sealed cells. The electrolyte reacts with those materials and is consumed during normal operation of the batteries. As such, the Megapack does not contain free liquid electrolyte.

The potential for an electrolyte spill from a Megapack is very unlikely. Electrolyte can be extracted from a single cell using a centrifuge, or under some extreme abuse conditions such as a severe crush. However, it is very difficult to mechanically damage cells in such a way as would be required for an electrolyte leak to occur. Even if a single cell was damaged in a manner that could cause electrolyte leakage, it is highly improbable that any incident would result in a leak from more than a few cells.

3.0 Environmental and Regulatory Setting

There are a number of different lithium battery types including the following:

- Lithium Nickel Cobalt Aluminum (NCA, proposed for this Project)
- Lithium Nickel Manganese Cobalt (NMC)
- Lithium Manganese Oxide (LMO)
- Lithium Titanate Oxide (LTO)
- Lithium-Iron Phosphate (LFP)

This study assumed the use of the Lithium Nickel Cobalt Aluminum (NCA) battery type.

Battery Testing Requirements and Regulations
Batteries are subject to several codes and standards. Some of the relevant ones are discussed below.

UL9540: Safety for Energy Storage Systems. The requirement addresses the inherent design and performance, as well as the interface of the energy storage system with the infrastructure. Addresses construction, performance, electrical, mechanical, environmental, manufacturing and markings.

UL9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems – this test methodology evaluates the fire characteristics of a battery energy storage system that undergoes thermal runaway. The data generated can be used to determine the fire and explosion protection required for an installation of a battery energy storage system.

UL1973: Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications - These requirements cover battery systems as defined by this standard for use as energy storage for stationary applications such as for PV, wind turbine storage or for UPS, etc. applications. This standard evaluates the battery system's ability to safely withstand

simulated abuse conditions. This standard evaluates the system based upon the manufacturer's specified charge and discharge parameters. Requires that an Energy Storage System (ESS) is not allowed to be an explosion hazard when exposed to an external fire source and that a single cell failure will not result in a cascading thermal runaway of cells.

IEEE C2: This Code covers basic provisions for safeguarding of persons from hazards arising from the installation, O&M of (1) conductors and equipment in electric supply stations, and (2) overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance, and operation of electric supply and communication lines and equipment. The Code is applicable to the systems and equipment operated by utilities, or similar systems and equipment, of an industrial establishment or complex under the control of qualified persons.

California Fire Code 608 and International Fire Code: Specifies minimum size requiring permits (Lithium, all types, 20 kWh), specifies maximum limits on sizing for battery systems (Lithium all type, 50 kWh each array), seismic and structural design, spacing (minimum 3 feet separation of arrays), vehicle impact protection, testing, maintenance and repairs, maximum quantities within a building (Lithium of 600 kWh), BMS monitoring, shutdown and notification requirements, automatic smoke detector requirements, automatic fire sprinkler systems and ventilation specifications. Section 1210 of the California Fire Code also requires that the battery systems be "listed", which is achieved through testing by an OSHA certified NRTL laboratory (see below).

NFPA 1: The General NFPA Fire Code addressing extracts from other NFPA codes.

NFPA 13: Standard for the Installation of Sprinkler Systems, addresses sprinkler system design approaches, installation, and component options.

NFPA 70: National Electrical Code, addresses electrical design, installation, and inspection.

NFPA 550: Guide to Fire Safety Concepts Tree for Protecting Energy Systems - addresses issues such as utilizing BMS and compatible equipment, ventilation as needed, fire resistive separation, array spacing, signage.

NFPA 855: Standard for the Installation of Stationary Energy Storage Systems - establishes criteria for minimizing the hazards associated with ESS. NFPA 855 addresses issues including ventilation, smoke and fire detection, fire control and suppression, explosion control, water supply, O&M, battery energy storage systems hazards and firefighting considerations.

OSHA NRTL: The OSHA Nationally Recognized Testing Laboratory (NRTL) program recognizes private sector organizations to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards. Each NRTL has a scope of test standards that they are recognized for, and each NRTL uses its own registered certification mark(s) to designate product conformance to the applicable product safety test standards, thereby "listing" the product. After certifying a product, the NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the NRTL tested and certified the product, and

that the product complies with the requirements of one or more appropriate product safety test standards. Two testing laboratories certified for the electrical components discussed in this analysis are Underwriters Laboratory (UL) and TUV Rheinland.

Health Protective Regulations
The National Institute for Occupational Safety and Health (NIOSH) has established standards or concentrations at which certain pollutants are defined as immediately dangerous to life and health (IDLH).

In 2016, a technical working group comprised of utility and industry representatives worked with the California Public Utilities Commission Safety & Enforcement Division's Risk Assessment and Safety Advisory (RASA) section to develop a set of guidelines for documentation and safe practices at ESS collocated at electric utility substations, power plants or other facilities (CPUC 2017). The guidelines require a safety plan and inspection procedures.

Receptors
There are receptors located near the Project site. These receptors are listed in Table 1 along with the respective distances to the closest Project Megapack.

Table 1 Distance to Receptors

Receptor	Distance to Battery Megapack Cabinet, feet
Main Street sidewalk area	50
Taylor Street	100
Lot line of Industrial Area south of Main Street	140
Industrial Area south of Main Street closest building	160
High School parcel line	160
High School parking lot	180
High School stadium track area	190
High School stadium bleachers	280
Western industrial area fence line	290
Closest residential parcel	470
High School closest building	540

4.0 Assessment Methodology

There will be no emissions from the battery systems associated with the Project during normal operations (battery storage and planned and unplanned maintenance). However, in the unlikely event of a battery cell malfunction, such as a thermal runaway reaction or external impact scenario, the Project could emit air pollutants to the atmosphere. For these types of battery cell malfunctions, air pollutant emissions could be generated due to elevated temperatures within a single storage cell or group of storage cells caused by a runaway reaction. When Li-ion batteries are mistreated with high over-temperature, a strong overcharge or suffer damage, they can transit into a so-called

"thermal runaway". During the thermal runaway, the battery temperature increases due to exothermic reactions. In turn, the increased temperature accelerates those degradation reactions, and the system destabilizes. At the end of the thermal runaway, battery temperatures higher than 1,000 °C can be reached and flammable and toxic gases can be released (Golubkov 2015). A thermal runaway event would be considered a worst-case event and is addressed in further detail below. Tesla has not experienced a thermal runaway event with any of their installed base of battery systems to date.

This analysis is limited to a reasonable worst-case scenario. A catastrophic scenario, such as an airplane impact, runaway vehicle impact, runaway train impact, terrorist incident or nearby construction equipment collapse causing impact, could cause multiple Megapacks to be destroyed, causing substantial emissions associated with a large-scale fire. A reasonable worst-case scenario is more limited in scope, defined as a control system failure or a puncture of a module, similar to that conducted as part of the UL 1973 testing, which could cause a runaway reaction in a group of cells. Generally, a reasonable worst-case scenario is more appropriate for a planning scenario as any development project could produce substantial fires and cause impacts to neighboring facilities under a catastrophic scenario.

The Project will be equipped with monitoring and control systems that will prevent and/or control battery cell malfunctions. However, to determine an unlikely, but reasonable worst-case public health impacts for this analysis, it is assumed that these control systems fail and do not control the battery cell malfunction. For this unlikely scenario, it is assumed that the battery cell malfunction continues until third-party or municipal fire suppression services arrive at the Project site.

Different manufacturers have developed various studies examining the potential scenarios related to battery malfunctions, although most of these studies are proprietary. Some studies have been independently performed for agencies, including by Det Norske Veritas (DNVGL 2017) conducted for the New York State Energy Research & Development Authority (NYSERDA) and Consolidated Edison. Other studies include Anderson 2013, Blum 2016, Larsson 2017 and LG Chem (another battery manufacturer) where batteries were exposed to heat sources and off-gases were measured. In addition, the battery manufacturer, Tesla, has performed testing on a representative system by DNVGL (DNVGL 2019) where heat was added and forced a burn of the entire enclosure.

Different battery cell malfunctions could produce emissions. These include:

- An elevated temperature situation due to a runaway reaction with no combustion (venting with no combustion); or
- Combustion of the battery due to an elevated temperature situation from a runaway.

Studies have shown (Rincon 2017, and proprietary UL9540A testing) that a localized runaway reaction with combustion produces the greatest flow of emissions. Emissions would occur both during the pre-combustion off-gassing phase and during the combustion phase.

During the pre-combustion off-gassing phase, the off-gassed materials would contain flammable and toxic materials. Although the flow of materials during the off-gassing phase would be lower than the combustion phase, the off-gassing phase would still present impacts as the temperature of the off-gassed materials would be lower than combustion, thereby producing less lift and buoyancy, resulting in potentially higher levels of toxic gases at ground level. In addition, during the off-gassing phase, there would be more flammable materials that could give rise to a vapor cloud with subsequent deflagration or explosion.

During the combustion phase, most of the off-gassed materials would be combusted and hence would contain only low levels of flammable gases. During combustion, the off-gassed toxics would also be combusted, but a different array of toxic combustion products, mostly from the combustion of the plastics used in the Megapacks, would be produced. In addition, during combustion, the heat of combustion would produce substantial plume buoyancy, thereby causing the materials to rise into the air. As the downwind, ground-level impacts could be greater during the pre-combustion off-gassing phase, both phases are examined in this analysis.

The Megapacks are enclosed in cabinets that have venting. It is assumed that the air emissions caused by these malfunction scenarios will be vented during the malfunction scenarios. As per the UL9540A Testing Report (Attachment A and H), emissions occurred from the Megapack over a 3.5-hour period. Two reasonable worst-case scenarios are addressed in this analysis: the loss of 10 percent of the cells within a Megapack module (multicell scenario), and the loss of an entire Megapack. For the multicell scenario, it is assumed that the release of pollutants to the atmosphere would occur all within one hour as a reasonable worst case. While emissions could occur over a longer period of time, a worst-case analysis is produced if the same quantity of pollutants are released over a shorter period of time, thereby increasing the emission rates and increasing the downwind distance and potential impacts. In addition, as part of the UL1973 design requirements, battery malfunctions and punctures have limited cascading capabilities. Therefore, it is highly unlikely that an entire module or groups of modules would be involved in a single scenario. Accordingly, a reasonable worst-case for the multicell scenario is assumed to involve only 10 percent of the cells in a single module if a battery malfunction were to occur. Tesla's historical experience with battery cell malfunctions indicate that this is a very conservative scenario that has not occurred to date with their batteries.

For the Megapack scenario, it is assumed that the entire Megapack is consumed similar to the large-scale fire testing conducted under UL9540A unit testing and pollutants are released over a 3.5-hour duration, which was the duration of the off-gassing observed during the UL9540A large-scale fire test.

Battery malfunctions can result in the release of toxic materials and/or the release of a flammable gas mixture and subsequent flammable gas vapor cloud with subsequent fire or explosion. The pollutants released are discussed below.

4.1 Toxic Pollutants

Toxic pollutants emitted from battery malfunctions are partially dependent on the battery type. For lithium-ion batteries, studies indicate that the primary toxic pollutants could be any of the following:

Table 2 Potential Toxic Pollutants from Battery Malfunctions

Pollutant	OEHHA Reference Exposure Level (REL), µg/m3 / (ppm)	IDLH (Immediately Dangerous to Life and Health)	ERPG-3 (Emergency Response Planning Guidelines)	ERPG-2 (Emergency Response Planning Guidelines)
Carbon monoxide (CO)	23,000/26.7	1,200 ppm	500 ppm	350 ppm
Hydrogen Chloride (HCL)	2100/3.2	50 ppm	150 ppm	20 ppm
Hydrogen Cyanide (HCN)	340/0.4	50 ppm	25 ppm	10 ppm
Hydrogen Fluoride (HF)	240/0.2	30 ppm	50 ppm	20 ppm
Methanol (CH_3OH)	28,000/37	6,000 ppm	5,000 ppm	1,000 ppm
Nitrogen Oxide (NO_x)	470/0.9	13 ppm	30 ppm	15 ppm
Phosphine (PH_3)**	400/0.6	50 ppm	5 ppm	0.5 ppm
Phosphorous Pentafluoride (PF_5)	240/0.2*	50 ppm***	-	-
Phosphoryl Fluoride (POF_3)	240/1.0*	50 ppm	-	-
Styrene	21,000/90	700 ppm	1000 ppm	250 ppm
Sulfur Dioxide (SO_2)	660/1.8	100 ppm	25 ppm	3 ppm
Toluene	37,000/140	500 ppm	1,000 ppm	300 ppm

* Utilized the acute REL for hydrogen fluoride as per OEHHA REL tables for Fluorides chronic are very similar.
** OEHHA does not have REL for acute PH3. Estimated based on NIOSH values.
*** The National Institute for Occupational Safety and Health (NIOSH) does not have a listing for PF_5. PF_5 and POF_3 estimated based on general fluorides.
Sources: See Table 3.

Generally, the battery cell will start to off-gas if the internal temperature exceeds 120 °C (DNVGL 2017).

A range of available studies of emissions from a thermal runaway scenario associated with the Tesla battery cells, together with the Megapack-specific UL9540A testing, has been reviewed in connection with this hazard analysis. Several studies have examined the emissions of toxic pollutants from battery off-gassing situations, with some studies examining only the concentration of toxic pollutants and others also examining emission rates. By addressing a range of studies and utilizing the worst-case emissions, the estimates of impacts are conservative as the emissions from a range of tests on the same battery type could produce a range of pollutant concentrations.

The relevant studies are listed in Table 3.

Table 3 Studies on Emissions from Battery Malfunctions

Study	Description	Results
Anderson 2013	Exposure of battery to heat source, off-gases tested. LFP battery, 1.2 kg, 35 Ah	HF: 30-50 ppm peak POF_3: 1-2 ppm peak HF Rate: 0.01 g/s
Blum 2016	Modules tested with heat exposure until thermal runaways. 100 kWh unit by Tesla.	HF: 100 ppm peak
CATL	UL 9540A testing	Composition of off-gassing: primary pollutants only. Up to 153.5 L off-gas per cell
Larsson 2017	External propane burner used to heat batteries, measured toxic gases. Examined different battery types	HF: up to 145 ppm peak HF rate: 50 mg/s peak HF rate: 200 mg/Whr peak POF_3 rate: 22 mg/Whr peak
LG Chem	Proprietary data on LFP battery tests. NMC battery type.	HF-0.2 ppm PH_3-1.0 ppm HF rate: 4.7e-7 g/hr PH_3 rate: 2.4e-4 g/hr Up to 244 L off-gas per cell
DNVGL 2017	Measured characteristics of a wide range of battery types and failures	release rates per kg of battery weight: HF rate: 1.7e-7 kg/s-kg
DNVGL 2019	Measure characteristics of a Tesla powerpack thermal runaway scenario	Maximum Values: HCL: 538 ppm HF: 183 ppm HCN: 67 ppm
Tesla	Proprietary studies	HF: 500 ppm HCL: 1,000 ppm HCN: 1,600 ppm Methanol: 32 ppm Styrene: 1 ppm Toluene: 3,500 ppm
	UL 9540A cell, module and unit level tests	HF: 0.5 ppm CO: 83 ppm CO: 51% of off-gassed materials
	Fisher Engineering, 9540A Test Results	HF: 0.5 ppm

Some of the key findings from a review of these studies include the following:

- HF was found to be produced by all battery types.
- For NCA batteries, HCL, HF and HCN are produced (DNVGL 2019).
- PH_3 was only identified by LG Chem for the NMC battery type, not the NCA proposed for this Project. No other studies identified PH_3 as an issue for the NCA battery.
- PF_5 rapidly decomposes to HF and was therefore generally not detected (Anderson 2013).
- POF_3 was not found to be produced by NCA batteries (Larsson 2017).

It was also found that the average emission rate of HF in a plastics fire can be higher than that for a battery fire (DNVGL 2017), indicating that potentially a majority of the toxic emissions from a battery fire are a result of the combustion of the plastic components.

This analysis reviewed the studies listed in Table 3, including the UL9540A large-scale fire testing conducted on the Megapacks proposed for this study, and utilized the highest toxic and flammable concentrations identified in any of these studies. As a battery off-gassing scenario could have a range of characteristics, utilizing the maximum levels seen in a range of studies ensures a conservative analysis.

4.2 Flammable Components and Flammability

Flammable components are also emitted from a battery malfunction. Based upon the studies listed in Table 3, the flammable components could include the following:

Table 4 Potential Flammable Components from Battery Off-gassing

Component	Lower Flammability Limit (LFL), vol%
Acetylene (C_2H_2)	2.5
Butanes (C_4)	1.8
Carbon monoxide (CO)	12.5
Ethane (C_2H_6)	3.0
Ethylene (C_2H_4)	2.7
Hydrogen (H_2)	4.0
Methane (CH_4)	5.0
Pentanes (C_5)	1.4
Propane (C_3H_8)	2.1
Propene (C_3H_6)	2.0

Depending on the combination of these flammable materials, the off-gases could have varying degrees of flammability.

Tesla provided information on the composition of battery off-gassing as part of battery testing UL9540A tests. These are shown below:

Table 5 Tesla Manufacturer Battery Off-gassing Primary Flammable Components

Component	Mole Percent
Hydrogen (H_2)	26
Carbon monoxide (CO)	51
Methane (CH_4)	10
Ethylene (C_2H_4)	4
Propane (C_3H_8) +	9

Note: based on Tesla UL9540A cell and module testing.

The Compressed Gas Association (CGA) Publication P-23 provides algorithms for estimating the level of flammability of gas mixtures. The application of this technique to the off-gassed materials as provided by the manufacturer as part of the testing (shown in Table 5) indicates that the released vapor/gas would be flammable, with a Q value of over 9.0 (This exceeds the Q value flammability limit of 1.0, established by the CGA, indicating the materials is flammable. See Attachment G (CGA 2015) with an estimated lower flammability limit of over 5.5 percent. The 9540A testing indicated a LFL of 6.0 percent.

4.3 Modeling

In order to estimate the impacts of the off-gassing from toxic and flammable emissions, a modeling approach was used. The Canary© model was run to examine the downwind distance to the toxic IDLH and the flammable and explosive levels that could occur under the release scenario situations. The Canary© model is a computerized model developed by Quest Consulting to estimate the thermodynamic properties of gas mixtures and estimate impact distances of thermal exposure, explosions, vapor clouds and toxic effects.

For flammable impacts, the Canary© model was used to determine the distances that flammable vapor clouds (assessed to the LFL level) could travel with a resulting battery malfunction scenario under different meteorological conditions. The Canary© model was also used to examine explosion impacts to 1 psi overpressure.

For thermal impacts due to a fire, the UL9540A testing results were utilized to estimate the distances to different heat flux values.

4.4 UL 9540A Large Scale Fire Tests

As per the requirements of NFPA 855, large scale fire testing was conducted for the Megapack cells, the module and the entire Megapack (unit test). This testing provides for assessing a number of characteristics applicable to this analysis, including:

- Temperatures of the cells during off-gassing;
- Thermal flux experienced at nearby areas;
- Chemical composition of off-gassed materials;

- Chemical composition of combustion products;
- Smoke production rates; and
- The impacts on adjacent Megapacks.

The UL9540A tests require that the battery arrangements are forced into thermal runaway by inserting heaters into the batteries and forcing the temperature of the system to be elevated, thereby producing thermal runaway. In the cell and module level tests, the chemical compositions are measured both during the off-gassing and the combustion phases. For the Megapacks, as they are designed to be installed outside and not inside buildings or near buildings, the unit level test is primarily performed to examine the ability of the Megapack to maintain containment and prevent the spread of a fire or thermal runaway scenario to adjacent Megapacks.

Table 6 shows a summary of the test results.

Table 6 Megapack UL9540A Tests Results Summary

Component	Value
Surface temperature at which gases are first vented	282 °F
Gas composition off-gassing	CO (51.0%), H_2(26.0%), CH_4(10.6%), C_3H_8(9.4%), Others
Gas composition combustion gas	C_3H_8 2ppm, CH_4 2.8 ppm, CO 83 ppm, CO_2 650 ppm, C_2H_4 2.5 ppm, HF 0.5 ppm, H_2 Maximum 35% of LEL.
Average smoke release rate	0.68 m^2/s
Unit level test flame size	Peak flame extension was observed to be at about 10-12 ft upwards and 8-10 ft in front of the unit.
Unit level test heat flux	Maximum incident heat flux was 17.5 kW/m^2 at 3 ft
Unit level test neighbor module peak temperature	113 °F

Note: based on Tesla UL9540A cell, module and unit testing.

The fire testing indicated that the Megapack fire is not a high energy fire like a flame jet or an explosion. During the testing, no projectiles, explosions or flying debris were observed. The fire also develops relatively slowly, as listed below, allowing for effective fire department response and presence during the peak flame period:

- 38 seconds after initial heating: Hot gases detected by flame detection system;
- 2 minutes 40 seconds: Megapack temperature alarms to Tesla Operations Center;

- 8 minutes 25 seconds into test: hot gases coming from top of Megapack;
- 14 minutes 40 seconds: first flames observed;
- 38 minutes: peak flame intensity;
- 38 – 43 minutes: peak flame thermal flux levels above 5 kW/m^2 at 30 feet;
- 3 hours 30 minutes duration of off-gassing and flames.

5.0 Assessment of Potential Consequences

The consequences associated with battery malfunctions are discussed below based on the methodology presented above.

5.1 Exposure Assessment

Project emissions to the air would consist of off-gassed and combustion products due to a battery cell malfunction under the reasonable worst-case scenario. Inhalation is the main pathway by which toxic air pollutants could potentially cause public health impacts.

Flammable material impacts could be produced by vapor cloud deflagrations or explosions for the reasonable worst-case scenario, or from thermal exposure to fires.

5.2 Significance Criteria

For toxic impacts, limiting IDLH to areas onsite or away from high density areas offsite would produce less than significant hazards, as indicated in NFPA 855 4.1.4.3 and B.3.2. High density areas are defined as residential, commercial areas or schools. For toxic impacts, impacts offsite into high density populated areas may require additional analysis in order to determine significance utilizing a quantitative risk assessment (QRA).

Flammable impacts are less than significant if vapor cloud fires, explosions or thermal impacts do not impact high density areas.

5.3 Toxic Impacts

Potential human health impacts associated with the Project stem from exposure to air emissions from the battery cell malfunction reasonable worst-case scenario discussed above. The reasonable worst-case scenario would involve the battery malfunctions associated with off-gassing or combustion. The battery manufacturer provided information on primary and toxic pollutants from the battery malfunction, and that information was utilized for the analysis.

Detailed calculations are provided in Attachment G. The compounds and the associated mass emission rates were determined by UL9540A testing performed by the battery vendor as well as historical studies on toxic emissions.

Because the emissions would occur over a short period of time, only the public health impacts associated with acute exposure to short term releases were analyzed for the reasonable worst-case

battery cell malfunction. No longer-term chronic or carcinogenic impacts are produced as no emissions are associated with normal, long term operations.

Modeling conducted utilizing the Canary© software indicated that the plume centerline rises due to the elevated temperature of the off-gassed materials. However, as the exact elevations of the plume could vary with varying meteorological conditions and the influence of structures causing downwash, the plume centerline concentrations were used to determine impacts.

As the emissions would occur over a short period of time, only the public health impacts associated with acute exposure to short term releases were analyzed for the reasonable worst-case battery cell malfunction. The acute impact distances for the reasonable worst-case battery cell malfunction scenarios are provided in Table 7, and detailed calculations can be found in Attachment A. Public health impacts from toxic pollutants associated with the reasonable worst-case battery cell malfunction would not impact populated areas and would be less than significant.

Table 7 Modeling Toxic Materials Results

Pollutant	IDLH Downwind Distance, feet
Multicell Scenario	
Carbon monoxide (CO)	99
Hydrogen Chloride (HCL)	5
Hydrogen Cyanide (HCN)	16
Hydrogen Fluoride (HF)	7
Toluene	3
Megapack Scenario	
Carbon monoxide (CO)	166
Hydrogen Chloride (HCL)	5
Hydrogen Cyanide (HCN)	16
Hydrogen Fluoride (HF)	12
Toluene	5

Notes: based on Canary© modeling, assuming meteorology of F stability and 1.5 m/s wind speeds. See Attachment G.

5.4 Combustion Smoke Impacts

Combustion products can include a number of components that can be toxic: particles, vapors, toxic gases including carbon monoxide (CO), hydrogen cyanide from the burning of plastics, phosgene from vinyl materials. Fire can also reduce oxygen levels, either by consuming the oxygen, or by displacing it with other gases.

The Fisher report (see Attachment H) provides a more detailed review of the UL9540A testing and describes some of the combustion products as part of the fire testing. Monitoring indicated low

levels of carbon monoxide and carbon dioxide (83 – 680 ppm) and low levels of toxins (HF less than 1.0 ppm).

The dispersion and downwind impacts of smoke are highly complex due to the influence of the flame and fire-induced turbulence as well as the effect of structures and meteorological parameters. Impacts during the combustion phase are estimated based on the smoke release rate for the UL9540A module level testing, scaled up to an entire Megapack. Smoke generation during a fire is complex, as a wide range of materials in the Megapack would be consumed by the fire, including electronic components and plastics. During the UL9540A unit fire test, there was a wide range of fire conditions, flame lengths, wind effects producing a wide range of ground level exposures near the Megapack.

In order to address a range of potential smoke impacts, both a high fire case and a lower fire case were modeled. The high fire case assumed a high level of smoke flow based on the UL9540A module testing smoke generation rates. The lower fire case was assumed to be 10% of the high fire case in terms of smoke flow. Both a high wind (10 mph) which constitutes about 13% of the wind conditions at the site (see meteorological conditions discussion below) and a low wind case were modeled, with the low wind speed at 3.3 mph. The higher wind generally produced higher ground level impacts, but with additional dispersion and air mixing, reduces the downwind distances to impacts.

During the combustion phase, substantial temperature and buoyancy effect are produced by the open flame. During the module level UL9540A testing, smoke generation rates were estimated. Based on studies that involve the testing of a range of materials (Heskested 1994), in combination with smoke release rates and smoke generation rates, the flow of combustion products was estimated and then used in the CANARY© model to estimate the downwind impacts due to dispersion. Fire temperatures were assumed to be 1650 °F as per temperatures measured during testing.

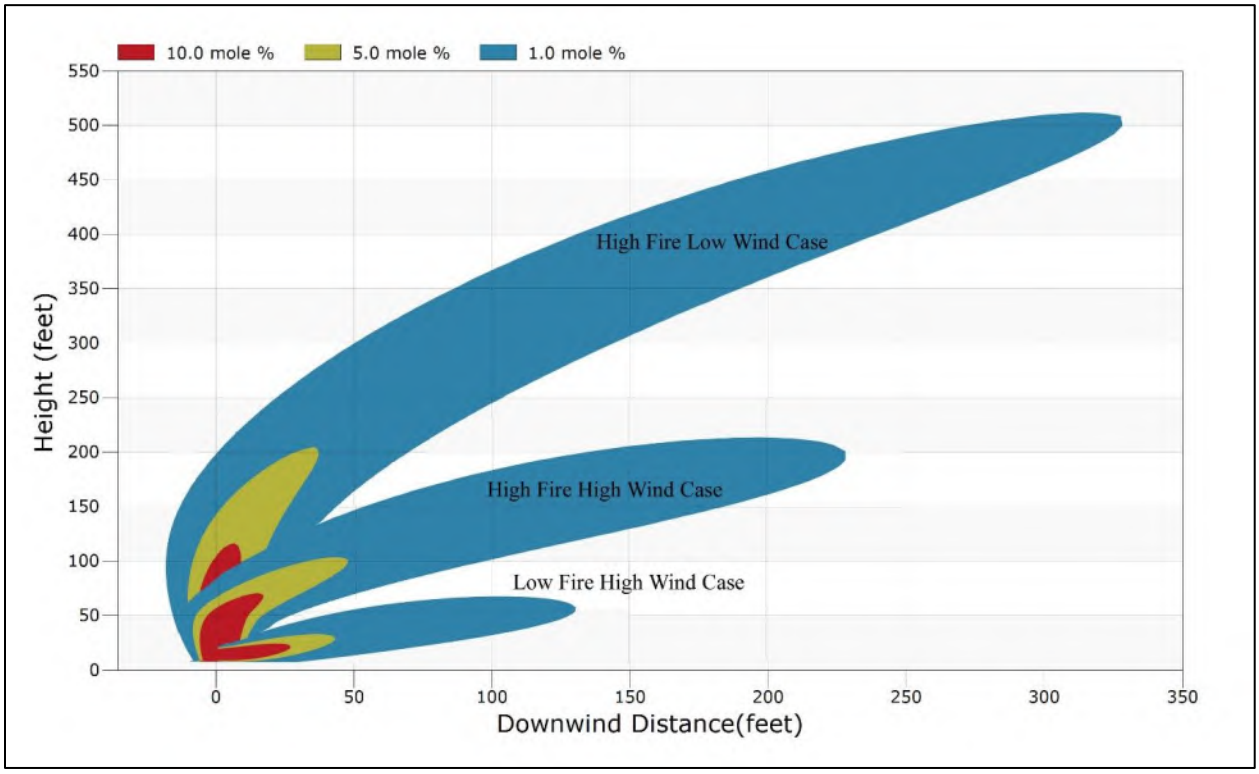
Smoke levels above 1 - 10% in the air would displace oxygen and could produce impacts, as well as increased toxicity of the smoke could cause impacts. CANARY modeling estimated that the smoke concentrations would be as high as 1% concentrations as far as 325 feet from the fire, although this plume would be substantially elevated. Peak near-ground-level impacts could be realized as far as 60 feet from the Megapack. Figure 2 shows the horizontal profile of the combustion products plume for both the high fire case and lower fire case along with the range of wind speeds. The ground-level distance would not extend outside of the Project site boundaries and would not impact any off-site receptors. Therefore, impacts would be less than significant.

5.5 Flammable Vapor Impacts

The off-gassed materials could generate a flammable vapor cloud and may produce a flammable gas mixture (see above). The CANARY© computer model was utilized to estimate the distance that the flammable vapor cloud could reach (see Attachment G for the CANARY© model outputs and assumptions). The lower flammability limit (LFL) and the ½ LFL were used as an estimate of the potential impacts from flammable vapors. Distances for the LFL and the ½ LFL were estimated

to be 15 and 18 feet for the multicell scenario, respectively, with a Megapack scenario extending to 18-30 feet.

Figure 2 Combustion Products Downwind Impacts



Notes: Analysis using the Canary© model windy (10 mph) meteorological conditions.

Explosion distances to a 1 psi overpressure assumed a high level of material reactivity (due to the presence of hydrogen) and a high obstacle density (due to the location of multiple cabinets together), thereby increasing the potential for an explosion, under a conservative scenario. The 1 psi overpressure levels are those at which building glass would shatter or light injuries occur due to fragments (NFPA 2014). Vapor cloud explosion impacts were estimated to be between 18-69 feet for the multicell and Megapack scenarios, respectively. This distance would not extend outside of the Project site boundaries and would not impact any offsite receptors. Therefore, impacts would be less than significant.

5.6 Thermal Impacts

Impacts from a fire could produce thermal radiation which could affect areas near the fire and areas offsite. During the UL9540A testing, thermal radiation impacts were measured at both 20 and 30 feet from the Megapack. The Fisher report indicated that the Megapack produced a fire for a peak period of about 10 minutes (from minutes 38-43 and minutes 53-58 of the test). Peak levels at 20 feet during that period were 28.8 kW/m^2 and averaged 19.1 kW/m^2. Peak levels at 30 feet during that period were 9.8 kW/m^2 and averaged 4.9 kW/m^2.

In order to estimate the thermal radiation at different distances from the Megapack during a fire scenario, a point source model for thermal radiation was utilized (CCPS 2003). The point source model uses the following equation:

$$q = \frac{x\,Q}{4\,\pi\,R}$$

Where

q = heat flux in kW/m^2

Q = heat release rate, kW

R = distance from the flame center, meters

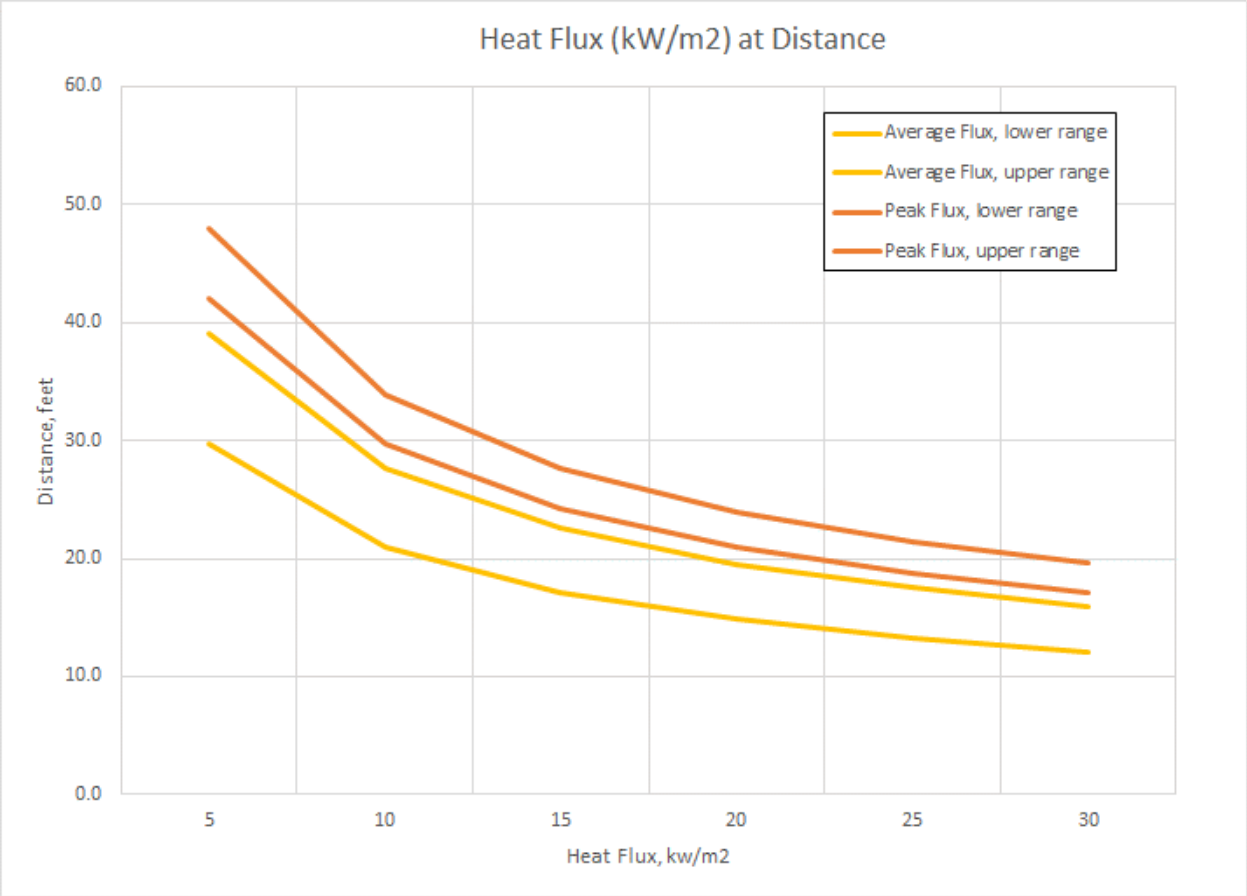
x = radiative fraction, energy fraction released as thermal radiation, with the fraction of energy released as radiation between 0.10 and 0.40 with a value of 0.35 conservatively assumed (as per SFPE 1999 and FMGlobal 2019).

Using the above point source approach, Figure 3 was produced showing the thermal flux at different distances from a Megapack fire. Note this is a conservative assumption as no impacts due to the atmosphere or smoke effects are assumed and a high fraction of heat to radiation is also assumed. The Fisher report examined heat flux at two different distances, which provide an estimate of the range of heat release rate generated from the fire. The figure shows the range of peak heat flux and the range of average heat flux for different heat flux levels and distance.

In general, when estimating the potential impacts of thermal radiation, both the level of heat flux and the duration are used to estimate the thermal dose or amount of heat transferred or the "thermal load". Probit equations demonstrate this effect, as higher heat flux impacts to humans and materials can be tolerated at shorter durations (Lees 2014). Table 8 below shows different heat flux levels and associated impacts on humans and materials.

Note that heat flux impacts to humans can generally be tolerated below 5 kW/m^2 and below 10 kW/m^2 if sufficient time to escape is feasible. Heat flux levels that can produce spontaneous ignition in building materials generally do not occur below 12.5 – 20 kW/m^2.

Figure 3 Fisher Analysis Estimated Heat Flux at Distance



Notes: using the point source model and the Fisher results for peak and average heat flux at 20 and 30 feet, to define the ranges of impacts.

Table 8 Potential Thermal Impacts from Heat Flux Exposure and Duration

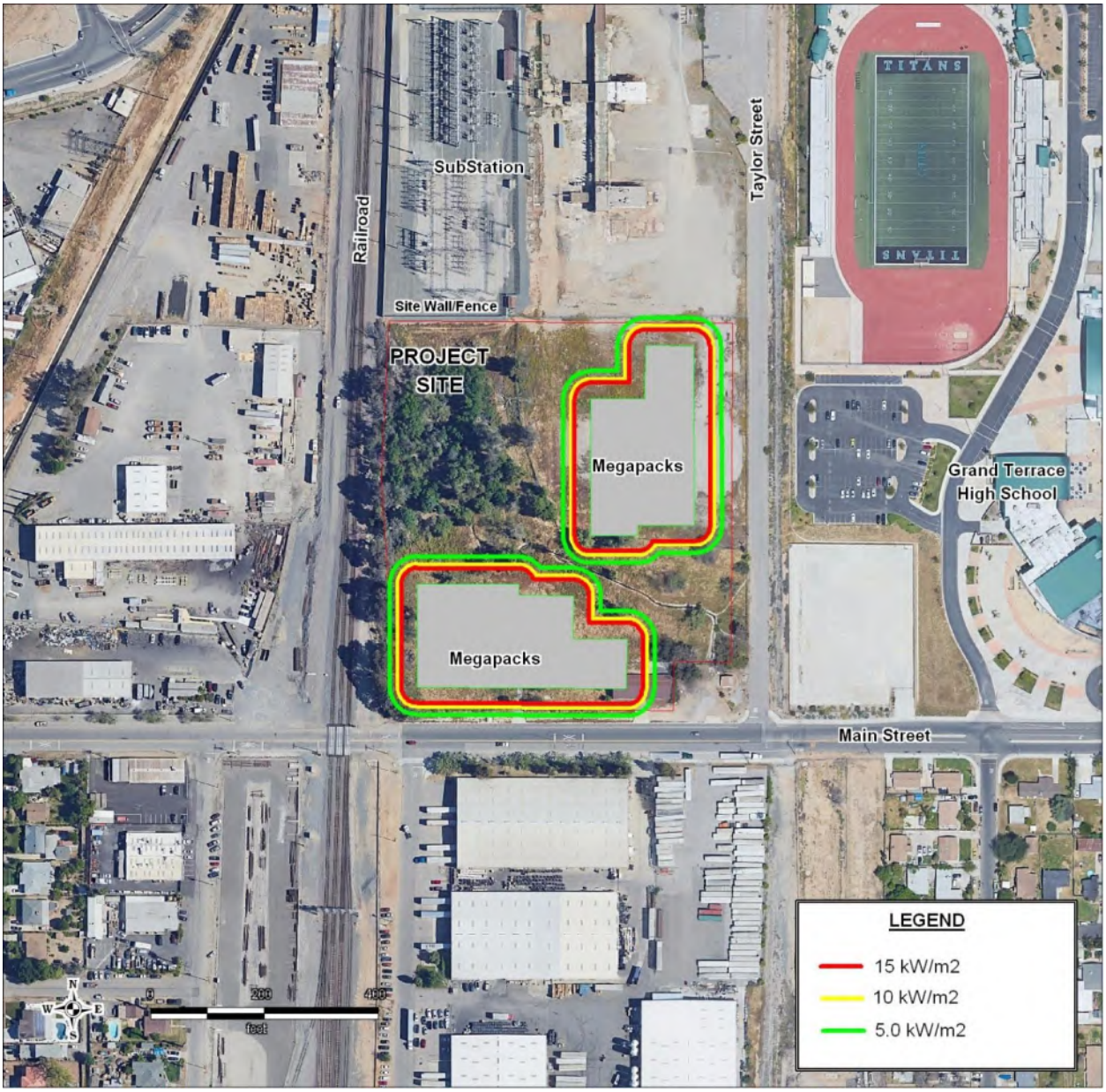
Incident Flux, kW/m^2	Duration	Impact
Impacts on Humans		
4.7	Multiple minutes	Emergency actions lasting several minutes can be performed without shielding
6.3	Several minutes	Emergency actions lasting several minutes can be performed without shielding
10.0	20 seconds	Time to threshold of pain for bare skin Threshold for thermal Class IV
12.5	1 minute 10 seconds	1% fatalities First degree burns
15.8	1 minute 10 seconds	100% fatalities Significant injury from burns
25.0	10 seconds	1% fatality
Impacts on Materials		
12.5	Long exposure	Threshold for ignition of combustible materials (plastics and wood).
12.5 - 25	Long exposure	Wood ignites
20	< 30 seconds	Paper spontaneously ignites
20	250 seconds	Wood particle board ignites
27	Long exposure	Threshold for damage to non-combustible materials
35.0	1 minute	Cellulosic material will spontaneously ignite
35.0	< 30 seconds	Cloth spontaneously ignites
37.5	13 minutes	7mm steel plate failure
40.0	< 30 seconds	Wood spontaneously ignites

Notes: from CCPS 2003, NRC 2004, NIOSH 2017, SFPE 1999 and 2020, FMGlobal 2019

Heat flux levels would not extend outside of the Project site boundaries if a thermal scenario were to occur at one of the Megapacks located near the southern site boundary (the closest area to the site boundary). See Figure 4 for a site map showing the heat flux values.

The battery installation would comply with the NFPA 855 Section 4.4.3.3, setback requirement of 10 feet from lot lines and public ways (see recommendations section below). In addition, the battery fire in the UL9540A tests took 38 minutes to develop, which, along with the detection systems proposed for the site, would allow for ample time to notify the fire department and evacuate persons from the areas near the Megapack installations. In addition, the intense fire period was of short duration (10 minutes) during the UL9540A tests during a 3.5 hour test. The thermal heat flux distance would not extend outside of the Project site boundaries and would not impact any offsite receptors. Therefore, impacts would be less than significant.

Figure 4 Site Map with Potential Worst-Case Thermal Flux Estimates

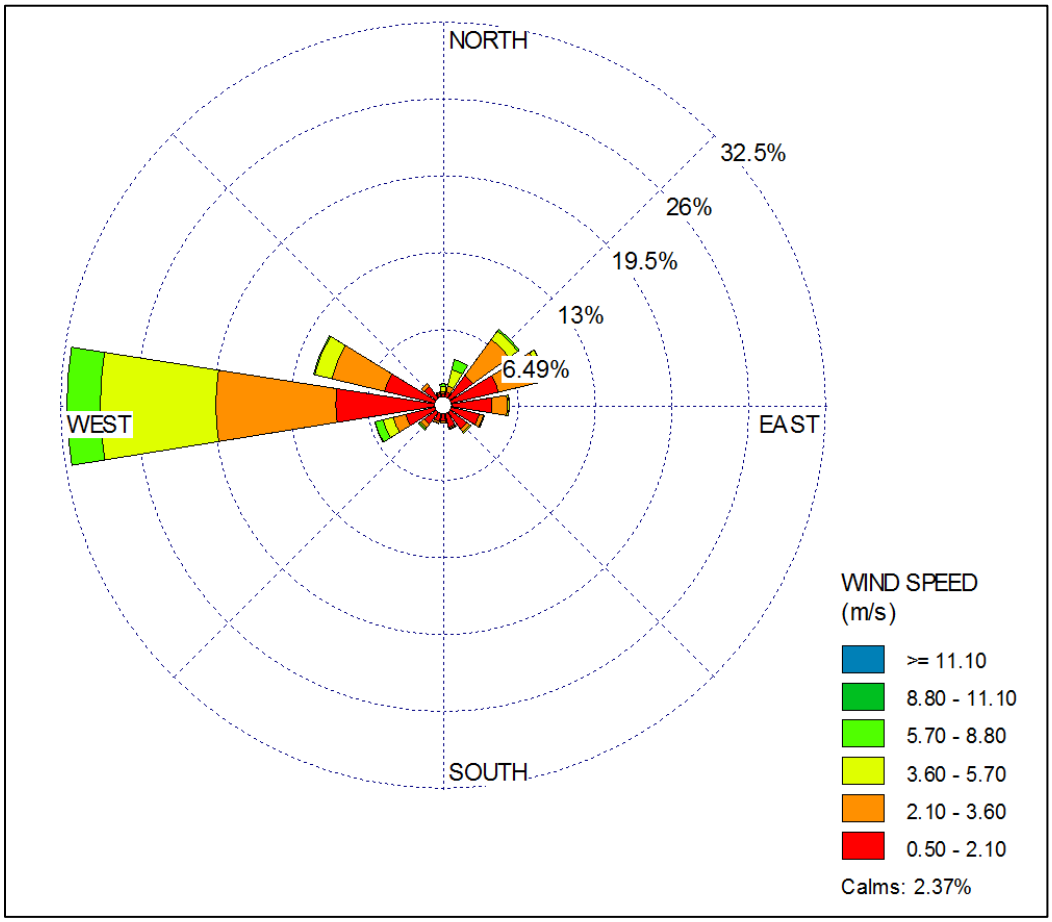


Notes: using the point source model and the Fisher results for average and peak heat flux at 20 and 30 feet, to define the ranges of impacts.

5.7 Meteorological Data

The meteorological data shown in Figure 5 represents the meteorological conditions at the closest SCAQMD site (Riverside Airport) for the years 2012-2016. The wind rose shows the predominant wind is from the west.

Figure 5 Meteorological Wind Rose



Note: For the Riverside Airport (KRAL) Monitoring Station 2012-2016. Wind Rose shows the wind based on the direction the wind is from.

6.0 Fire Protection Measures, Isolation and Protective Action Distances

An effective fire response can mitigate many hazards. As discussed in Section 4.4, a fire at a Megapack is a relatively slow evolving scenario that does not produce a high energy flame jet or produce projectiles, explosions or flying debris, thereby allowing for firefighters to be on scene during an escalating scenario.

Tesla provides an Emergency Response Guide (Attachment E) for the Megapack detailing hazards, firefighting measures, shutting down and disposal of materials. The Emergency Response Guide recommends the following related to firefighting measures:

- If a fire develops and visible flames appear, it is recommended to apply water spray to neighboring battery enclosures and exposures rather than directly onto the burning unit.

- Applying water directly to the affected enclosure will not stop the thermal runaway scenario, as the fire will be located behind several layers of steel material, and direct application of water has shown to only delay the eventual combustion of the entire unit.

- The cabinet door(s) should not be opened in such a scenario. Testing has shown that a thermal runaway scenario in a single Megapack does not propagate to a neighboring Megapack, even without the application of water or other suppression sources, but water can be used to further mitigate the hazard spread to exposures and surrounding.

- Water is considered the preferred agent for suppressing lithium-ion battery fires.

- If water is used directly on the enclosure that is burning, electrolysis of water (splitting of water into hydrogen and oxygen) may contribute to the flammable gas mixture formed by venting cells, burning plastic, and burning of other combustibles.

- A battery fire may continue for several hours and it may take 24 hours or longer for the battery pack to cool after it has been fully consumed by a thermal runaway scenario. A lithium-ion battery fire that has been seemingly extinguished can flare up again if all cells have not been consumed.

- Allow the battery pack to fully consume itself and then cool the burned mass by flooding with water. After all fire and smoke has visibly subsided, a thermal imaging camera can be used to actively measure the temperature of the unit.

- Tesla's recommendation is to fight a Megapack fire defensively. The fire crew should maintain a safe distance and allow the battery to burn itself out. Fire crews should utilize a fog pattern to protect neighboring units or exposures or control the path of smoke. A single one-and-three-quarter inch (~5cm) hand line has shown to be sufficient.

- Firefighters should wear self-contained breathing apparatus (SCBA) and fire protective turnout gear.

In addition, a site-specific Fire Protection Plan has been developed for the facility (included in Attachment F) and addresses the following issues:

- State and Local Requirements;

- Code Requirements;

- Battery OEM-provided Fire Protection Features;

- Fire Hydrant Placement;

- Water Design Flows;

- Fire Truck Access;

- Hazard Mitigation Analysis Approach;
- Permits;
- First Responder Training; and
- Variance and Approvals from Fire Official.

NFPA 855 and studies by DNVGL (2017) contain a number of recommendations related to fire department response. NFPA 855 Annex C provides fire-fighting considerations, summarized below:

- Identifying the location of all electrical disconnects in the building and understanding that electrical energy stored in ESS equipment cannot always be removed or isolated.
- Understanding the procedures for shutting down and deenergizing or isolating equipment to reduce the risk of fire, electric shock, and personal injury hazards.
- Understanding the procedures for dealing with damaged ESS equipment in a post-fire incident.
- Fires involving lithium-ion cells must be cooled to terminate the thermal runaway process and water is the agent of choice.
- Response should include commonly accepted practices with any hazmat response, including isolating the area to all personnel, confirming location and type of alarm, performing air monitoring, managing ventilation/exhaust, and suppressing fires.
- The response of a qualified and trained individual in ESS should be made available.
- A user interface to access the state of operating parameters or a method to interface to monitored alarm systems would enhance the effectiveness of the response.
- Response procedures and steps:
    - Isolate area of all nonessential personnel.
    - Review status of both building and ESS alarm system with available data.
    - Review status of any fire protection system activation.
    - Perform air monitoring of all connected spaces.
    - Identify location of overheated battery.
    - Isolate affected battery, string, or entire system based on the extent of damage by opening battery disconnect switches, where provided.
    - Contact person or company responsible for O&M of system.

    - Continue temperature monitoring to ensure mitigation of overheating condition.

- Responding fire companies should use gas detection equipment to determine toxic gas levels.

- Full PPE and SCBA should be used during a fire and post-fire scenario.

- Fire fighters should never use piercing nozzles and long penetrating irons. Mechanically damaged cells or puncturing unburned or undamaged cells can result in the immediate ignition of those cells.

- Li-ion batteries might continue to generate flammable gases during and after extinguishing.

- Batteries should be monitored for residual heat and temperature, as reignition is a possibility in cells that are not sufficiently cooled.

- Though trace amounts of heavy metals such as nickel and cobalt can be deposited from combustion of the batteries, these elements are not expected to be present in large quantities or in quantities larger than any other similar fire. In most instances, water exposed to the batteries shows very mild acidity, with an approximate pH of 6. Runoff water pH can be monitored during fire-fighting operations but should not pose a greater risk than normal fire-fighting run-off.

DNVGL Studies (2017) also recommends the following:

- Fire scene considerations include:

    - Has on-site extinguishing already been triggered?

    - Is the system gassing?

    - Is the temperature of the system rising?

    - Are flames visible?

    - Is there a site representative available?

- An information display panel, or other form of emergency contact, will greatly aid in assessing the risk.

- Battery fires, even once extinguished, continue to emit CO as long as the batteries remain hot and CO monitoring should be performed.

- Partially burned systems may continue to emit flammable gas even after the fire is extinguished as long as the cells remain hot. Proper cooling of the system is key to remove prolonged fire risks.

- If flames are visible and temperature is rising, the system may have more than one battery cell or module engulfed.
- If temperatures are rising rapidly (>1 °F per minute) and temperatures on the battery are approaching anywhere near 100 °C (212 °F), cooling will be required with water.
- Monitoring with handheld infrared (IR) thermometers, if available, should provide an assessment of risk.
- Cooling the battery once flames are knocked down is the most important aspect of containing battery fires. Water was found to be the most effective at cooling. Shock during water suppression (via conduction into the water spray) was not observed.
- Water should be used to provide indirect cooling on the outside of the system to prevent spreading.

In the event of a fire and/or off-gassing at the facility, the USDOT Emergency Response Guide (2020) provides estimates of the initial isolation and protective action distances recommended for small and large spills (defined as less than or more than 55 gallons). The isolation and protective action distances for lithium-ion batteries (Guide 147) is as follows:

- Isolate spill or leak area for at least 25 meters (82 feet) in all directions.
- Large Spill: Consider initial downwind evacuation for at least 100 meters (328 feet).
- Fire: If rail car or trailer is involved in a fire, isolate for 500 meters (1/3 mile) in all directions; also initiate evacuation including emergency responders for 500 meters (1/3 mile) in all directions.

7.0 NFPA 855 Hazard Mitigation Analysis Requirements

NFPA 855 Section 4.1.4 requires a hazard mitigation analysis under the following circumstances:

1. *When technologies are specifically not addressed in Table 1.3.*
2. *More than one ESS technology is provided in a room or indoor area where adverse interaction between the technologies is possible.*
3. *When allowed as a basis for increasing the maximum stored energy as specified in 4.8.1 and 4.8.2.*

The lithium technology is specifically listed in NFPA 855 Table 1.3 and the technology is not located inside of a room. Therefore, numbers 1 and 2 are not applicable.

NFPA 855 Section 4.8.1 is applicable to areas in non-dedicated use buildings and is not applicable to this Project as this Project would be located entirely outside with no buildings.

NFPA 855 Section 4.8.2 allows for approval of an outdoor ESS installation that exceed 600 kWh if a hazard mitigation analysis in accordance with Section 4.1.4 and large scale fire testing as per 4.1.5.

NFPA 855 Section 4.8 (2) indicates that "*Outdoor ESS installations in locations near exposures as described in 4.4.3.1(2) [within 100 feet of buildings] shall not exceed the maximum stored energy values in Table 4.8 [600 kWh] except as permitted by 4.8.3."*

NFPA 855 Section 4.1.4 addresses the requirements for a hazard mitigation analysis. Section 4.1.4.2 specifies:

4.1.4.2 The analysis shall evaluate the consequences of the following failure modes and other deemed necessary:

1. Thermal runaway condition in a single module, array or unit.

2. Failure of an energy storage management system.

3. Failure of a required ventilation or exhaust system.

4. Failure of a required smoke detection, fire detection, fire suppression or gas detection system.

In addition, NFPA 855 Section 4.1.4.3 indicates that a hazard mitigation analysis should demonstrate the following:

1. *Fire will be contained within unoccupied ESS rooms for the minimum duration of the fire resistance rate specified in 4.3.6.*

2. *Suitable deflagration protection is provided where required.*

3. *ESS cabinets in occupied work centers allow occupants to safely evacuate in fire conditions.*

4. *Toxic and highly toxic gases released during normal charging, discharging, and operation with not exceed the permissible exposure limit in the area where the ESS is contained.*

5. *Toxic and highly toxic gases released during fires and other fault conditions will not reach IDLH concentrations in the building or adjacent means of egress routes during the time deemed necessary to evacuate from that area*

6. *Flammable gases released during charging, discharging and normal operations will not exceed 25 percent of the LFL*

This report documents the reasonable worst-case failure that could lead to a release of toxic and flammable materials, and documents that the levels of toxic and flammable materials do not produce impacts offsite in high density areas, such as residential areas. This report indicates that the primary focus is on the worst-case reasonable scenario which could produce the largest

impacts. This report also indicates that it is assumed that the control systems fail and do not control the battery cell malfunction in line with the requirements for a hazard mitigation analysis under NFPA 855, Section 4.1.4.2.

The analysis in this report demonstrates, in response to the above listings from NFPA 855 Section 4.1.4.3, that:

1. The process would be located outside, so containment of fire within rooms is not applicable.

2. Deflagration protection is provided in the form of over-pressure ventilation and sparkers to ensure combustion of gases as well as the facilities would be installed outside, thereby reducing the potential for deflagration. As per the UL9540A unit level testing, the detection system alarmed from the off-gassing within 38 seconds that, with local alarms, allowing for rapid detection of any potential deflagration scenario.

3. There would not be any occupied work centers as all cabinets would be located outside.

4. During normal charging, discharging, and operations, no discharges of toxic materials would occur.

5. Reasonable worst-case fault conditions would release flammable and toxic materials, but the hazard levels are determined to be acceptable as they do not impact areas with high density areas or expected regular populations. Multiple egress routes (to the east and to the south) are available and detection systems, including the flame detection and high temperature monitoring and alarms, would allow for egress routes to be utilized during the time necessary to evacuate from the area. As per the UL9540A unit level testing, the detection system alarmed from the off-gassing within 38 seconds that, with local alarms, allow sufficient time for egress efforts.

6. During normal charging, discharging operations, no discharges of flammable materials would occur and therefore the 25 percent of the LFL levels would not be exceeded.

NFPA 855 Section 4.1.5 requires large scale fire testing, which was conducted by Tesla and TUV and is included as Attachment A in this report.

Therefore, this report satisfies the NFPA 855 requirements for a hazard mitigation analysis.

NFPA 855 Section 4.2.1 requires that battery systems be listed in accordance with UL 9540. The Tesla battery systems have been tested and certified to comply with UL 1973 and UL 9540 by the certification and testing company TUV Rheinland, which is a part of the OSHA NRTL Program. These certifications are included in Attachment B and C.

8.0 Recommendations

Recommendations related to siting and Megapack installation would help to ensure that the potential for significant hazards are minimized. These would include the following:

1. All batteries shall be discharged to below 30% state of charge (SOC) during the construction/installation phases.

2. Any replacement or maintenance of batteries requiring the use of heavy construction equipment, such as cranes or forklifts, shall be conducted only on batteries discharged to below 30% SOC and nearby batteries that could be affected shall also be discharged to below 30% SOC.

3. Vehicle impact bollards or equivalent shall be installed to reduce the potential for vehicle impacts (as per NFPA 855 Section 4.3.7).

4. Install detection systems for flame detection, being equal to or similar to the Det-Tronics x3302 flame detector.

5. Detection systems shall alarm locally and both visually and audibly, shall be monitored by a 24-hour system and shall notify the local Fire Department.

6. Indication shall be provided to responders at the site indicating which Megapack is experiencing issues in the form of a user-friendly user interface system.

7. Develop an Emergency Operations Plan in compliance with sections of NFPA 855 Section 4.1.3.2.1, including:

    a. Procedures for safe shutdown, de-energizing and isolation of equipment under emergency situations;

    b. Procedures for inspection and testing of alarms, interlocks, detection systems and controls including recordkeeping;

    c. Procedures to be followed in response to notification from the storage systems that could signify dangerous situations, including shutting down equipment and notification to the local fire department;

    d. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions;

    e. Response considerations similar to a safety data sheet (SDS) that will address response safety concerns and extinguishment when an SDS is not required;

    f. Procedures for dealing with ESS equipment damaged in a fire or other emergency scenario, including contact information for personnel qualified to safely remove damaged ESS equipment from the facility;

    g. Other procedures as determined necessary by the AHJ to provide for the safety of occupants and emergency responders; and

    h. Procedures and schedules for conducting drills of the procedures.

8. Develop a Fire Safety Plan prior to startup, that identifies and summarizes the design safety features identified in the Project description and measures required pursuant to the measures above. Measures required by the Fire Department shall be included in the Fire Safety Plan. The Plan shall include a graphic depiction of Project safety features and equipment onsite, including but not limited to, the following:

    a. Fire prevention, detection, and suppression features, including:

        i. a description of the BMS and the monitoring of alarms and battery cell conditions and thresholds for alarms;

        ii. flame detection systems, including the location of detection, type of detection and the monitoring of alarms (NFPA 855 Section 4.10);

        iii. availability of water for firefighting and compliance with Fire Department requirements for flow and availability (NFPA 855 Section 4.13);

    b. Emergency response procedures, including notification of local responders (NFPA 855 Section 4.1.3.2.1 and A.4.1.3.2);

    c. Personnel safety training (NFPA 855 Section 4.1.3.2.2 and 7.2.5);

    d. Fire suppression and other safety features/equipment located at the site;

    e. Type and placement of warning signs (NFPA 855 Section 4.3.5);

    f. Emergency ingress and egress routes (NFPA 855 Section 4.3.10);

    g. Special safety measures to be implemented for battery installation and replacement, including disposal of replaced (discarded) equipment;

    h. Provisions and timing for updating the Plan to incorporate new or changed requirements;

    i. Control of vegetation (NFPA 855 Section 4.4.3.6);

    j. Security of installations (NFPA 855 Section 4.3.8);

    k. Access roads design (NFPA Section 4.3.8);

    l. Signage (NFPA Section 4.3.5); and

    m. Remediation measures (NFPA 855 Section 4.5.4 and 4.16) including authorized service personnel and fire mitigation personnel.

9. Provide a copy of an NFPA 855 compliance audit report to verify that the system is designed and built to comply with the NFPA 855 requirements prior to system startup.

Studies have shown (Golubkov 2015) that the potential for thermal runaway is a strong function of the level of charge of the batteries, with batteries that are charged below 50% having a lower potential for runaway and lower levels of off-gassed volume given an external accident scenario. Therefore, when construction equipment is operating onsite, batteries that could be affected should be discharged to less than 30% SOC in order to reduce the potential for thermal-runaway accidents.

In addition, ensuring all batteries are protected from vehicle impacts would reduce the potential for accident scenarios associated with vehicle impacts.

Detection systems allow for efficient response coordination and rapid detection of potential issues of concern. Flame detection are recommended to ensure detection of a range of scenarios, with local and remote notifications, and to alert onsite personnel of potential issues and allowing for rapid egress if needed.

An Emergency Operations Plan ensures procedures are in place to respond to emergency scenarios including notification to the local responders.

9.0 Summary of Impacts and Conclusions

Results from the analysis indicate that the reasonable worst-case battery cell malfunction scenarios would result in manageable hazards, with ground-level toxic, thermal and deflagration hazards remaining onsite. Therefore, the maximum potential public health impacts for the battery facility are considered less than significant.

10.0 References

Anderson 2013, Investigation of fire emissions from Li-ion batteries

Blum 2016, Lithium Ion Battery Energy Storage System Fires

CCPS 2003, Guidelines for Fire Protection in Chemical, Petrochemical, and Hydrocarbon Processing Facilities, August 2003

CPUC 2017, SED Safety Inspection Items for Energy Storage Ratified by D.17-04-039, April 27, 2017 (Finding of Fact #24)

DNVGL 2017, Considerations for ESS Fire Safety

DNVGL 2019, Live Fire Test of Tesla Powerpacks Tesla, Inc. DNV GL Doc. No.: 10118434-HOU-R-02-D Issue: D; Status: Release Issue Date: April 17th, 2019

EIA 2020, Energy Information Administration, October 2020 form EIA-860 database, https://www.eia.gov/electricity/data/eia860/

Fisher Engineering 2020, Tesla Megapack UL 9540A Test Results: Interpretive Report and FPE Code Narrative, August 7, 2020

FMGlobal 2019, Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems

Golubkov 2015, Thermal Runaway of Commercial 18650 Li-Ion Batteries With LFP And NCA Cathodes – Impact Of State Of Charge And Overcharge

Heskested 1994, Reaction to Fire Classification of building Products: Assessment of the Smoke Production.

Lees, Frank. 2014. Lees' Loss Prevention in the Process Industries 4th Edition. 2012.

Larsson 2017, Toxic Fluoride Gas Emissions from Lithium-Ion Battery Fires

NFPA 2014, Separation Distances in NFPA Codes, The Fire Protection Research Foundation.

NFPA 2017, Technical Committee on Stationary Energy Storage Systems Minutes of Meeting

NIOSH 2017, Maximum allowable exposure to different heat radiation levels in three types of heat protective clothing

NIOSH 2019, The National Institute for Occupational Safety and Health (NIOSH), Immediately Dangerous To Life or Health (IDLH) Values: Table of IDLH Values, https://www.cdc.gov/niosh/idlh/intridl4.html

NRC 2004, Nuclear Regulatory Commission, Fire Dynamics Tools (FDT): Quantitative Fire Hazard Analysis Methods for the U.S. Nuclear Regulatory Commission Fire Protection Inspection Program

Rincon 2017, NRG Ellwood Battery Storage Project Final Initial Study – Mitigated Negative Declaration Case #15-145-CUP (LG Chem batteries)

SFPE 1999, Society of Fire Protection Engineers, Engineering Guide: Assessing Flame Radiation to External Targets from Pool Fires

SFPE 2020, Sprinkler Design in ESS Installations, Fire Protection Engineering Magazine

Tesla 2019, Tesla "Cell and unit level assessment of gas release composition from Tesla ESS"

USDOT, 2020 Emergency Response Guidebook

Attachment A

UL 9540A Cell/Module and Unit Level Test Reports

TEST REPORT

ANSI/CAN/UL 9540A:2019
Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

Report Number..... :	32082976.001
Date of issue ..... :	Aug 28, 2020
Total number of pages ..... :	26
Name of Testing Laboratory preparing the Report ..... :	**TÜV Rheinland of North America, Inc.** 1279 Quarry Lane, Suite A, Pleasanton, CA 94566
Applicant's name ..... :	**Tesla, Inc.**
Address ..... :	3500 Deer Creek Road, Palo Alto, CA 94304
Test specification:	
Standard ..... :	ANSI/CAN/UL 9540A:2019
Test procedure..... :	Report
Non-standard test method..... :	N/A
Test Report Form No. ..... :	N/A
Test Report Form(s) Originator.... :	N/A
Master TRF ..... :	Dated 2019-01-17

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the CB, responsible for this Test Report.

Test item description .....:	Battery Cell/Battery module (12 modules in series):
Trade Mark .....:	Tesla
Manufacturer.....:	Tesla, Inc, (new # 1210368) 3500 Deer Creek Rd, Palo Alto, CA 94304
Model/Type reference .....:	NCR2170D / 1465144-XX-Y
Ratings .....:	**Battery Cell** Nominal voltage (V): 3.6V Upper limit charging voltage (V): 4.2V Upper limit charging temperature (℃): 45 End-of-discharge voltage (V): 3.0V Profile of standard charge: CC/CV Mode: _1.119__ A, _4.1V__ V, CV : 75mA Profile of standard discharge: CC mode: _0.746__ A, Cutoff __3.0_ V Maximum charging current (A) : 2.330 A Maximum discharging current (A):2.330 A **Battery module** (12 modules in series) Rated Voltage MV (before DCDC converter) nominal voltage: 400V MV max. charge voltage: 470 V(operational) (460 V full power) MV min. discharge voltage: 216 V (operational) (324 V full power) Rated Current Max. HV charge/discharge current: 116 A (2 hr), 58 A (4 hr) Max. MV charge/discharge current: 280.8 A (2 hr), 143.8 A (4 hr) Max. HV charge and discharge power: 125 kW (2 hr), 52 kW (4 hr) Battery module: Nominal voltage: 33.3 V Max charge voltage: 38.75 V(operational) (37.75 V full power) Min. discharge voltage: 18 V (operational) (27 V full power)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	**TÜV Rheinland of North America, Inc.** 1279 Quarry Lane, Suite A, Pleasanton, CA 94566	
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☒	**Testing procedure: CTF Stage 1/TMP:**	**Tesla, Inc.**	
Testing location/ address ..... :		3500 Deer Creek Road, Palo Alto, CA 94304	
Tested by (name, function, signature) ..... :		HwangHyun No/ Himanshu Vaidya	
Approved by (name, function, signature) .. :		Howard Liu	

☐	**Testing procedure: CTF Stage 2/WMT:**		
Testing location/ address ..... :			
Tested by (name + signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3/SMT:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

Test package with testing equipment list

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
9540A cl 7 – Cell Level 9540A cl 8 – Module Level	Korea Marine Equipment Research Institute (so called, KOMERI) 5, Techno Saneop-ro 55beon-gil, Nam-gu, Ulsan 44776 Rep. of Korea

Summary of compliance with National Differences (List of countries addressed): N/A

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)**

Possible test case verdicts: **- test case does not apply to the test object ....:** N/A **- test object does meet the requirement.....:** P (Pass) **- test object does not meet the requirement....:** F (Fail)
Testing: **Date of receipt of test item .....:** May 01, 2020 **Date (s) of performance of tests.....:** July 20, 2020
General remarks:
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**
Name and address of factory (ies) ..... :
Copy of marking plate: Use – "Only for use with Tesla Products" "The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCB' s that own these marks"
General product information and other remarks:

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
CONSTRUCTION			--
5	**General**		--
5.1	**Cell**		--
5.1.1	The cells associated with the BESS that were tested shall be documented in the test report	Panasonic Model NCR2170D LiNiCoAlO2 Cylindrical Lithium ion battery Rated capacity (Ah): 3930mAh Nominal voltage (V): 3.6V Upper limit charging voltage (V) : 4.2V Nominal mass (g): 70.6g or less (68.1g typ) External dimensions (mm): 21+/-0.12mm diameter 70+/-0.25mm height	P
5.1.2	The cell documentation included in the test report shall indicate if the cells associated with the BESS comply with UL 1973	Battery module is compliant with UL 1973. Cell is compliant with UL 1642.	P
5.1.3	Refer to 7.6.1 for further details	See 7.6.1	N/A
5.2	**Module**		--

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.1	The modules associated with the BESS that were tested shall be documented in the test report	Battery module (12 modules in series): Rated Voltage MV (before DCDC converter) nominal voltage: 400V MV max. charge voltage: 470 V(operational) (460 V full power) MV min. discharge voltage: 216 V (operational) (324 V full power) Rated Current Max. HV charge/discharge current: 116 A (2 hr), 58 A (4 hr) Max. MV charge/discharge current: 280.8 A (2 hr), 143.8 A (4 hr) Max. HV charge and discharge power: 125 kW (2 hr), 52 kW (4 hr) Battery module: Nominal voltage: 33.3 V Max charge voltage: 38.75 V(operational) (37.75 V full power) Min. discharge voltage: 18 V (operational) (27 V full power)	P
5.2.2	The module documentation included in the test report shall indicate if the modules associated with the BESS comply with UL 1973	Battery module is compliant with UL 1973	P
5.2.3	Refer to 8.3 for further details	See 8.3	N/A
5.3	**Battery energy storage system unit**		--
5.3.1	The BESS unit documentation included in the test report shall indicate the units that comply with UL 9540	UL 9540 compliant	P
5.3.2	For BESS units for which UL 9540 compliance cannot be determined,	See above	N/A
5.3.3	If applicable, the details of any fire detection and suppression systems that are an integral part of the BESS shall be noted in the test report	No fire detection and suppression systems used	N/A
5.3.4	Refer to 9.7, 10.4 and 10.7 for further details	See 9.7	P
5.4	**Flow Batteries**		N/A
5.4.1	For flow batteries, the report will cover the chemistry, as well as the electrical rating in capacity and nominal voltage of the cell stack	Not flow batteries	N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.2	The flow battery documentation included in the test report shall indicate if the flow battery system complies with UL 1973		N/A
5.4.3	See 7.6.2 for further details		N/A
PERFORMANCE			--
6	**General**		N/A
6.1	The tests in this standard are extreme abuse conditions conducted on electrochemical energy storage devices that can result in fires		N/A
6.2	At the conclusion of testing, samples shall be discharged in accordance with the manufacturer's specifications		N/A
7	**Cell Level**		--
7.1	**General**		--
7.1.1	This portion of the test establishes effective methods for forcing a cell into thermal runaway		--
7.2	**Sample**		--
7.2.1	Cell samples shall be conditioned, prior to testing, through charge and discharge cycles for a minimum of 2 cycles using a manufacturer specified methodology	2 cycles of charging and discharging – 100% SOC and then to an end of discharge voltage (EODV)	P
7.2.2	The cells to be tested shall be charged to 100% SOC and allowed to stabilize for a minimum of 1 h	Stabilize for a 4h	P
7.2.3	Cells with flexible laminate casings shall be constrained during the test		N/A
7.3	**Determination of thermal runaway methodology**		--
7.3.1	General		P
7.3.1.1	Ambient indoor laboratory conditions shall be 25 ±5°C (77 ±9°F) and 50 ±25% RH at the initiation		P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
7.3.1.2	The propensity of the cell to exhibit thermal runaway shall be demonstrated by heating the cell with externally applied flexible film heaters	Film heater was used to increase the surface temperature by using the heating rate of 4 °C to 7 °C per minute until the surface temperature hold point that shall be between 5 °C and 15 °C greater than the melting temperature of the cell separator material, which is 145 °C.	P
	If external heating with a flexible film heater does not cause the cell to exhibit thermal runaway, one of the following methods shall be employed to cause thermal runaway:		N/A
	a) Mechanical (e.g. nail penetration);		N/A
	b) Electrical stresses in the form of overcharging, over discharging or external short-circuiting		N/A
	c) Use of alternate heating sources (e.g. oven).		N/A
7.3.1.3	With reference to 7.3.1.2, when using another cell abuse method to initiate thermal runaway		N/A
7.3.1.4	With reference to 7.3.1.2, in the case of monobloc batteries such as lead acid or nickel cadmium		N/A
7.3.1.5	Before beginning the test, a surface temperature shall be determined		P
	For Li-ion cells, the surface temperature hold point shall be between 5°C (9°F) and 15°C (27°F) greater than the melting temperature of the cell separator material	See 7.3.1.2	P
	However, if thermal runaway is not achieved at this hold point temperature after a period of 4 h, the cell heating rate according to 7.3.1.2 shall be reestablished until thermal runaway occurs		N/A
7.3.1.6	If the cell is susceptible to thermal runaway by external heating, the cell shall be heated until thermal runaway has occurred	The cell is susceptible to thermal runaway by external heating	P
7.3.1.7	The cell's exterior surface temperature shall be measured continuously through the cell test with a thermocouple junction formed from 24-gauge or smaller Type-K thermocouple wire. The location(s) of thermocouple (s) shall be determined during a construction review. At least one thermocouple shall be located below the heater film at the center of the cell surface (if the cell is prismatic this would be the center of the wider side of the cell) and one near the positive cell terminals.		P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
7.3.1.8	The temperature at which the cell case vents due to internal pressure rise shall be documented		P
7.3.1.9	The temperature at the onset of thermal runaway shall be documented		P
	With other stress methods, it will be necessary to continue applying the stress such as mechanical or electrical stress until onset of thermal runaway occurs		N/A
7.3.1.10	When using methods other than the heater method, the stresses (i.e. electrical or mechanical) shall be applied to the cell until thermal runaway occurs	Heater method used	N/A
7.3.1.11	If the cell exhibits thermal runaway behavior (using any method), 3 additional samples shall be tested using the same method and exhibit thermal runaway to demonstrate repeatability		P
7.3.2	**Flow battery thermal runaway determination tests**	Not for flow battery technology	N/A
7.3.2.1	For flow battery technology, the propensity for thermal runaway shall be demonstrated by testing the energy reservoir		N/A
7.3.2.2	The flammability of the electrolytes shall be determined based upon a suitable test method to determine flammability.		N/A
7.3.2.3	For flow battery systems with two electrolytes		N/A
7.3.2.4	The temperature increase possible due to a flow battery failure where there are two electrolytes shall be demonstrated		N/A
7.3.2.5	For flow battery technologies with one active electrolyte containing solid metal particles the appropriate test method of 7.3.2.2 is conducted		N/A
7.3.2.6	If a flash point has been observed for a flow battery technology with one active electrolyte containing solid metal particles,		N/A
7.4	**Cell vent gas composition test**		--
7.4.1	Cell vent gas shall be generated and captured by forcing a cell into thermal runaway with the methodology developed in 7.3		P
7.4.2	Cell vent gas composition shall be determined using Gas Chromatography (GC) with detection techniques for quantifying component gases or equivalent gas analysis techniques		P
7.4.3	Upon determination of the cell vent gas composition per 7.4.2, the lower flammability limit of the cell vent gas shall be determined on samples of the synthetically replicated gas mixture		P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
7.4.4	The synthetically replicated gas mixture shall be used to determine gas burning velocity	To be tested	N/A
7.4.5	The synthetically replicated gas mixture shall be used to determine Pmax in accordance with EN 15967	To be tested	N/A
7.5	**Off gas composition for flow battery systems**	Not for flow battery technology	N/A
7.5.1	The off gas composition from the flow battery testing of 7.3.2 shall be determined by conducting the test method of 7.3.2.2 in a closed container		N/A
7.5.2	The volume of flammable gases measured during the testing shall be scaled to the maximum energy reservoir		N/A
7.6	**Cell level test report**		--
7.6.1	The report on cell level testing shall include the following:		N/A
	a) Cell manufacturer name and cell model number; b) Cell details per 5.1 (and whether UL 1973 compliant); c) Energy storage technology (and whether UL 9540 compliant); d) The rated energy storage capacity of the cell (e.g. Ampere-hours); e) Voltage and current obtained during conditioning of the cell; f) Open-circuit voltage of the cell at initiation of test; g) Methods attempted and used to initiate thermal runaway; h) Surface temperature at which gases are first vented and the average temperature of the samples tested excluding the gas collection sample; i) Surface temperature (and location of maximum temperature) prior to thermal runaway and average temperature of the samples tested excluding the gas collection sample; j) Flammable gas generation and composition measurements; k) The lower flammability limit of the cell vent gas; l) Burning velocity of the cell vent gas; and m) Pmax of the cell vent gas.	See Table 1	--
7.6.2	The report on flow battery thermal runaway determination testing shall include the following:	Not for flow battery technology	N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Flow battery system manufacturer name and model number (and whether UL 1973 compliant); b) Cell stack details per 5.4; c) Energy storage technology (and whether UL 9540 compliant); d) The rated energy storage capacity of the flow battery (e.g. Ampere-hours or Watt-hours); e) Electrolyte(s) composition and quantity in the system f) Flash point temperatures of each electrolyte g) Highest temperatures measured during abnormal conditions of: 1) Mixed electrolytes for two electrolyte systems; and 2) Electrolyte during the battery system overcharge and short circuit test; h) Flammable off gas generation and composition measurements; i) The lower flammability limit of the flammable off gas at both ambient and abnormal test temperatures; j) Burning velocity of the flammable off gas; and k) Pmax of the flammable off gas.		N/A
7.7	**Performance – cell level test**		--
7.7.1	Module level testing in Section 8 is not required if the following performance conditions are met:		F
	a) Thermal runaway cannot be induced in the cell; and	Thermanl runaway occured	F
	b) The cell vent gas does not present a flammability hazard when mixed with any volume of air, as determined in accordance with ASTM E918 at both ambient and vent temperatures.		P
7.7.2	BESS that contain cells that all comply with the criteria in 7.7.1 shall be suitable for installation in residential dwelling units		N/A
7.8	**Performance – flow battery thermal runaway determination tests**	Not for flow battery technology	N/A
7.8.1	For flow batteries, no further testing is required if the following performance conditions are met during the flow battery thermal runaway determination test:		N/A
	a) The electrolyte(s) subjected to the test method in accordance with 7.3.2.2 does not ignite; or		N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	b) The flash point temperature(s) measured in the test of 7.3.2.2 exceed the maximum temperature measured on the energy reservoir during the overcharge and short circuit tests of 7.3.2.4 or 7.3.2.6 by at least 5°C (9°F); and		N/A
	c) The flash point temperature(s) measured in the test of 7.3.2.2 exceed the maximum temperature of the mixed solution measured in accordance with 7.3.2.4 by at least 5°C (9°F) for systems with two active electrolytes.		N/A
7.8.2	Flammable off gassing during the abnormal tests are addressed as outlined in 7.5.2		N/A
8	**Module Level**		--
8.1	**Sample**		--
8.1.1	Module samples shall be conditioned, prior to testing, through charge and discharge cycles for a minimum of 2 cycles, using a manufacturer specified methodology	2 cycles of charging and discharging – 100% SOC and then to an end of discharge voltage (EODV)	P
8.1.2	The module to be tested shall be charged to 100% SOC and allowed to rest a maximum of 8 h before the start of the test	Stabilize for a 4h	P
8.1.3	Electronics and software controls such as the battery management system (BMS) are not relied upon for this testing.		P
8.2	**Test method**		--
8.2.1	Ambient indoor laboratory conditions shall be 25 ±5°C (77 ±9°F) and 50 ±25% RH at the initiation of the test.		P
8.2.2	The test shall be conducted under a smoke collection hood	Smoke collection hood used	P
8.2.3	The weight of the module shall be recorded before and after testing		P
8.2.4	The number of cells within the module that are forced into thermal runaway can be one or multiple cells	5 cells	P
8.2.5	The methodology used for initiating thermal runaway pursuant to 7.2 shall be used		P
8.2.6	With reference to 8.2.5, occurrence of thermal runaway shall be verified by sustained temperature above the cell surface temperature		P
8.2.7	The module shall be placed on top of a noncombustible horizontal surface		P
8.2.8	The chemical heat release rate of the module in thermal runaway shall be measured with oxygen consumption calorimetry.		P
8.2.9	The chemical heat release rate shall be measured for the duration of the test. See 8.2.10.		P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
8.2.10	The chemical heat release rate shall be measured by a measurement system consisting of a paramagnetic oxygen analyzer		P
8.2.11	With reference to 8.2.10, calculate the chemical heat release rate at each of the flows as follows:		P
	$HRR_1 = \left[E \times \varphi - (E_{co} - E) \times \frac{1-\varphi}{2} \times \frac{X_{co}}{X_{O_2}}\right] \times \frac{\dot{m}_e}{1+\varphi \times (\alpha - 1)} \times \frac{M_{O_2}}{M_a} \times (1 - X^o_{H_2O}$		P
8.2.12	Vent gas composition shall be measured using a Fourier-Transform Infrared Spectrometer		P
8.2.13	The hydrocarbon content of the vent gas shall be measure using flame ionization detection		P
8.2.14	The light transmission in the exhaust duct of the heat release rate calorimeter shall be measured using a white light source		P
8.2.15	Smoke release rate shall be calculated as follows: $SRR = 2.303\left(\frac{V}{D}\right) Log_{10}\left(\frac{I_o}{I}\right)$		P
8.3	**Module level test report**		--
8.3.1	The report on module level testing shall include the following:		--
	a) Module manufacturer name and model number (and whether UL 1973 compliant); b) Number of cells in module; c) Module configuration with cells in series and parallel; d) Module construction features per 5.2; e) Module voltage corresponding to the tested SOC; f) Thermal runaway initiation method used including number and locations of cells for initiating thermal runaway; g) Heat release rate versus time data; h) Flammable gas generation and composition data; i) Peak smoke release rate and total smoke release data. j) Observation(s) of flying debris or explosive discharge of gases; k) Observation(s) of sparks, electrical arcs, or other electrical events; l) Identification/location of cells(s) that exhibited thermal runaway within the module; m) Locations and visual estimations of flame extension and duration from the module shall be documented; n) Module weight loss based on measurements per 8.2.3; and o) Video of the test.	See Table 2	--
8.4	**Performance at module level testing**		--

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
8.4.1	Unit level testing in Section 9 is not required if the following performance conditions are met during the module level test:		F
	a) Thermal runaway is contained by module design; and	First vent for target cell was occurring when approximately 10 minutes after heating rod temperature reached 150℃. After first vent, the white venting gas observed top of the DUT. It propagated to around target cell and venting gas was observed. Thermal runaway occurred after 5 minutes of first vent, the external flaming and flying debris hazards observed on the DUT.	F
	b) Cell vent gas is nonflammable as determined by the cell level test.		P

#	Items	Description
a)	Cell manufacturer name and cell model number;	Panasonic America, NCR2170D
b)	Cell critical construction details per 5.1 (and whether UL 1973 compliant);	Battery module is compliant with UL 1973. Cell is compliant with UL 1642.
c)	Energy storage technology (and whether UL 9540 compliant);	UL 9540 Complaint
d)	The rated energy storage capacity of the cell (e.g. Ampere-hours);	3930 mAh
e)	Voltage and current obtained during conditioning of the cell;	4.2 Vdc/2.330A
f)	Open-circuit voltage of the cell at initiation of test;	4.2 Vdc
g)	Methods attempted and used to initiate thermal runaway;	Heating Film
h)	Surface temperature at which gases are first vented and the average temperature of the samples tested excluding the gas collection sample;	Max. 139.3 ˚C Average: 138.9 ˚C
i)	Surface temperature (and location of maximum temperature) prior to thermal runaway and average temperature of the samples tested excluding the gas collection sample;	Max. 270 ˚C Location: Opposite side of Heater film Average: 242.7 ˚C
j)	Flammable gas generation and composition measurements;	See appendix A
k)	The lower flammability limit of the cell vent gas;	See appendix B
l)	Burning velocity of the cell vent gas;	See appendix C
m)	P_{max} of the cell vent gas.	See appendix D

Table 1. Cell test results per Clause 7.6

#	Items	Description
a)	Module manufacturer name and model number (and whether UL 1973 compliance)	Tesla/1473636. Battery module is compliant with UL 1973.
b)	Number of cell in module	1053
c)	Module configuration with cells in series and parallel	117P9S
d)	Module construction features per 5.2;	Battery module (12 modules in series): Rated Voltage MV (before DCDC converter) nominal voltage: 400V MV max. charge voltage: 470 V(operational) (460 V full power) MV min. discharge voltage: 216 V (operational) (324 V full power) Rated Current Max. HV charge/discharge current: 116 A (2 hr), 58 A (4 hr) Max. MV charge/discharge current: 280.8 A (2 hr), 143.8 A (4 hr) Max. HV charge and discharge power: 125 kW (2 hr), 52 kW (4 hr) Battery module: Nominal voltage: 33.3 V Max charge voltage: 38.75 V(operational) (37.75 V full power) Min. discharge voltage: 18 V (operational) (27 V full power)
e)	Module voltage corresponding to the tested SOC;	Fully charged 47.8 Vdc
f)	Thermal runaway initiation method used including number and locations of cells for initiating thermal runaway;	Thermal runaway method: Heating rod. Location of cells: Center 5 cells. 
g)	Heat release rate versus time data;	See details, appendix E
h)	Flammable gas generation and composition data;	See details, appendix F
i)	Peak smoke release rate and total smoke release data	See details, appendix G
j)	Observation(s) of flying debris or explosive discharge of gases;	Flying debris observed

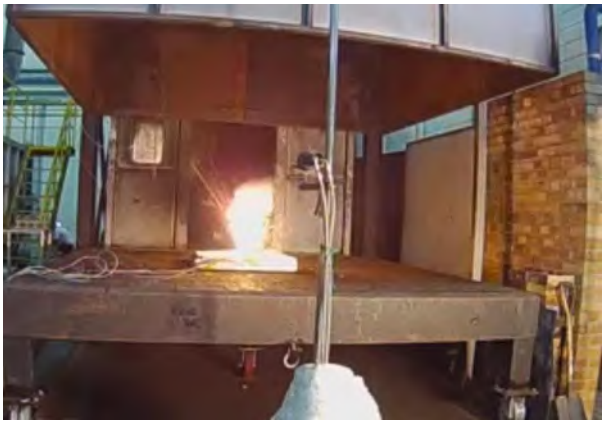
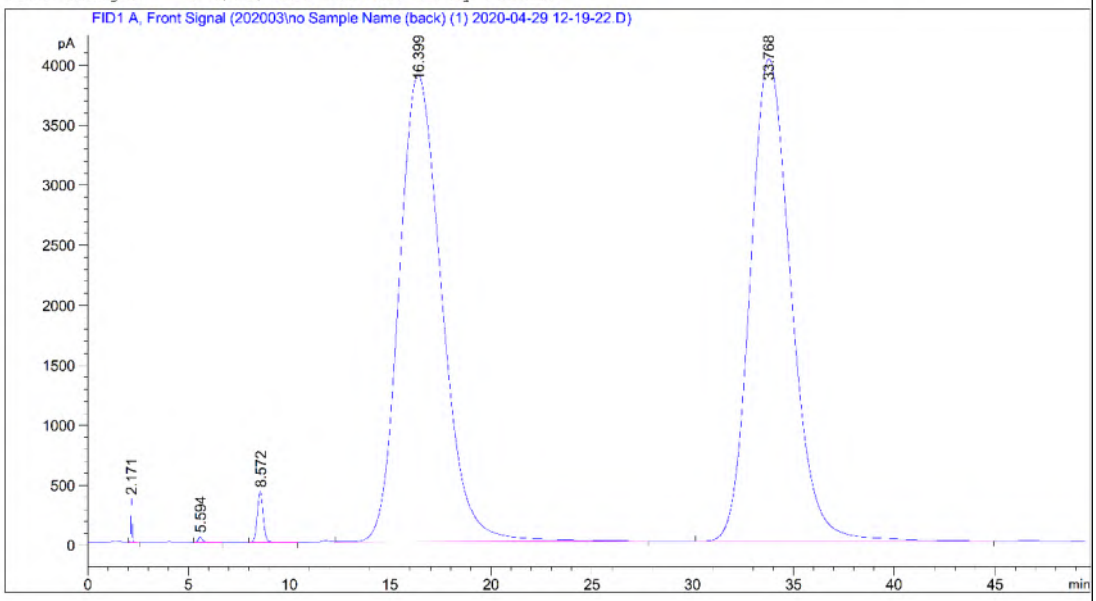
k)	Observation(s) of sparks, electrical arcs, or other electrical events;	Sparks, Fire observed
l)	Identification/location of cells(s) that exhibited thermal runaway within the module;	5 cells in center 
m)	Locations and visual estimations of flame extension and duration from the module shall be documented;	Thermal runaway occurred after 5 minutes of first vent, the external flaming and flying debris hazards observed 69 
n)	Module weight loss;	69.7 kg (Before Test: 81.2kg, After Test: 11.5 kg)
o)	Video of the test	Video recorded

Table 2. Module test results per Clause 8.3

Appendix A

Flammable gas generation and composition measurements
Gas Chromatograph results for sample 4

```
======================================================================
Acq. Operator   : SYSTEM
Sample Operator : SYSTEM
Acq. Instrument : GC                          Location :   2  (B)
Injection Date  : 4/29/2020 12:19:22 PM            Inj :   1
                                             Inj Volume : Manually
Acq. Method     : C:\USERS\PUBLIC\DOCUMENTS\CHEMSTATION\1\METHODS\TEST_FID0429.M
Last changed    : 4/29/2020 12:08:15 PM by SYSTEM
                  (modified after loading)
Analysis Method : C:\USERS\PUBLIC\DOCUMENTS\CHEMSTATION\1\METHODS\TEST_FID0429.M
Last changed    : 4/29/2020 1:14:20 PM by SYSTEM
```




```
======================================================================
                    External Standard Report
======================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Wednesday, April 29, 2020 1:13:51 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Do not use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.171 BB     1598.22363 5.01532e-2   80.15606    methane
  5.594 BB      590.11926 1.67856e-2    9.90551    acetylene
  8.572 BB     8667.45313 2.95728e-2  256.32119    ethylene
 36.737            -          -          -         propane

Totals :                              346.38276
```

Appendix B

The lower flammability limit of the cell vent gas

LFL mixture of total volume percentage of the cell vent gas calculated by the measured vent gas by FTIR. The flammable gas of venting gas observed propane, methane Carbone monoxide, ethylene, acetylene and hydrogen. See below for detail test results for each gas compositions.

The following equation is used to calculate molar fraction percentage and total lower flammable limit percentage.

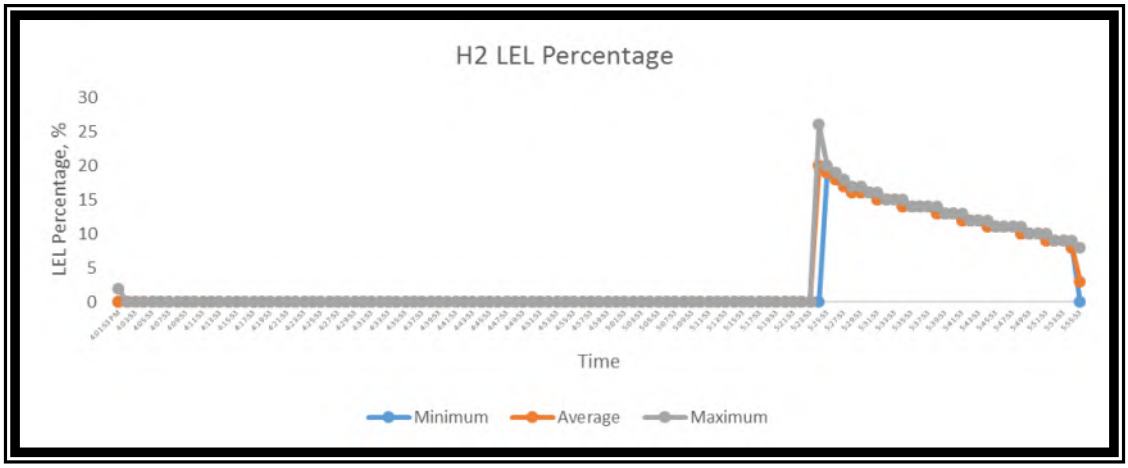
$$LEL_{mix} = \frac{1}{\sum_{i=1}^{n} \frac{y_i}{LEL_i}}$$

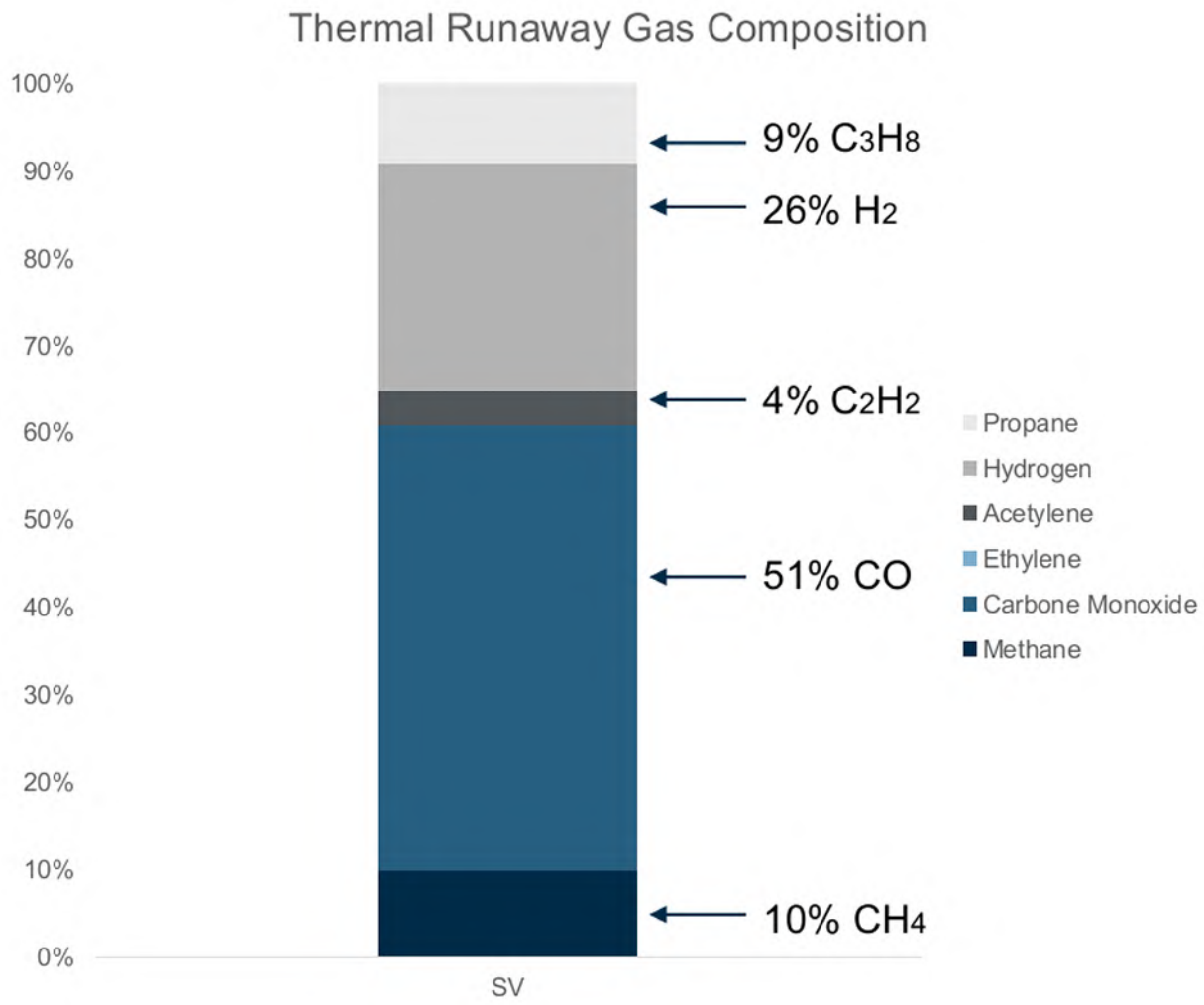
LELmix: lower explosion (flamable) limit mixture of flameable gas by volume percentatge
LELi: lower explosion (flammable) limit of flammable gas of “I” by volume percentage
yi: molar fraction percentage of flammable gas of “I”
n: number of flammable gas composition

Test Results of each gas composition LFL rate and total LFL rate.

Measured Composition of gas		PPM	Volume %	Molar Fraction %	LFL by Vol %	Molar fraction by LFL %	LFL mixture by Vol. %
C3H8	Propane	50.83	9.412963	0.124401312	2.1	0.05924	6.04
CH4	Methane	57.003	10.55611	0.139509094	5.5	0.02790	
CO	Carbone Monoxide	275.686	51.05296	0.674713713	12.5	0.05398	
C2H4	Ethylene	0	0	0	2.7	0	
C2H2	Acetylene	25.078	4.644074	0.061375881	2.5	0.02455	

Hydrogen gas measured with real time. Below plot shows hydrogen LEL percentage for sample number 4. The measured maximum LEL percentage 26% right after cell vented and it gradually decreased.




Thermal Runaway Gas Composition
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
SV
9% C3H8
26% H2
4% C2H2
51% CO
10% CH4
Propane
Hydrogen
Acetylene
Ethylene
Carbone Monoxide
Methane

Appendix C

Burning velocity of the cell vent gas

The following test mixture of the synthetically replicated gas mixture, based on the cell vent gas composition shown in Appendix B above, was used to determine burning velocity of the cell vent gas in accordance with Method of Test for Burning Velocity Measurement of Flammable Gases Annex in ISO 817.

Determination of burning velocity of the cell vent gas.

Burning Velocity (cm/s):	**63.528**
Flammable gas content, (% mol):	CO (51.0%), H2(26.0%), CH4(10.6%), C3H8(9.4%), Others
Concentration of Oxygen percentage (%):	14
Flame Propagation Speed (cm/s):	2995.5
Flame Surface Area (cm2):	592.235
Flame Cross Sectional Area (cm2):	12.56

Appendix D

P_{max} of the cell vent gas

The following test mixture of the synthetically replicated gas mixture, based on the cell vent gas composition shown in Appendix B above, was used to determine Pmax in accordance with EN15967.

Reference value of Test Mixture: 40% of flammable gas content
The 4 test mixtures were chosen for Pex, and 3 sets of each test mixture were tested at 30℃ and 1bar.

<Table D.1> Pex, Explosion Pressure of chosen Test Mixtures

Test Mixture	**Flammable Gas Content**	**Mean of measured Pex, bar**
0.8 times the reference value	32%	4.94
Reference value	**40%**	**5.71**
1.2 times the reference value	48%	5.31
1.4 times the reference value	56%	4.29

The highest Pex value was found at the Reference value point, that is, 40% flammable gas content as seen in Table D.1.

The following test mixtures were additionally chosen and tested with flammable gas content at the midpoints of the intervals to the left and right of the point giving the highest mean, that is, 40% of flammable gas content until the change in the measured values of Pex is less than 0,05 bar.

<Table D.2> Determination of Pmax, the maximum explosion pressure

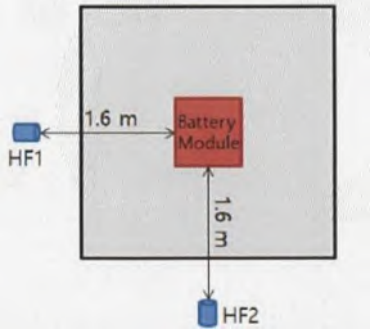
Test Mixture	**Flammable Gas Content**	**Mean of measured Pex, bar**	**Change in measured Pex Vs. highest value, bar**
Midpoint 1 to the left	36%	5.56	-0.15
Midpoint 2 to the left	38%	5.68	-0.03
Highest Pex, Reference value	**40%**	**5.71**	**N/A**
Midpoint 1 to the right	42%	5.66	-0.05
Midpoint 2 to the right	44%	5.47	-0.14

Determination of Pmax, the maximum explosion pressure

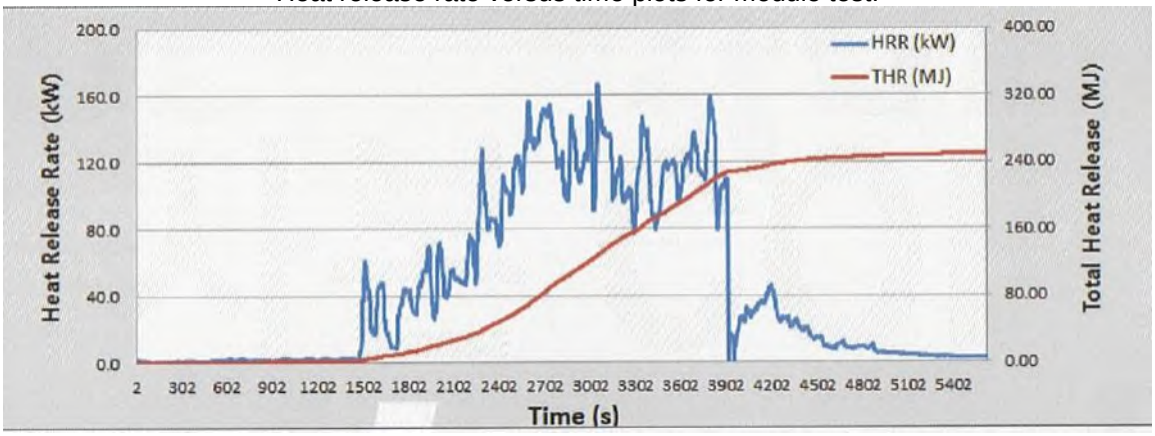
Pmax, Bar:	**5.71**
Flammable gas content, (% mol):	CO (51.0%), H2(26.0%), CH4(10.6%), C3H8(9.4%), Others
Flammable gas content in the test Mixture, % mol:	50
Last Flammable gas content increment, % mol:	2, (change in Pex < 0.05 bar)

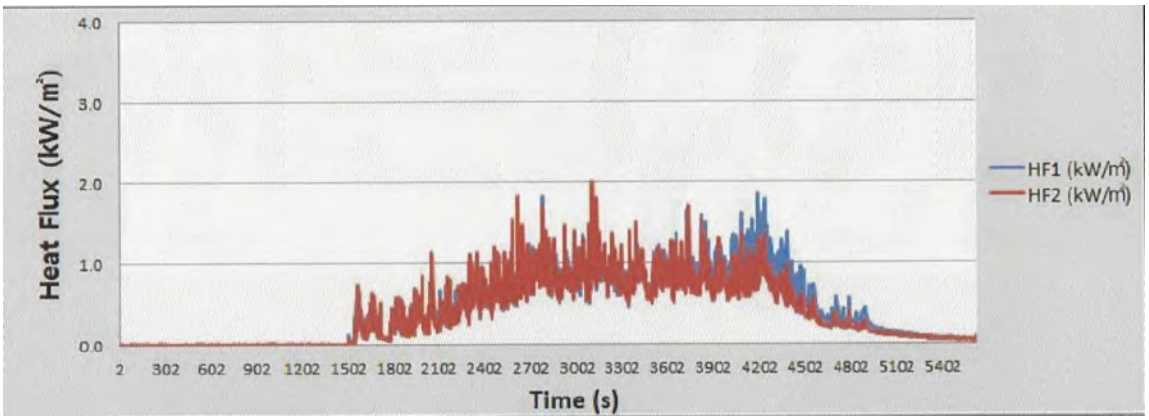
Appendix E

Heat release rate measuring point



Heat release rate versus time plots for module test.





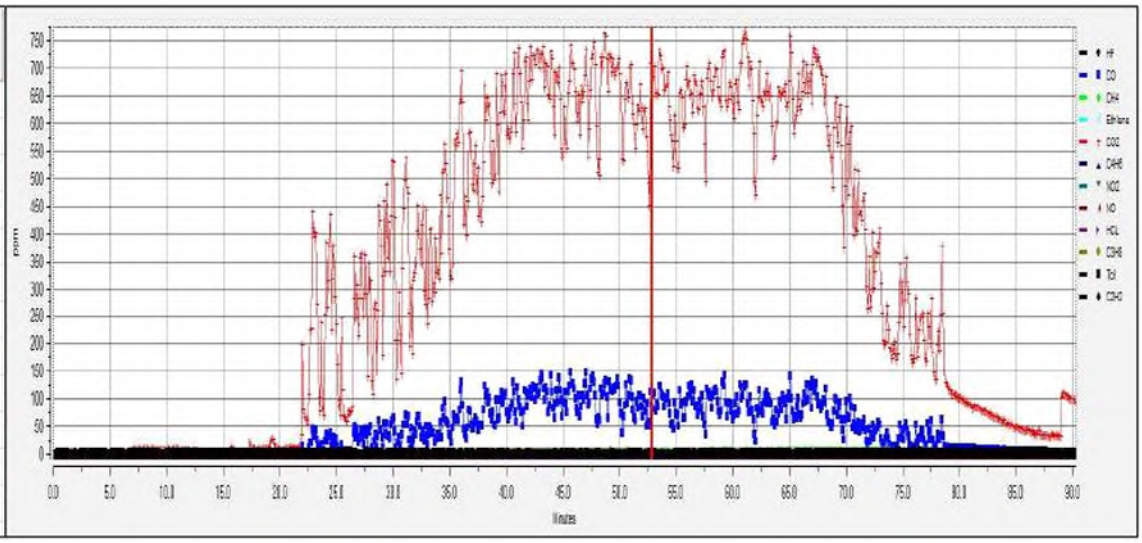
Ambient Temperature and Humidity Condition	Total Testing Time	Maximum Heat Release Rate	Average Heat Release Rate	Total Heat Release Energy
24.8 ℃, 58 %	5618 sec	166.42 kW	44.40 kW	249.50 MJ

Appendix F

Flammable gas generation and composition data

Test conducted ambient temperature. The measuring equipment is FTIR manufactured by MIDAC.

Compound	Conc. (ppm)
C2H2	0.000
C3H8	2.181
C4H8	0.000
CH4	2.858
CO	82.985
CO2	650.165
Ethlene	2.547
HCL	0.000
HF	0.545
NO	0.000
NO2	0.000
Tol	1.783

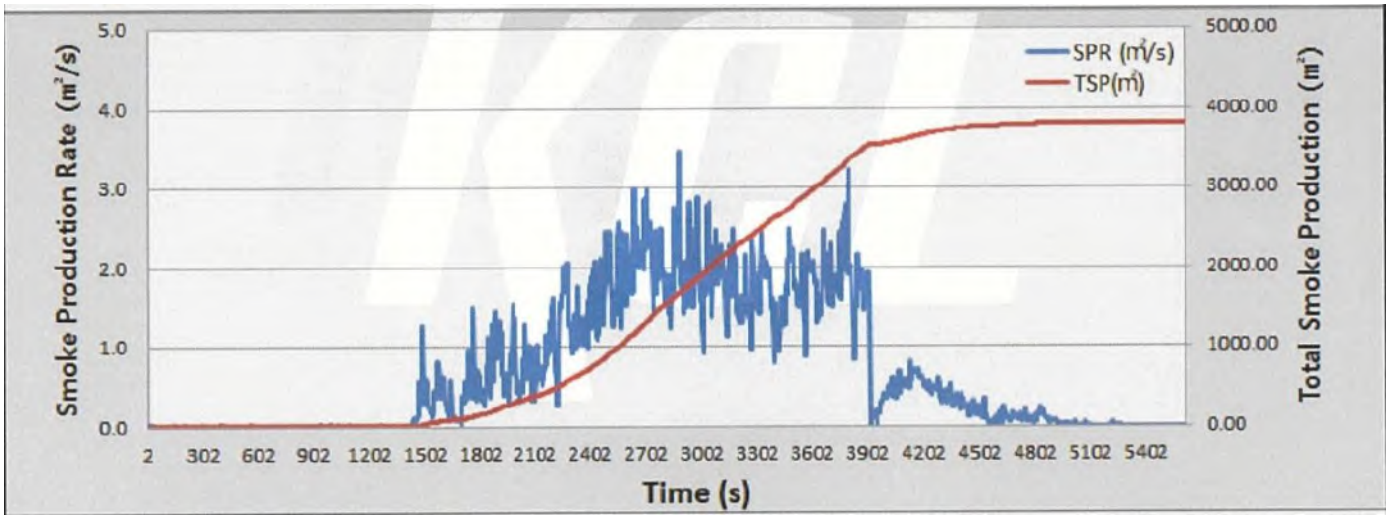


Test Result for measured gas composition during the test.

Measured Composition of gas		
C3H8	Propane	2.181 ppm
CH4	Methane	2.858 ppm
CO	Carbone Monoxide	82.985 ppm
CO2	Carbone Dioxide	650.165 ppm
C2H4	Ethylene	2.547 ppm
HF	Hydrogen Fluoride	0.545 ppm
H2	Hydrogen Gas	Maximum 35% of LEL.

Appendix G

Peak smoke release rate and total smoke release data



Ambient Temperature and Humidity Condition	Total Testing Time	Maximum Smoke release rate	Average Smoke release Rate	Total Smoke release rate
24.8 ℃, 58 %	5618 sec	3.46 m^2/S	0.68 m^2/S	3811.60 m^2

- End of Report -

TEST REPORT

ANSI/CAN/UL 9540A:2019
Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

Report Number..... :	32072059.001
Date of issue ..... :	June 17, 2020
Total number of pages ..... :	25
Name of Testing Laboratory preparing the Report ..... :	**TÜV Rheinland of North America, Inc.** 1279 Quarry Lane, Suite A, Pleasanton, CA 94566
Applicant's name ..... :	**Tesla, Inc.**
Address ..... :	3500 Deer Creek Road, Palo Alto, CA 94304
Test specification:	
Standard ..... :	ANSI/CAN/UL 9540A:2019
Test procedure..... :	Report
Non-standard test method..... :	N/A
Test Report Form No. ..... :	N/A
Test Report Form(s) Originator.... :	N/A
Master TRF ..... :	Dated 2019-01-17

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the CB, responsible for this Test Report.

Test item description .....:	Battery Energy Storage System
Trade Mark .....:	Tesla
Manufacturer.....:	Tesla, Inc, (new # 1210368) 3500 Deer Creek Rd, Palo Alto, CA 94304
Model/Type reference .....:	1462965-XX-Y Megapack XX – can be any number from 00 to 99. XX – represents style codes used for different variants of the same part, having no impact on the safety and functionality of the entire product. Y – can be any upper case letter from A to Z. Y – represents pedigree and is used for tracking changes to parts that have already been released to suppliers or production, having no impact on the safety and functionality of the entire product
Ratings .....:	1) 480Vac, 1264.5 kW, 1573 kVA 2) 505Vac, 1264.5 kW, 1654.9 kVA (3 phase 3 wire or 3 phase 4 wire) Battery capacity 4hr: 2964.8kWh Battery capacity 2hr: 2529kWh

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	**TÜV Rheinland of North America, Inc.** 1279 Quarry Lane, Suite A, Pleasanton, CA 94566	
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☒	**Testing procedure: CTF Stage 1/TMP:**	**Tesla, Inc.**	
Testing location/ address ..... :		3500 Deer Creek Road, Palo Alto, CA 94304	
Tested by (name, function, signature) ..... :		Justin Goh/ Himanshu Vaidya	
Approved by (name, function, signature) .. :		Howard Liu	
☐	**Testing procedure: CTF Stage 2/WMT:**		
Testing location/ address ..... :			
Tested by (name + signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3/SMT:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

1. Test package with testing equipment list
2. Photo documentation

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
9540A cl 9 – Unit Level	Tesla, Inc. Tesla Battery Test Facility Fernley, Nevada

Summary of compliance with National Differences (List of countries addressed): N/A

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)**

Possible test case verdicts: **- test case does not apply to the test object ....:** N/A **- test object does meet the requirement.....:** P (Pass) **- test object does not meet the requirement....:** F (Fail)
Testing: **Date of receipt of test item .....:** May 10, 2020 **Date (s) of performance of tests.....:** May 13, 2020
General remarks:
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**
Name and address of factory (ies) ..... :
Copy of marking plate: Use – "Only for use with Tesla Products" "The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCB' s that own these marks"
General product information and other remarks:

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict

CONSTRUCTION			--
5	**General**		--
5.1	**Cell**		P
5.1.1	The cells associated with the BESS that were tested shall be documented in the test report	Panasonic Model NCR2170D LiNiCoAlO2 Cylindrical Lithium ion battery Rated capacity (Ah): 3930mAh Nominal voltage (V): 3.6V Upper limit charging voltage (V) : 4.2V Nominal mass (g): 70.6g or less (68.1g typ) External dimensions (mm): 21+/-0.12mm diameter 70+/-0.25mm height	P
5.1.2	The cell documentation included in the test report shall indicate if the cells associated with the BESS comply with UL 1973	Battery module is compliant with UL 1973. Cell is compliant with UL 1642.	P
5.1.3	Refer to 7.6.1 for further details	See 7.6.1	N/A
5.2	**Module**		P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.1	The modules associated with the BESS that were tested shall be documented in the test report	Battery module (12 modules in series): Rated Voltage MV (before DCDC converter) nominal voltage: 400V MV max. charge voltage: 470 V(operational) (460 V full power) MV min. discharge voltage: 216 V (operational) (324 V full power) Rated Current Max. HV charge/discharge current: 116 A (2 hr), 58 A (4 hr) Max. MV charge/discharge current: 280.8 A (2 hr), 143.8 A (4 hr) Max. HV charge and discharge power: 125 kW (2 hr), 52 kW (4 hr) Battery module: Nominal voltage: 33.3 V Max charge voltage: 38.75 V(operational) (37.75 V full power) Min. discharge voltage: 18 V (operational) (27 V full power)	P
5.2.2	The module documentation included in the test report shall indicate if the modules associated with the BESS comply with UL 1973	Battery module is compliant with UL 1973	P
5.2.3	Refer to 8.3 for further details	See 8.3	N/A
5.3	**Battery energy storage system unit**		P
5.3.1	The BESS unit documentation included in the test report shall indicate the units that comply with UL 9540	UL 9540 compliant	P
5.3.2	For BESS units for which UL 9540 compliance cannot be determined,	See above	N/A
5.3.3	If applicable, the details of any fire detection and suppression systems that are an integral part of the BESS shall be noted in the test report	No fire detection and suppression systems used	N/A
5.3.4	Refer to 9.7, 10.4 and 10.7 for further details	See 9.7	P
5.4	**Flow Batteries**		N/A
5.4.1	For flow batteries, the report will cover the chemistry, as well as the electrical rating in capacity and nominal voltage of the cell stack	Not flow batteries	N/A
5.4.2	The flow battery documentation included in the test report shall indicate if the flow battery system complies with UL 1973		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.4.3	See 7.6.2 for further details		N/A
PERFORMANCE			--
6	**General**		N/A
6.1	The tests in this standard are extreme abuse conditions conducted on electrochemical energy storage devices that can result in fires		N/A
6.2	At the conclusion of testing, samples shall be discharged in accordance with the manufacturer's specifications		N/A
9	**Unit Level**		--
9.1	**Sample and test configuration**		--
9.1.1	The unit level test shall be conducted with BESS units installed as described in the manufacturer's instructions and this section. Test configurations include the following:		P
	a) Indoor floor mounted non-residential use BESS; b) Indoor floor mounted residential use BESS; c) Outdoor ground mounted non-residential use BESS; d) Outdoor ground mounted residential use BESS; e) Indoor wall mounted non-residential use BESS; f) Indoor wall mounted residential use BESS; g) Outdoor wall mounted non-residential use BESS; h) Outdoor wall mounted residential use BESS; and i) Rooftop and open garage non-residential use BESS installations.	Outdoor ground mounted non-residential use BESS	P
9.1.2	The unit level test requires one initiating BESS unit in which an internal fire condition in accordance with the module level test is initiated and target adjacent BESS units representative of an installation	One initiating BESS and two target adjacent BESS	P
	Exception: Testing can be conducted outdoors for outdoor only installations if there are the following controls and environmental conditions in place:	Testing can be conducted outdoors for outdoor only installations See Figure 1	P

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Wind screens are utilized with a maximum wind speed maintained at ≤ 12 mph; b) The temperature range is within 10°C to 40°C (50°F to 104°F); c) The humidity is < 90% RH; d) There is sufficient light to observe the testing; e) There is no precipitation during the testing; f) There is control of vegetation and combustibles in the test area to prevent any impact on the testing and to prevent inadvertent fire spread from the test area; and g) There are protection mechanisms in place to prevent inadvertent access by unauthorized persons in the test area and to prevent exposure of persons to any hazards as a result of testing.	This was an outdoor installation test. The ambient temperature was varied between 10°C and 27°C and humidity less than 90% RH, and wind was under 12 mph.	P
9.1.3	Depending upon the configuration and design of the BESS (e.g. the BESS is composed of multiple separate parts within separate enclosures), this testing to determine fire characterization can be done at the battery system level	Testing performed at BESS level	N/A
9.1.4	The initiating BESS unit shall contain components representative of a BESS unit in a complete installation.	Complete unit in the testing	P
9.1.5	Target BESS units shall include the outer cabinet (if part of the design), racking, module enclosures, and components		P
9.1.6	The initiating BESS unit shall be at the maximum operating state of charge (MOSOC),	100% SOC	P
9.1.7	If a BESS unit includes an integral fire suppression system, there is an option of providing this with the DUT	No integral fire suppression system	N/A
9.1.8	Electronics and software controls such as the battery management system (BMS) in the BESS are not relied upon for this testing.		P
9.2	**Test method – Indoor floor mounted BESS units**	Outdoor ground mounted units. Used the test method described in the Section 9.2 except conflicted with Section 9.3.	--
9.2.1	Samples and test configurations are in accordance with 9.1.	Testing conducted outdoor	N/A
9.2.2	Any access door(s) or panels on the initiating BESS unit and adjacent target BESS units shall be closed,	Doors closed	P
9.2.3	The initiating BESS unit shall be positioned adjacent to two instrumented wall sections	No instrumented wall sections	N/A
9.2.4	Instrumented wall sections shall extend not less than 0.49 m (1.6 ft) horizontally beyond the exterior of the target BESS units.	No instrumented wall sections	N/A
9.2.5	Instrumented wall sections shall be at least 0.61-m (2-ft) taller than the BESS unit height	No instrumented wall sections	N/A
9.2.6	The surface of the instrumented wall sections shall be covered with 16-mm (5/8-in) gypsum wall board and painted flat black	No instrumented wall sections	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
9.2.7	The initiating BESS unit shall be centered underneath an appropriately sized smoke collection hood of an oxygen consumption calorimeter	Testing conducted outdoor	N/A
9.2.8	The light transmission in the calorimeter's exhaust duct shall be measured using a white light source and photo detector for the duration of the test	Testing conducted outdoor	N/A
9.2.9	The chemical and convective heat release rates shall be measured for the duration of the test, using the methodologies specified in 8.2.11 and 9.2.12, respectively	Testing conducted outdoor	N/A
9.2.10	With reference to 9.2.9, the heat release rate measurement system shall be calibrated	Testing conducted outdoor	N/A
9.2.11	With reference to 9.2.9, the convective heat release rate shall be measured using thermopile	Testing conducted outdoor	N/A
9.2.12	With reference to 9.2.9, the convective heat release rate shall be calculated using the following equation: $HRR_c = V_e A \frac{353.22}{T_e} \int_{T_o}^{T} C_p dT$	Testing conducted outdoor	N/A
9.2.13	The physical spacing between BESS units (both initiating and target) and adjacent walls shall be representative of the intended installation	No instrumented wall sections	N/A
9.2.14	Separation distances shall be specified by the manufacturer for distance between:		P
	a) The BESS units and the instrumented wall sections; and b) Adjacent BESS units.	a) No wall b) 6 inches from ISO knuckle of Initiating unit to Target unit. 4 inches from surface of initiating unit to target unit surface.	P
9.2.15	Wall surface temperature measurements shall be collected for BESS intended for installation in locations with combustible construction.	No instrumented wall sections	N/A
9.2.16	Wall surface temperatures shall be measured in vertical array(s) at 152-mm (6-in) intervals for the full height of the instrumented wall sections using No. 24-gauge or smaller,	No instrumented wall sections	N/A
9.2.17	Thermocouples shall be secured to gypsum surfaces by the use of staples placed over the insulated portion of the wires	No instrumented wall sections	N/A
9.2.18	Heat flux shall be measured with the sensing element of at least two water-cooled Schmidt-Boelter gauges at the surface of each instrumented wall:	No instrumented wall sections	N/A
	a) Both are collinear with the vertical thermocouple array;		N/A
	b) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module; and		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	c) One is positioned at the elevation estimated to receive the greatest heat flux during potential propagation of thermal runaway within the initiating BESS unit.		N/A
9.2.19	Heat flux shall be measured with the sensing element of at least two water-cooled Schmidt-Boelter gauges at the surface of each adjacent target BESS unit that faces the initiating BESS unit:	No target facing the initiating BESS	N/A
	a) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module within the initiating BESS; and		N/A
	b) One is positioned at the elevation estimated to receive the greatest surface heat flux due to the thermal runaway of the initiating BESS.		N/A
9.2.20	For non-residential use BESS, heat flux shall be measured with the sensing element of at least one water-cooled Schmidt-Boelter gauge	Testing conducted outdoor	N/A
9.2.21	No. 24-gauge or smaller, Type-K exposed junction thermocouples shall be installed to measure the temperature of the surface	No. 24-gauge, Type-K used	P
9.2.22	For residential use BESS, the DUT shall be covered with a single layer of cheese cloth	Non-residential	N/A
9.2.23	An internal fire condition in accordance with the module level test shall be created within a single module in the initiating BESS unit:	See Figure 2 Megapack can consist up to 17 Battery Module assemblies. Each module assembly contains 6 trays of 2 Modules each which is a total of 204 modules. The module that was set to initiate was located at location 72 and on Tray III. Two sections of heaters with 29 and 27 heater were setup to force thermal runaway.	P
	a) The position of the module shall be selected to present the greatest thermal exposure		P
	b) The setup (i.e. type, quantity and positioning) of equipment for initiating thermal runaway in the module shall be the same as that used to initiate and propagate thermal runaway within the module level test		P
9.2.24	The composition, velocity and temperature of the initiating BESS unit vent gases shall be measured within the calorimeter's exhaust duct	Testing conducted outdoor	N/A
9.2.25	The hydrocarbon content of the vent gas shall be measured using flame ionization detection	Testing conducted outdoor	N/A
9.2.26	The test shall be terminated if:		P
	a) Temperatures measured inside each module within the initiating BESS unit return to ambient temperature;	Appilcable	P
	b) The fire propagates to adjacent units or to adjacent walls; or		N/A
	c) A condition hazardous to test staff or the test facility requires mitigation		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
9.2.27	For residential use systems, the gas collection data gathered in 9.2 shall be compared to the smallest room installation	Non-residential	N/A
9.3	**Test method – Outdoor ground mounted units**		--
9.3.1	Outdoor ground mounted non-residential use BESS being evaluated for installation in close proximity to buildings shall use the test method described in Section 9.2	See 9.2	P
9.3.2	except as noted in 9.3.3 and 9.3.4. Heat flux measurements for the accessible means of egress shall be measured in accordance with 9.2.20.	See 9.2	P
9.3.3	Test samples shall be installed as shown in Figure 9.2 in proximity to an instrumented wall section that is 3.66-m (12-ft) tall with a 0.3-m (1-ft) wide horizontal soffit	No instrumented wall sections	N/A
	Exception: If the manufacturer requires installation against non-flammable material, the test setup may include manufacturer recommended backing material between the unit and plywood wall		N/A
9.3.4	Target BESS shall be installed on each side of the initiating BESS in accordance with the manufacturer's installation specifications	No target unit on the front side	N/A
9.4	**Test Method – Indoor wall mounted units**	Testing conducted outdoor	N/A
9.4.1	Testing of indoor wall mounted BESS shall be in accordance with Section 9.2, except as modified in this section. See Figure 9.3.		N/A
9.4.2	The test shall be conducted in a standard NFPA 286 fire test room, 3.66 × 2.44 × 2.44-m (12 × 8 × 8-ft) high, with a 0.76 × 2.13-m (2-1/2 × 7-ft) high opening.		N/A
9.4.3	The initiating BESS unit shall be positioned on the wall opposite of the door opening		N/A
9.4.4	Target BESS shall be installed on the wall on each side of the initiating BESS		N/A
9.4.5	The wall on which the initiating and target BESS units are mounted shall be instrumented in accordance with Section 9.2.		N/A
9.4.6	The gas collection methods shall be in accordance with 9.2		N/A
9.4.7	For residential use BESS, the DUT shall be covered with a single layer of cheese cloth ignition indicator.		N/A
9.5	**Test Method – Outdoor wall mounted units**	Testing conducted outdoor, ground mounted	N/A
9.5.1	Testing of outdoor wall mounted BESS shall be in accordance with Section 9.2, except as modified in this section. See Figure 9.4.		N/A
9.5.2	Test samples shall be mounted on an instrumented wall section that is 3.66-m (12-ft) tall with a 0.3-m (1-ft) wide horizontal soffit (undersurface of the eave shown in Figure 9.4).		N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
9.5.3	The initiating BESS unit shall be positioned on the instrumented wall, with its center located 1.22-m (4-ft) above the floor,		N/A
9.5.4	Target BESS shall be installed on the wall on each side of the initiating BESS, at the same height		N/A
9.5.5	The wall on which the initiating and target BESS units are mounted shall be instrumented in accordance with Section 9.2.		N/A
9.5.6	For residential use BESS, the DUT shall be covered with a single layer of cheese cloth		N/A
9.6	**Rooftop and open garage installations**	Testing conducted outdoor, ground mounted	N/A
9.6.1	Testing of BESS intended for non-residential use rooftop or open garage installations shall be in accordance with 9.2.		N/A
9.6.2	If intended for rooftop and open garage use only installations, the smoke release rate, the convective and chemical heat release rate and content, velocity and temperature of the released vent gases need not be measured		N/A
9.7	**Unit level test report**		--
9.7.1	The report on the unit level testing shall identify the type of installation being tested, as follows:		P
	a) Indoor floor mounted non-residential use BESS; b) Indoor floor mounted residential use BESS; c) Outdoor ground mounted non-residential use BESS; d) Outdoor ground mounted residential use BESS; e) Indoor wall mounted non-residential use BESS f) Indoor wall mounted residential use BESS; g) Outdoor wall mounted non-residential use BESS; h) Outdoor wall mounted residential use BESS; i) Rooftop installed non-residential use BESS; or j) Open garage installed non-residential use BESS.	Outdoor ground mounted non-residential use BESS;	P
9.7.2	With reference to 9.7.1, if testing is intended to represent more than one installation type, this shall be noted in the report	One installation type	N/A
9.7.3	The report shall include the following, as applicable:	See Table 1	P

	a) Unit manufacturer name and model number (and whether UL 9540 compliant); b) Number of modules in the initiating BESS unit; c) The construction of the initiating BESS unit per 5.3; d) Fire protection features/detection/suppression systems within unit; e) Module voltage(s) corresponding to the tested SOC; f) The thermal runaway initiation method used; g) Location of the initiating module within the BESS unit; h) Diagram and dimensions of the test setup including mounting location of the initiating and target BESS units, and the locations of walls, ceilings, and soffits; i) Observation of any flaming outside the initiating BESS enclosure and the maximum flame extension; j) Chemical and convective heat release rate versus time data; k) Separation distances from the initiating BESS unit to target walls (e. g. distances A and C in Figure 9.1); l) Separation distances from the initiating BESS unit to target BESS units (e.g. distances D and H in Figure 9.1); m) The maximum wall surface and target BESS temperatures achieved during the test and the location of the measuring thermocouple; n) The maximum ceiling or soffit surface temperatures achieved during the indoor or outdoor wall mounted test and the location of the measuring thermocouple; o) The maximum incident heat flux on target wall surfaces and target BESS units; p) The maximum incident heat flux on target ceiling or soffit surfaces achieved during the indoor or outdoor wall mounted test; q) Gas generation and composition data; r) Peak smoke release rate and total smoke release data; at which activation occurred; t) Observation of flying debris or explosive discharge of gases; u) Observation of re-ignition(s) from thermal runaway events; v) Observation(s) of sparks, electrical arcs, or other electrical events; w) Observations of the damage to: 1) The initiating BESS unit; 2) Target BESS units;		

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	3) Adjacent walls, ceilings, or soffits; and x) Photos and video of the test.		
9.8	**Performance at unit level testing**		--
9.8.1	Installation level testing in Section 10 is not required if the following performance conditions outlined in Table 9.1 are met during the unit level test.	a) Peak flame extension was observed to be at about 10-12 ft upwards and 8-10 ft in front of the unit. b) Surface temperatures of the modules within the target BESS remained below 140.2C (cell vent temperature). Maximum temperature measured was 44.5C. c) Not intended for installation near exposures, no measurements taken to walls. d) No explosion hazards observed (no deflagration, detonation, or accumulation of battery vent gases) e) Maximum incident heat flux was 17.5kW/m^2 at 3 ft from the left of the initiating cabinet enclosure (Note: Megapack is not designed to be installed near accessible means of egress. Refer to Figure 10. Heat Flux results for more information on heat flux around the product).	--
10	**Installation Level**	Unit level testing only	N/A
10.1	General		N/A
10.1.1	The installation level test method assesses the effectiveness of the fire and explosion mitigation methods for the BESS in its intended installation		N/A
	a) Test Method 1 – "Effectiveness of sprinklers" is used		N/A
	b) Test Method 2 – "Effectiveness of fire protection plan" is used		N/A
10.1.2	Installation level testing is not appropriate for units only intended for outdoor use or residential use.	Outdoor use only	P
10.2	Sample		N/A
10.2.1	The samples (initiating BESS and target BESS) and their preparation for testing		N/A
10.2.2	A flame indicator consisting of a cable tray with fire rated cables that complies with UL 1685 and representative of the installation per the anufacturer's specifications		N/A
10.3	Test method 1 – Effectiveness of sprinklers		N/A
10.3.1	For BESS units with a height of 2.44 m (8 ft) or less, the test shall be conducted in a 6.10 × 6.10 × 3.05-m (20 × 20 × 10-ft) high test room		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
10.3.2	The test room shall be fitted with four sprinklers at 3.05-m (10-ft) spacing in the center		N/A
10.3.3	Walls shall be constructed with 16-mm (5/8-in) gypsum wall board		N/A
10.3.4	The initiating BESS unit shall be positioned at manufacturer specified distances		N/A
10.3.5	Temperature measurements at the ceiling locations directly above the initiating and target BESS unit shall be collected by an array of thermocouples		N/A
10.3.6	Instrumented wall surface temperature measurements shall be collected in a vertical array at 152-mm (6-in) intervals		N/A
10.3.7	Thermocouples for wall surface temperature measurements shall be secured to gypsum surfaces by the use of staples		N/A
10.3.8	Heat flux shall be measured with the sensing element of at least two water-cooled Schmidt-Boelter gauges at the surface of each instrumented wall:		N/A
	a) Both are collinear with the vertical thermocouple array;		N/A
	b) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module; and		N/A
	c) One is positioned at the elevation estimated to receive the greatest heat flux during potential propagation of thermal runaway within the initiating BESS unit.		N/A
10.3.9	Heat flux shall be measured with at least two sensing water-cooled Schmidt-Boelter gauges at the surface of each adjacent target BESS unit that faces the initiating BESS unit:		N/A
	a) One is positioned at the elevation estimated to receive the greatest heat flux due to the thermal runaway of the initiating module within the initiating BESS; and		N/A
	b) One is positioned at the elevation estimated to receive the greatest surface heat flux due to the thermal runaway of the initiating BESS.		N/A
10.3.10	The heat flux shall be measured with the sensing element of at least one water-cooled Schmidt-Boelter gauge		N/A
10.3.11	No. 24-gauge or smaller Type-K exposed junction thermocouples shall be installed		N/A
10.3.12	An internal fire condition in accordance with the module level test shall be created		N/A
	a) The position of the module shall be selected to present the greatest thermal exposure		N/A
	b) The setup (i.e. type, quantity and positioning) of equipment for initiating thermal runaway in the module shall be the same		N/A
10.3.13	The composition of BESS unit vent gases shall be measured		N/A
10.3.14	The test shall be terminated if:		N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Temperatures measured inside each module of the initiating BESS return to below the cell vent temperature;		N/A
	b) The fire propagates to adjacent units or to adjacent walls; or		N/A
	c) A condition hazardous to test staff or the test facility requires mitigation.		N/A
10.3.15	The initiating unit shall be under observation for 24 h after conclusion of the installation test		N/A
10.4	Installation level test report – Test method 1 – Effectiveness of sprinklers		N/A
10.4.1	The report on installation level testing shall include the following:		N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Unit manufacturer name and model number (and whether compliant with UL 9540); b) Number of modules in the initiating BESS unit; c) The construction of the initiating BESS unit per 5.3; d) Module voltage(s) of initiating BESS corresponding to the tested SOC; e) The thermal runaway initiation method used; f) Diagram and dimensions of the test setup including location of the initiating and target BESS units, and the locations of walls and ceilings; g) Location of initiating module within the BESS unit; h) Separation distances from the initiating BESS unit to (e.g. distances A and C in Figure 10.1); i) Separation distances from the initiating BESS unit to target BESS units (e.g. distances D and E in Figure 10.1); j) Distances of the flame indicator (if used) with respect to the BESS (e. g. distances A and B in Figure 10.2); k) Maximum temperature at the ceiling; l) Distance of fire spread within the flame indicator; m) The maximum wall surface and target BESS unit temperatures achieved during the test and the location of the measuring thermocouple; n) The maximum incident heat flux on target wall surfaces and target BESS units; o) Voltages of initiating BESS; p) Total number of sprinklers that operated and length of time the sprinklers operated during the test; q) Gas generation and composition data, if measured; r) Observation of flaming outside of the test room s) Observation of flying debris or explosive discharge of gases; t) Observation of re-ignition(s) from thermal runaway events; u) Observations of the damage to: 1) The initiating BESS unit; 2) Target BESS units; and 3) Adjacent walls; v) Photos and video of the test; w) Fire protection features/detection/suppression systems within unit; and x) Sprinkler K-factor, RTI, manufacturer and model, number of sprinklers and layout		N/A
10.5	Performance – Test method 1 – Effectiveness of sprinklers		N/A

ANSI/CAN/UL 9540A:2019			
Clause	Requirement – Test	Result – Remark	Verdict
10.5.1	For BESS units intended for installation in locations with combustible construction, surface temperature measurements along instrumented wall surfaces shall not exceed a temperature rise of 97°C		N/A
10.5.2	The surface temperature of modules within the BESS units adjacent to the initiating BESS unit shall not exceed the temperature at which thermally initiated cell venting occurs		N/A
10.5.3	The fire spread on the cables in the flame indicator shall not extend horizontally beyond the initiating BESS enclosure dimensions		N/A
10.5.4	There shall be no flaming outside the test room.		N/A
10.5.5	There is no observation of detonation.		N/A
10.5.6	Heat flux in the center of the accessible means of egress shall not exceed 1.3 kW/m2.		N/A
10.5.7	There shall be no observation of re-ignition within the initiating unit after the installation test		N/A
10.5.8	An installation level test that does not meet the applicable performance criteria noted above is considered noncompliant and would need to be revised and retested		N/A
10.6	Test method 2 – Effectiveness of fire protection plan		N/A
10.6.1	The test method 2 test set-up and test procedures are identical to that in 10.3, except instead of the sprinkler system set up of 10.3.2, the room shall be fitted with the specified fire protection		N/A
10.7	Installation level test report – Test method 2 – Effectiveness of fire protection plan		N/A
10.7.1	The report on installation level testing shall include the following:		N/A
	a) The report information in 10.4.1 items (a) – (u), and (v) if applicable; b) Fire protection features/detection/suppression systems within installation; and c) Length of time of operation of the clean agent, or other suppression system in addition to any sprinklers used.		N/A
10.8	Performance – Test method 2 – Effectiveness of fire protection plan		N/A
10.8.1	See 10.5 for performance criteria		N/A

ANNEX A	**Test Concepts And Application Of Test Results To Installations**	INFORMATIVE	
ANNEX B	**Safety Recommendations for Testing**	INFORMATIVE	

Figure 1. Site layout

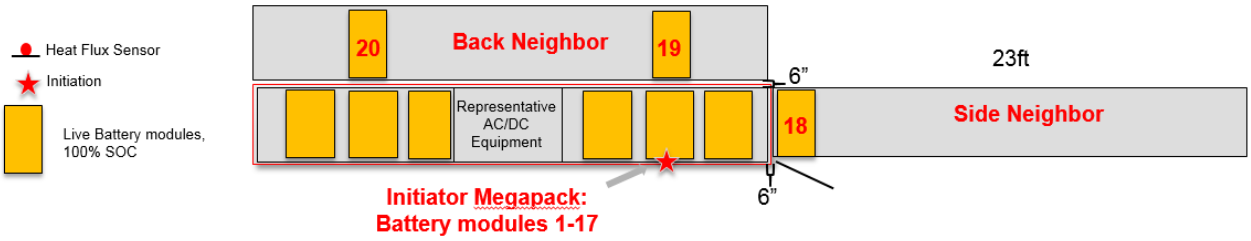


Figure 2. Test enclosure layout

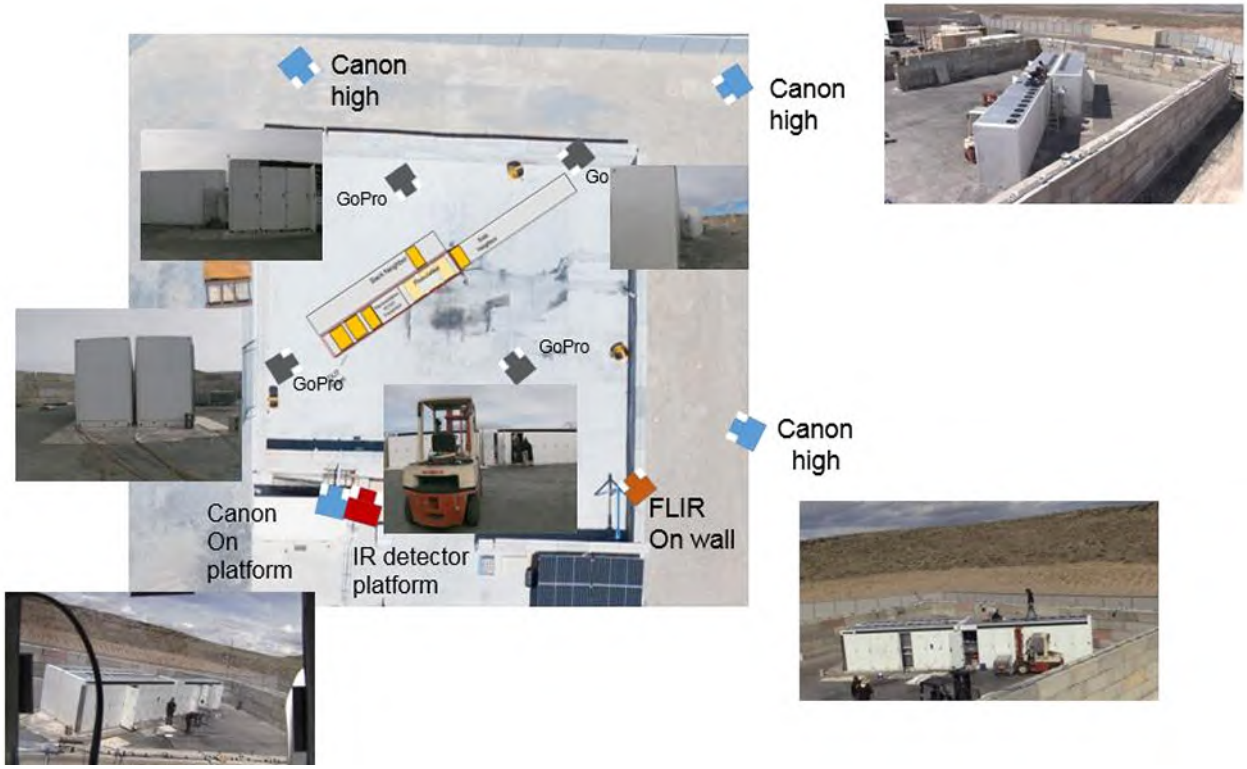


Figure 3. Camera and IR detector layout and view

Figure 4. White smoke indication

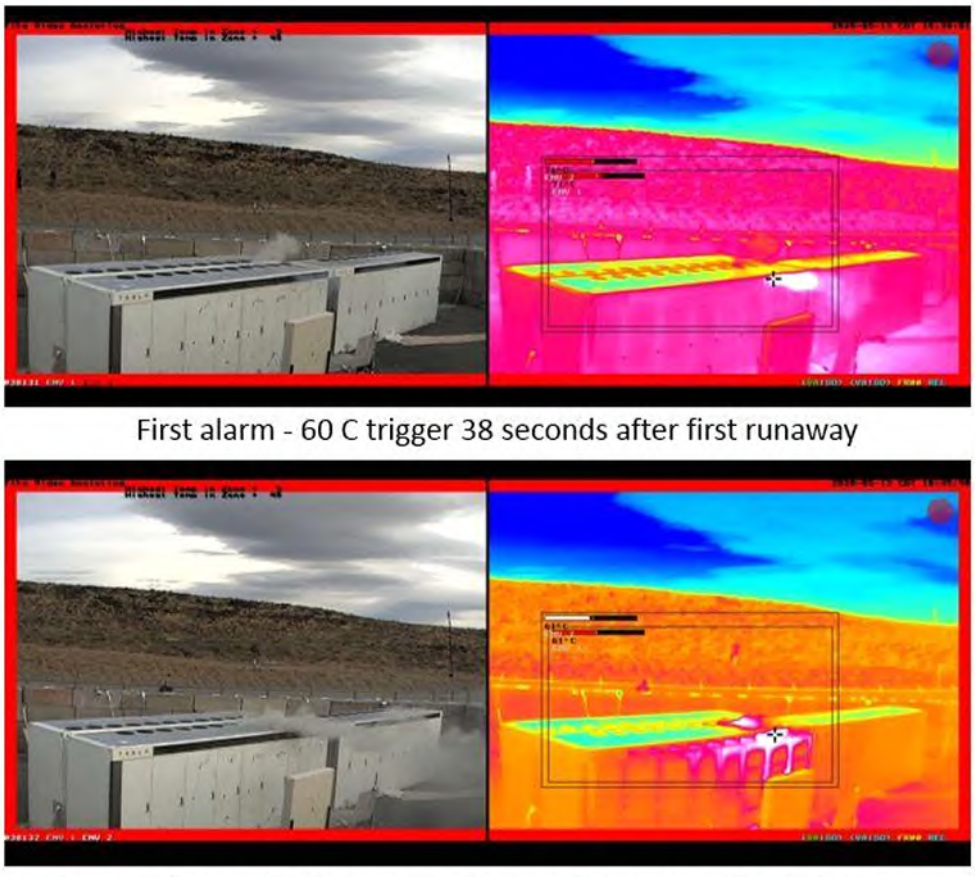


Figure 5. IR detector alarm

Figure 6. Peak reaction rate site photo

Figure 7. End of test site photo

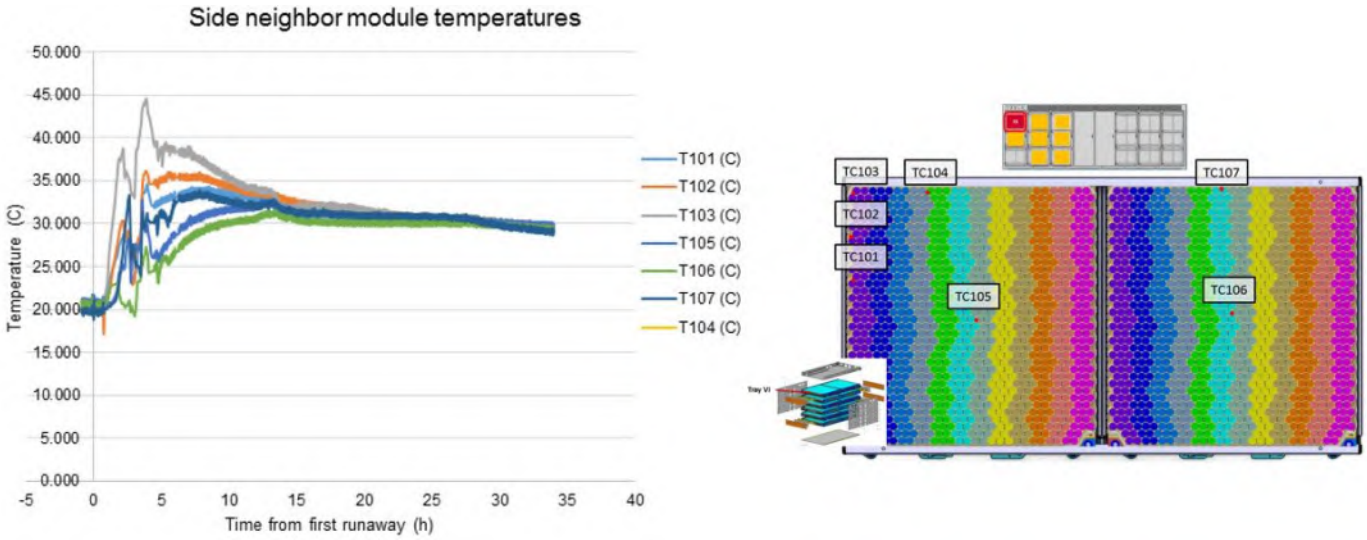


Figure 8. Side neighbor temperature result

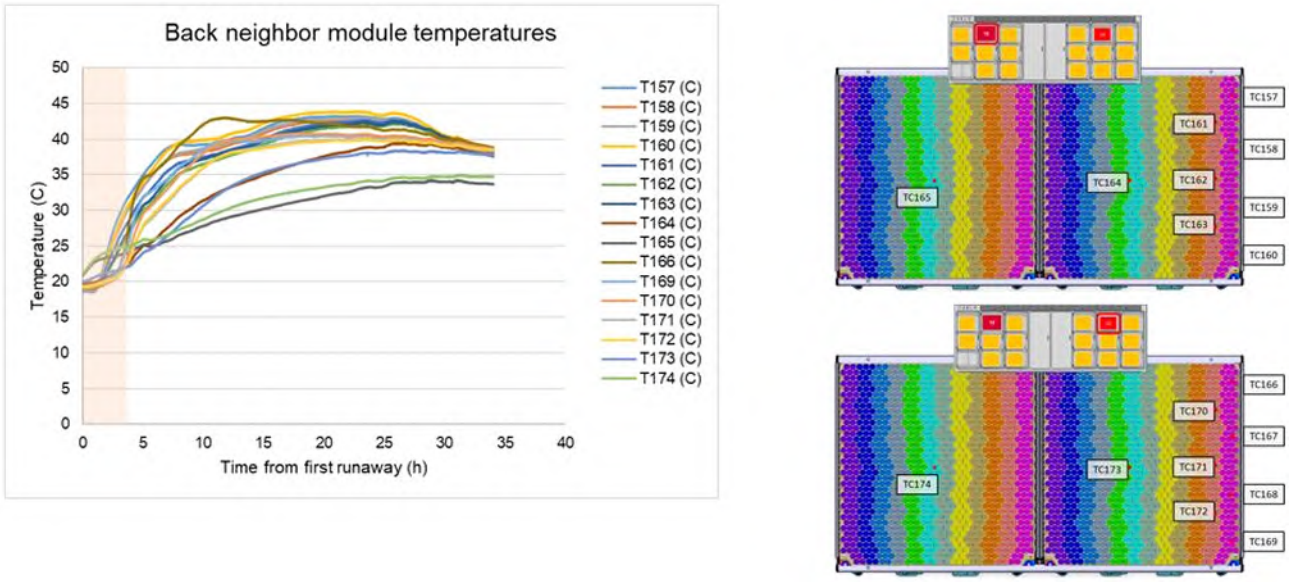


Figure 9. Back neighbor temperature result

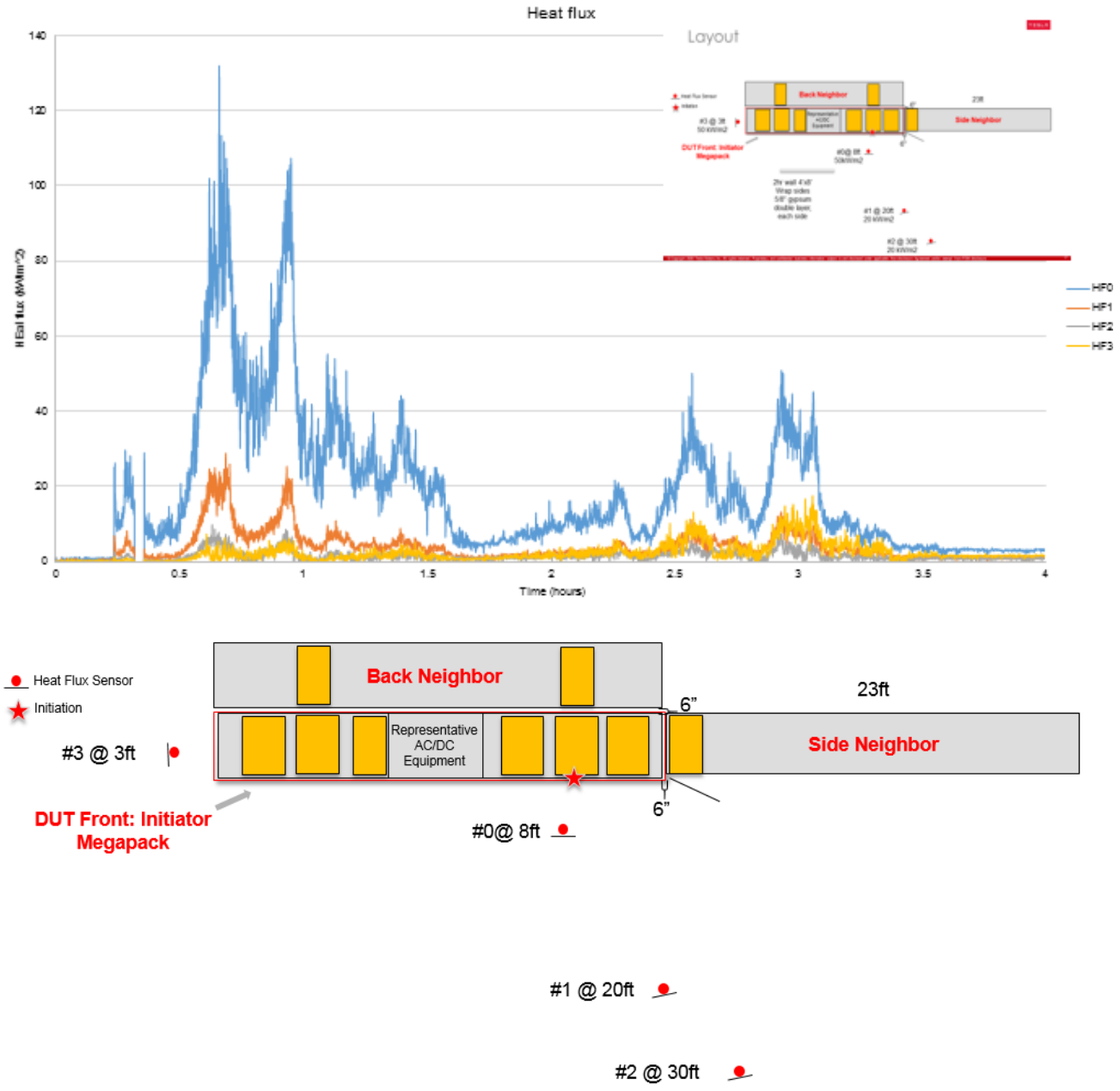


Figure 10. Heat flux results

Table 1. Test results per Clause 9.7

#	Items	Description
a)	Unit manufacturer name and model number (and whether UL 9540 compliant);	Tesla Megapack - 1462965
b)	Number of modules in the initiating BESS unit;	12 modules in a Battery assembly. Maximum 17 Battery assemblies in Megapack. 12 X 17 = 204
c)	The critical construction of the initiating BESS unit per 5.3;	UL 9540 compliant. Refer to TUV certificate CU 72200868
d)	Fire protection features/detection/suppression systems within unit;	Optional signal
e)	Module voltage(s) corresponding to the tested SOC;	100% SOC measured 4.1 V per brick (parallel connection of cells). 9 bricks in series in a module. 9 X 4.1V = 36.9V
f)	The thermal runaway initiation method used;	Heating of 27 cells simultaneously.
g)	Location of the initiating module within the BESS unit;	Initiator Megapack Battery assembly 72
h)	Diagram and dimensions of the test setup including mounting location of the initiating and target BESS units, and the locations of walls, ceilings, and soffits;	6 inches from ISO knuckle of Initiating unit to Target unit. 4 inches from surface of initiating unit to target unit surface; wall – N/A
i)	Observation of any flaming outside the initiating BESS enclosure;	Yes. 10-12 ft upwards and 8-10 ft in front of the unit.
j)	Chemical and convective heat release rate versus time data;	N/A
k)	Separation distances from the initiating BESS unit to target walls (e.g. distances A and C in Figure 9.1);	N/A
l)	Separation distances from the initiating BESS unit to target BESS units (e.g. distances D and H in Figure 9.1);	6 inches from ISO knuckle of Initiating unit to Target unit. 4 inches from surface of initiating unit to target unit surface
m)	The maximum wall surface and target BESS temperatures achieved during the test and the location of the measuring thermocouple;	Back neighbor Module: 43.9 C at location 19 Side neighbor module:44.5 C at location 18 Wall surface: N/A
n)	The maximum ceiling or soffit surface temperatures achieved during the indoor or outdoor wall mounted test and the location of the measuring thermocouple;	N/A
o)	The maximum incident heat flux on target wall surfaces and target BESS units;	17.5 kW/m^2 at 3 ft to left
p)	The maximum incident heat flux on target ceiling or soffit surfaces achieved during the indoor or outdoor wall mounted test;	N/A
q)	Gas generation and composition data;	N/A
r)	Peak smoke release rate and total smoke release data;	N/A
s)	Indication of the activation of integral fire protection systems and if activated the time into the test at which activation occurred;	N/A
t)	Observation of flying debris or explosive discharge of gases;	None observed

u)	Observation of re-ignition(s) from thermal runaway events;	None observed
v)	Observation(s) of sparks, electrical arcs, or other electrical events;	None observed
w)	Observations of the damage to: 1) The initiating BESS unit; 2) Target BESS units; and 3) Adjacent walls	1. Initiator internally fully consumed. All damage contained within the enclosure. 2. Back neighbor had some signs of fans and paint degradation. Side neighbor had some aesthetic degradation on the top left corner. 3. N/A
x)	Photos and video of the test	Attached

- End of Report -

Attachment B

UL 9540A Listing

Certificate

TÜVRheinland®

Certificate no. CU 72202327 01

License Holder:
Tesla, Inc.
3500 Deer Creek Road
Palo Alto CA 94304
USA

Manufacturing Plant:
Tesla, Inc.
Electric Avenue
Sparks NV 89434
USA

Test report no.: USA-LL 32070994 004 **Client Reference:** Jonathan McCormick

Tested to: ANSI/CAN/UL 9540:2016
UL 1741:2010 R2.18
UL 1998:2013 R9.18

Certified Product: Battery Energy Storage System **License Fee - Units**

Model Designation: 1462965-X-Y
(XX = 00-99; Y = A-Z) 7

Rated Voltage: AC 480V, 50/60Hz
Rated Power: 1264.5kW (1573kVA)
Battery Capacity: 4hr: 2964.8kWh, 2hr: 2529kWh
Output Ratings: AC 480V, 50/60Hz; 1264.5kW, 1573kVA
Protection Class: I

Special Remarks: To be installed according to the licensee's installation instructions. Software evaluated to UL1998:2013 R9.18. Replaces Certificate CU72201818.

7

Appendix: 1, 1-24

Licensed Test mark:

TÜVRheinland
C US

Date of Issue (day/mo/yr)
26/06/2020

TUV Rheinland of North America, Inc., 12 Commerce Road, Newtown, CT 06470, Tel (203) 426-0888 Fax (203) 426-4009

Attachment C

UL 1973 Listing

Back

Certificate No. CU 72200874

Certificate Holder:	**Tesla, Inc.** 3500 Deer Creek Road 94304 Palo Alto United States
Certificate Number:	CU 72200874
Order Number:	0234109642
Certified Product:	Battery Module Model Designation: Qbert, 1465144-XX-Y, (XX = 00-99; Y = A-Z)
Fulfilled Standards:	ANSI/CAN/UL 1973:2018 The standard(s) listed here reflect the status at the time of the release of this certificate.
Date of Issue:	March 25, 2020
Certificate Type:	US + Canada Certificate **cTUVus Mark (CU-Certificate)** ***Approval for the North American Market*** This test mark, also referred to as the "cTUVus mark," serves as proof of compliance with the Canadian national standards adopted by the Standards Council of Canada (SCC) and US national standards. Provincial Regulators across Canada and U.S. Authorities Having Jurisdiction (AHJs) recognize the cTUVus mark as proof of product compliance to published national standards and code requirements. Retail buyers accept it on products they're sourcing. Consumers recognize it on products they purchase as a symbol of safety. It shows that a product has been tested and certified by an independent accredited third party laboratory. TÜV Rheinland tests a product sample and conducts repeat factory inspections to assure continued compliance. The validity of the certificate does not expire unless the standard(s) expire or the client cancels it. Certified products may be labeled with a test mark. More information about this service here.

Further Information

- Request more information on Tesla, Inc.
- All product certificates of Tesla, Inc.

Intertek
3933 US Route 11
Cortland, NY 13045
Telephone: 607-753-7311
www.intertek.com

Verification of Conformity

On the basis of the evaluations undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address	:	**Tesla Inc.** **3500 Deer Creek Road, Palo Alto, CA 94304**
Product(s) Tested	:	**Grid Support Utility Interactive Inverter**
Ratings and principal characteristics	:	**See Page 2**
Model(s)	:	**1134768- followed by 11- or 21-; followed by one letter.** **1134768- followed by 3 or 4; followed by 1- or 2-; followed by one letter.** **1134768- followed by 5 or 6; followed by 1-, 2- or 3-; followed by one letter.** **1134768- followed by 0, 7, 8 or 9; followed by 1-, 2-, 3- or 4-; followed by one letter.** **Megapack model: 1462965-xx-y**
Brand name/Firmware	:	**Tesla / 1217B43E9B859EAB26ECB10B5FBECC64**
Relevant Standard(s)/Specification(s)	:	**Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources [UL 1741:2010 Ed.2 (Supplement SA) +R:22Dec2017]** **IEEE 1547-2003 IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems** **IEEE 1547a-2014 (Amendment to IEEE Std 1547-2003)** **Power Conversion Equipment [CSA C22.2#107.1:2016 Ed.4]**
Verification Issuing Office Name & Address	:	**Intertek, 3933 US Route 11, Cortland, NY 13045, USA**
Date of Test(s)	:	**5/2/2018 - 11/15/2018 and 01/15/2020 - 01/16/2020**
Verification/Report Number(s)	:	**103189840CRT-001, 103189840CRT-001c**

NOTE: This verification is part of the full test report(s) and should be read in conjunction with it.

Dipesh

Signature
Name: Dipesh Patel
Position: Sr. Project Engineer
Date: Feb 28, 2020

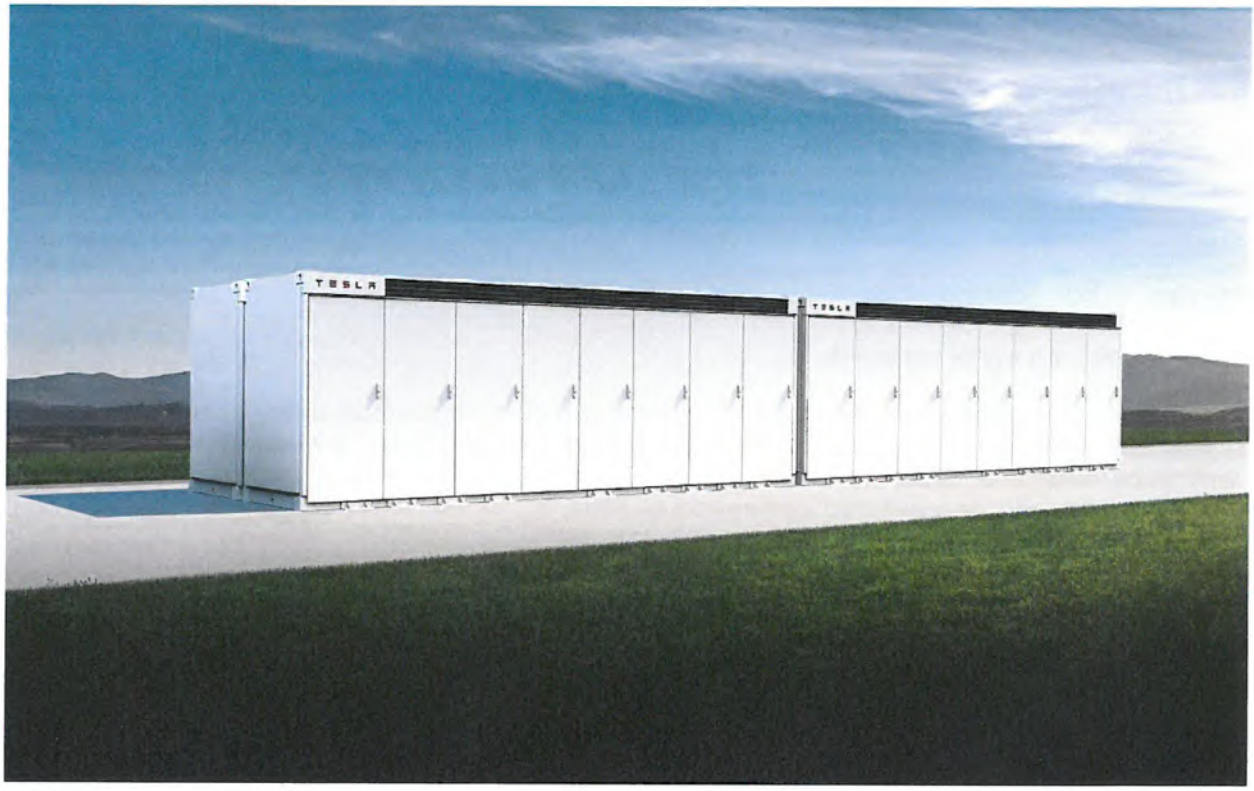
Ratings

AC Input / Output		
Model	Industrial Inverter model: 1134768-xx-y	Megapack model: 1462965-xx-y
Nominal Voltage	480V, 3phase	480V, 3phase
Voltage Range	360-528V	360-528V
Rated Output Current	842.36A	1892
Maximum Output Current	842.36A	1892
Frequency Range/Nominal (Hz)	60	60
Max Continuous Power (kVA)	700kVA @ 480V	1.57MVA @ 480V
Power Factor Range	-1 to 1	-1 to 1
DC Input / Output		
Nominal Voltage	915V	915V
Voltage Range & Current Range	880 – 950V 0 - 800A	880 – 950V 0-1760A

Attachment D

Site Design Manual

TESLA



Megapack Site Design Manual - Rev. 2.3

CONFIDENTIAL INFORMATION - SHARED UNDER NDA ONLY

PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product or documentation modifications at any time, with or without notice.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

This document does not create contractual obligations for Tesla or its affiliates, except to the extent expressly agreed in a contract.

ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, please send an email to: *energy-pubs@tesla.com*.

MADE IN THE USA

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Reference Documents

Visit the Tesla Partner Portal at *https://partners.tesla.com/* to find reference material referred to within this guide, including:

- Megapack Drawings - *https://partners.tesla.com/home/en-US/content/download/Megapack_Drawings.zip*
- Megapack Installation Manual - *https://partners.tesla.com/home/en-US/content/download/Megapack_Installation_Manual.pdf*
- Megapack Transportation and Storage Guidelines - *https://partners.tesla.com/home/en-US/content/download/Megapack_Transportation_and_Storage_Guidelines.pdf*
- Megapack Interconnection Datasheet - *https://partners.tesla.com/home/en-US/content/download/Megapack_Interconnection_Data.pdf*
- Megapack Option Codes Quick Reference Guide - *https://partners.tesla.com/home/en-US/content/download/Megapack_Option_Codes_Quick_Reference_Guide.pdf*
- Tesla Energy Controls and Communications Manual - *https://partners.tesla.com/home/en-US/content/download/Tesla_Energy_Controls_and_Communications_Manual.pdf*
- Microgrid Controller Owner's Manual - *https://partners.tesla.com/home/en-us/content/download/microgridcontroller_manual_owners.pdf*
- Megapack Compliance Packet - *https://partners.tesla.com/home/en-US/content/download/Megapack_Compliance_Packet.zip*
- Lithium-Ion Battery Emergency Response Guide - *https://www.tesla.com/firstresponders*
- Megapack Construction Checklist - *https://partners.tesla.com/home/en-US/content/download/megapack-construction-checklist.pdf*
- Megapack Design Review Checklist - *https://partners.tesla.com/home/en-US/content/download/Megapack_Design_Review_Checklist.pdf*

Important Safety Information

Save these instructions.

This manual contains important information that must be read, understood, and followed while designing and preparing the Megapack installation site.

SYMBOLS

This manual uses the following symbols to highlight important information:

DANGER: Indicates a hazardous situation which, if not avoided, could result in severe injury or death.

WARNING: Indicates a hazardous situation which, if not avoided, could result in injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

NOTE: Indicates an important step or tip that leads to best results but is not safety or damage related.

PRODUCT WARNINGS

WARNING: In order to operate, Megapack requires a solidly grounded circuit such that the line-to-Ground voltage does not exceed 300 V.

WARNING: All installations must conform to the laws, regulations, codes, and standards applicable in the jurisdiction of installation, such as National Electric Code (NEC) ANSI/NFPA 70 or the Canadian Electrical Code CSA C22.1.

WARNING: Do not install adjacent to or expose to any external heat source. The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not operate above 50°C (122°F).

CAUTION: Do not paint any part of Megapack other than external white metal surfaces, using only Tesla-provided touch-up paint. Internal or external components such as exterior cabinets or grilles should not be painted.

CAUTION: Do not use cleaning solvents to clean the Megapack system or expose the system to flammable or harsh chemicals or vapors.

CAUTION: Do not use fluids, parts, or accessories other than those specified in Tesla manuals, including use of non-genuine Tesla parts or accessories, or parts or accessories not purchased directly from Tesla or a Tesla-approved party.

Refer to the *Lithium-Ion Battery Emergency Response Guide* for detailed hazard information specific to the lithium-ion battery.

Voltage Classification

This section defines voltage classification as used in this document.

The table below represents Tesla's standard voltage ranges. The defined ranges, comparable to global codes and standards, help categorize potential electrical hazards where applicable.

NOTE: Any voltage referred to in this document is low voltage unless otherwise specified.

Table 1. Voltage Classifications

Classification	Acronym	Alternating Current (AC) Range	Direct Current (DC) Range
Ultra-Low Voltage	ULV	0-48 V	0-48 V

Classification	Acronym	Alternating Current (AC) Range	Direct Current (DC) Range
Low Voltage	LV	50-1,000 V	50-2,000 V
Medium Voltage	MV	1,000-35,000 V (1kV-35kV)	2,000-35,000 V (2kV-35kV)
Sub-Transmission Medium Voltage	STMV	35,000-69,000 V (35kV-69kV)	35,000-69,000 V (35kV-69kV)
High Voltage	HV	Above 69,000 V (>69kV)	Above 69,000 V (>69kV)

1 Megapack Overview

1.1 Introduction

Tesla Megapack is a modular, fully integrated, AC-coupled industrial battery energy storage system (BESS). This document consists of information required during pre-installation of the Megapack system while preparing the installation site and is intended as a prerequisite to the *Megapack Installation Manual*.

You may use the *Megapack Design Review Checklist* in tandem with this guide to assist you in verifying your site design.

NOTE: Any deviation from what is specified in this manual must be submitted to Tesla in writing in advance for approval.

1.2 Megapack Component Overview

This document applies to systems with the following part numbers:

- Megapack
  - 1462965-XX-Y[1]
- Tesla Site Controller (see *Tesla Site Controller* on page 11):
  - Standard Site Controller Enclosure (for sites up to 18 MW) - part number 1471208-XX-Y[1]
  - Large Site Controller (for sites greater than 18 MW) - part number 1459154-XX-Y[1]

[1]Where X is a number between 0 and 9, and Y is a letter.
Megapack is bi-directional, supporting charge and discharge. It converts power for storage in rechargeable lithium-ion battery packs (battery modules) and is designed in a modular fashion in order to support a range of AC power.

NOTE: Individual Megapack specifications are detailed on the product label (see *Megapack Labels* on page 12).

Each Megapack contains up to 17 battery modules, up to 22 Powerstages, a thermal bay and associated thermal roof components, an AC circuit breaker, a set of customer interface terminals and internal controls circuit boards (see *Example Megapack* on page 7). An external auxiliary power supply is not required for Megapack; Megapack pulls auxiliary power for the control power and thermal management from the internal DC bus.

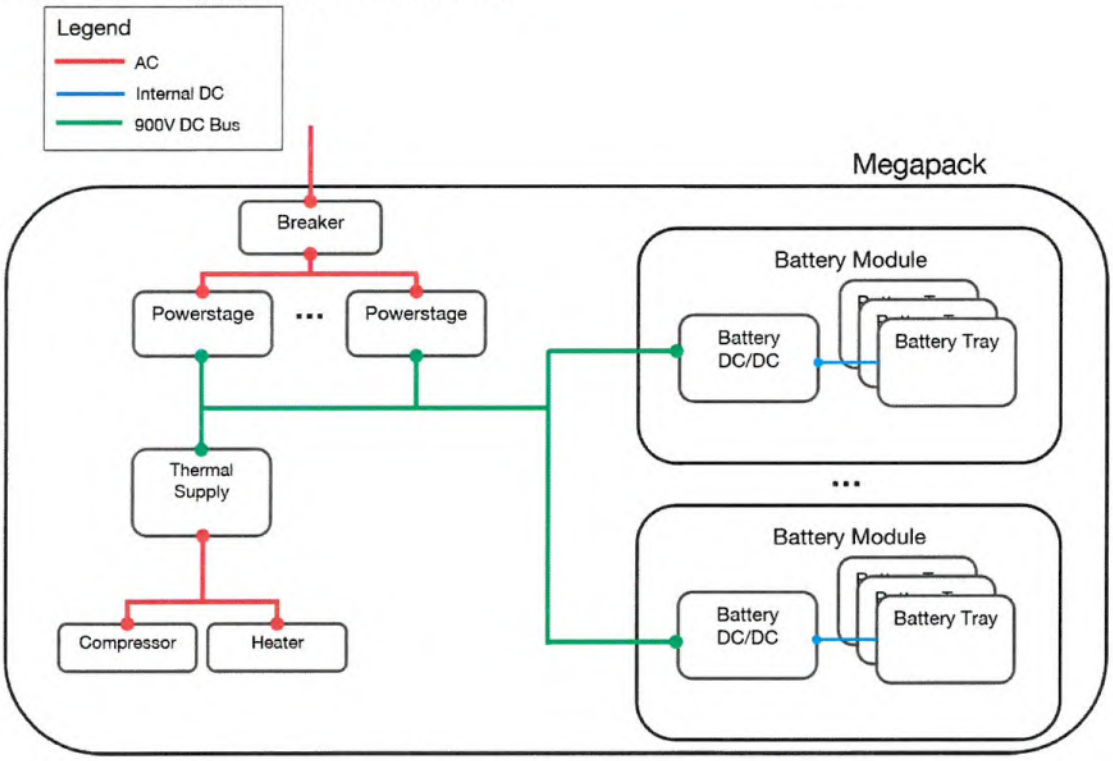
Depending on the system configuration (2-hour or 4-hour), a Megapack can be configured with different combinations of battery modules and Powerstages to optimize for either energy or power. The Megapack nominal power rating depends on the number of installed Powerstages and the site's grid voltage.

An example Megapack consists of the following components:

Figure 1. Example Megapack

1. Thermal bay (see *Thermal Components* on page 8)
2. Battery module bays (see *Battery Modules* on page 8)
3. Customer Interface Bay (see *Customer Interface Bay* on page 10)
4. Inverter bay (see *Powerstages* on page 8
5. Battery/inverter "flex" bay (contains battery modules or Powerstages depending on configuration)
6. IP66 enclosure (see *The Megapack IP66 Enclosure* on page 10)
7. Thermal roof (see *Thermal Components* on page 8)

Figure 2. Example Megapack Schematic



1.3 Battery Modules

Battery modules are factory-installed into Megapack bays and contain cylindrical lithium-ion battery cells, the smallest non-divisible energy storage components of the Megapack. A battery module in turn is the smallest field-replaceable battery unit. One Megapack contains up to 15 of these modules in the 2-hour system and up to 17 in the 4-hour system. Battery modules are connected in parallel, each with a DC and communications output connection. The modules do not require any field assembly or adjustments and may only be replaced by Tesla Service or approved third-party service provider.

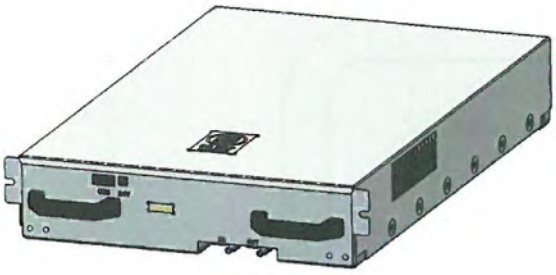
Figure 3. Battery Module

1.4 Powerstages

Powerstages convert power between DC and AC and interact with the grid. Each Megapack contains up to 22 rack-mounted Powerstages which occupy one or two inverter bays next to the Customer Interface Bay (depending on Megapack configuration) and can be scaled for the needs of the site. Powerstages are factory-installed in the Megapack before shipment.

NOTE: There may be more than 22 visible objects, but there are only up to 22 grid-connected Powerstages.

Figure 4. Powerstage



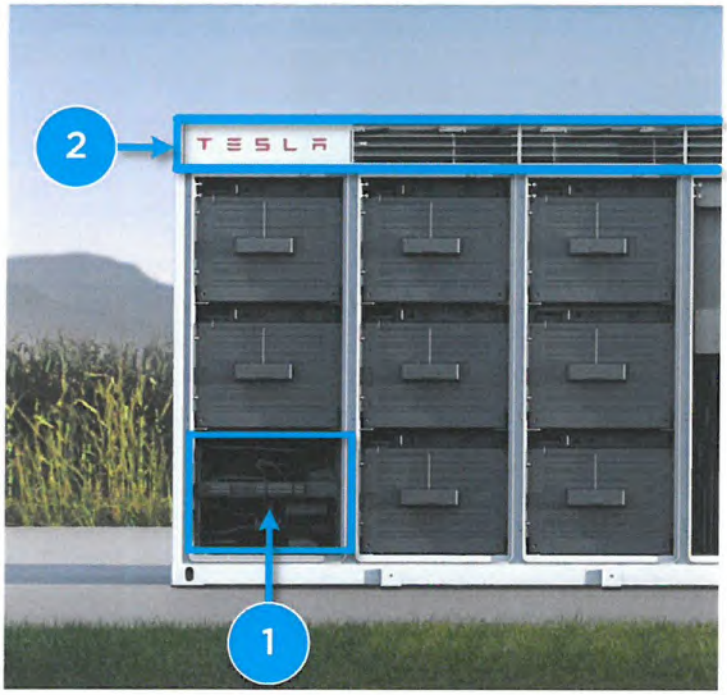
1.5 Thermal Components

The thermal bay houses Megapack's thermal system. It contains a closed-loop thermal management system that circulates coolant and refrigerant through the batteries and power components to maintain thermal control. The thermal bay is accessible for servicing from ground level.

The thermal roof, or top cabinet of the enclosure, provides ventilation airspace and contains fans and radiators that cool the ethylene glycol-water coolant mix. The thermal roof is accessible for servicing with the help of a ladder or mechanical lift.

⚠ **WARNING:** The thermal management sections are locked during operation. The thermal bay and thermal roof are only serviceable when the system is not operating. Do not open the thermal enclosures while the unit is operational to avoid hazard from moving parts.

Figure 5. Thermal Bay and Roof



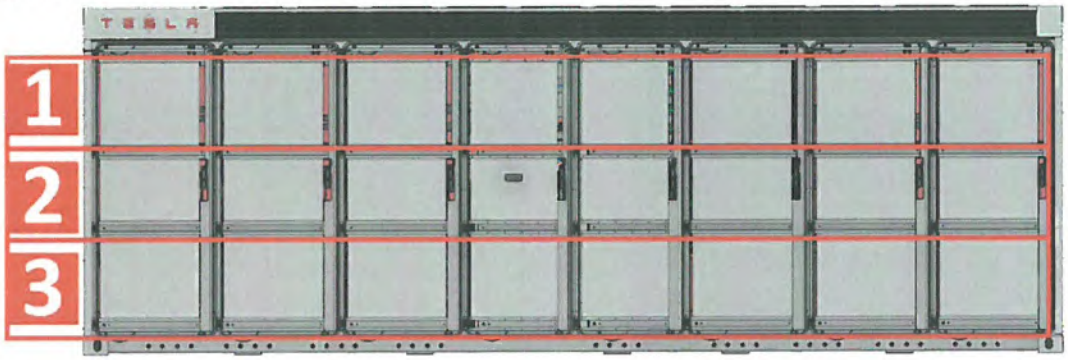
1. Thermal bay
2. Thermal roof

1.6 Megapack Numbering Key

A numbering key can help identify locations of Megapack enclosure components to assist you when referring to them during installation or service. Below are the numbering keys for **bay** (vertical tower) and **shelf** (horizontal row) locations:

Figure 6. Bay Numbering Key

Figure 7. Shelf Numbering Key



For example, as depicted in *Example Megapack* on page 7 above:

- The thermal bay is located in bay 1, shelf 3
- The Customer Interface Bay is bay 4
- A battery module under consideration might be located in bay 2, 3, 6, 7, or 8; shelves 1-3.

1.7 Customer Interface Bay

The Customer Interface Bay is a single bay that includes all the external connections needed for initial installation (the AC bus bars and customer I/O area) and the AC breaker.

For complete information on electrical design in the Customer Interface Bay, see *Customer I/O Wiring Detail* on page 44.

1.8 The Megapack IP66 Enclosure

Megapack's enclosure is rated according to the IP Code (Ingress Protection Code) to IP66. This means it affords a high protection against particle and water ingress in order to protect the enclosure contents.

This high protection rating must be maintained at all times. In particular, special precautions must be observed while installing or servicing Megapack in order to prevent particles or water from entering the enclosure.

At a minimum, this means the following conditions must be observed:

- **Megapack must remain sealed:** While actively working on Megapack, ensure that all Megapack doors are closed and conduit openings are sealed **before you leave the site each day** in order to keep the Megapack interior dry and clean.
    - IP66 sealing details should be considered during electrical design. See suggested products in the *Megapack Installation Manual*.
- **Megapack must remain dry:** Do not perform any work on Megapack that requires opening its doors when there is a possibility of moisture (from precipitation or excess humidity) entering the enclosure.
- **Megapack must remain protected from dust and debris:** At all times when doors are open, ensure that dust or debris of any kind does not enter the enclosure. For example, do not operate a leaf blower near an open door and ensure that doors are closed when wind may blow debris.

⚠ **WARNING:** Failure to properly seal the conduit openings and enclosure may violate the integrity of the IP66 enclosure and allow moisture, particles, rodents or other objects to enter the enclosure and cause significant damage to equipment.

⚠ **CAUTION:** Some foaming agents such as plumbing foam can degrade insulation and PVC conduit pipes. Ensure all sealants are compatible with site materials.

1.9 Tesla Site Controller

The Tesla Site Controller is the single point of interface for the utility, network operator, or customer SCADA systems to control and monitor the entire energy storage site.

Megapack communicates with the Tesla Site Controller over a private TCP network via Modbus, DNP3, or REST interfaces. The Tesla Site Controller aggregates real-time information and uses it to optimize the commands sent to each individual battery unit, dictating the charge and discharge functions accordingly.

One Tesla Site Controller is typically required for each point of interconnection, however Tesla may choose to provide a second redundant Tesla Site Controller.

There are two variants of the Tesla Site Controller:

- **Standard Site Controller** - used in sites up to 18 MW. Delivered in an enclosure called the Standard Site Controller Enclosure.
- **Large Site Controller** - for sites larger than 18 MW. Delivered as the controller only.

Figure 8. Standard Site Controller in the Standard Site Controller Enclosure

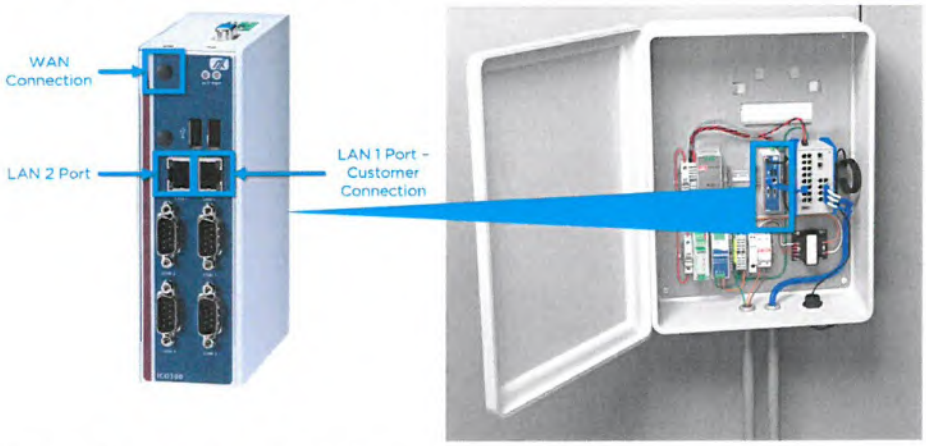


Figure 9. Large Site Controller

See *Standard Site Controller Enclosure Wiring* on page 51 for electrical design considerations.

NOTE: Refer to the *SCADA Design Manual* for additional, required information when designing an energy storage site larger than 18 MW.

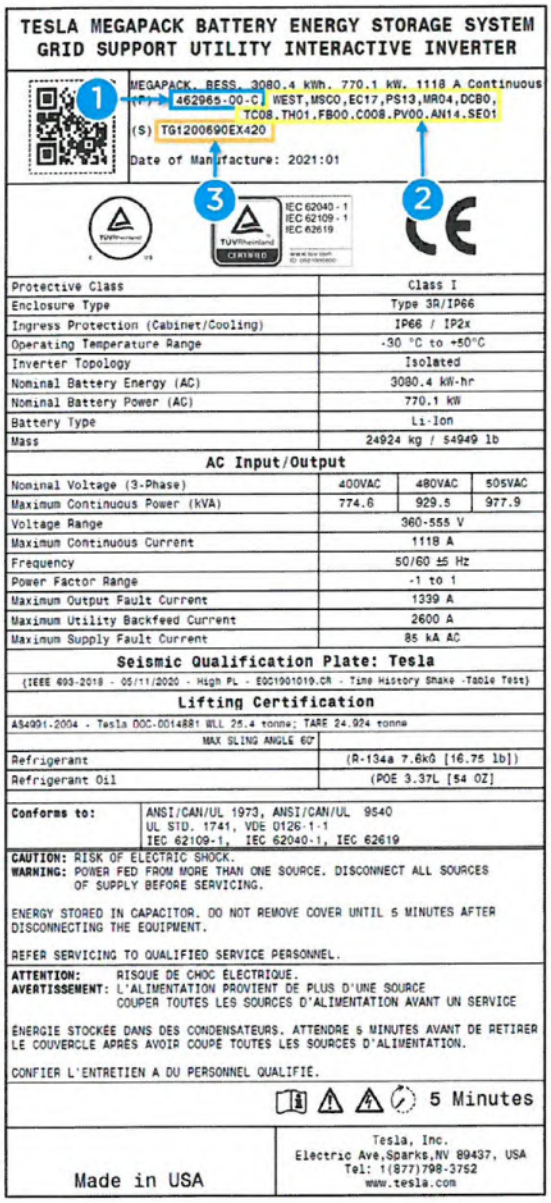
NOTE: Refer to the *Tesla Energy Controls and Communications Manual* for complete instructions on how to interface with the Tesla Site Controller.

1.10 Megapack Labels

The main Megapack label is a large sticker affixed to the inside of the Customer Interface Bay door. Megapack labels provide the reference for each specific Megapack including:

- AC input/output specifications including relevant power and energy ratings
- Part number followed by complete list of option codes
- Serial number
- Date of manufacture
- Weight (mass)
- Other detailed product specifics and compliance marks

Figure 10. Example Megapack Label



TESLA MEGAPACK BATTERY ENERGY STORAGE SYSTEM
GRID SUPPORT UTILITY INTERACTIVE INVERTER

MEGAPACK, BESS, 3080.4 kWh, 770.1 kW, 1118 A Continuous
(P) 462965-00-C WEST,MSCO,EC17,PS13,MR04,DCB0,
TC08.TH01.FB00.C008.PV00.AN14.SE01
(S) TG1200690EX420
Date of Manufacture: 2021:01

IEC 62040 - 1
IEC 62109 - 1
IEC 62619

Protective Class	Class I
Enclosure Type	Type 3R/IP66
Ingress Protection (Cabinet/Cooling)	IP66 / IP2x
Operating Temperature Range	-30 °C to +50°C
Inverter Topology	Isolated
Nominal Battery Energy (AC)	3080.4 kW-hr
Nominal Battery Power (AC)	770.1 kW
Battery Type	Li-Ion
Mass	24924 kg / 54949 lb

AC Input/Output

Nominal Voltage (3-Phase)	400VAC	480VAC	505VAC
Maximum Continuous Power (kVA)	774.6	929.5	977.9
Voltage Range	360-555 V		
Maximum Continuous Current	1118 A		
Frequency	50/60 ±5 Hz		
Power Factor Range	-1 to 1		
Maximum Output Fault Current	1339 A		
Maximum Utility Backfeed Current	2600 A		
Maximum Supply Fault Current	85 kA AC		

Seismic Qualification Plate: Tesla

(IEEE 693-2018 - 05/11/2020 - High PL - EQC1901019.CR - Time History Shake -Table Test)

Lifting Certification

AS4991-2004 - Tesla DOC-0014881 WLL 25.4 tonne; TARE 24.924 tonne
MAX SLING ANGLE 60°

Refrigerant	(R-134a 7.6kG [16.75 lb])
Refrigerant Oil	(POE 3.37L [54 OZ]

Conforms to:	ANSI/CAN/UL 1973, ANSI/CAN/UL 9540 UL STD. 1741, VDE 0126-1-1 IEC 62109-1, IEC 62040-1, IEC 62619

CAUTION: RISK OF ELECTRIC SHOCK.
WARNING: POWER FED FROM MORE THAN ONE SOURCE. DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING.

ENERGY STORED IN CAPACITOR. DO NOT REMOVE COVER UNTIL 5 MINUTES AFTER DISCONNECTING THE EQUIPMENT.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

ATTENTION: RISQUE DE CHOC ÉLECTRIQUE.
AVERTISSEMENT: L'ALIMENTATION PROVIENT DE PLUS D'UNE SOURCE COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT UN SERVICE

ÉNERGIE STOCKÉE DANS DES CONDENSATEURS. ATTENDRE 5 MINUTES AVANT DE RETIRER LE COUVERCLE APRÈS AVOIR COUPÉ TOUTES LES SOURCES D'ALIMENTATION.

CONFIER L'ENTRETIEN A DU PERSONNEL QUALIFIÉ.

5 Minutes

Made in USA

Tesla, Inc.
Electric Ave,Sparks,NV 89437, USA
Tel: 1(877)798-3752
www.tesla.com

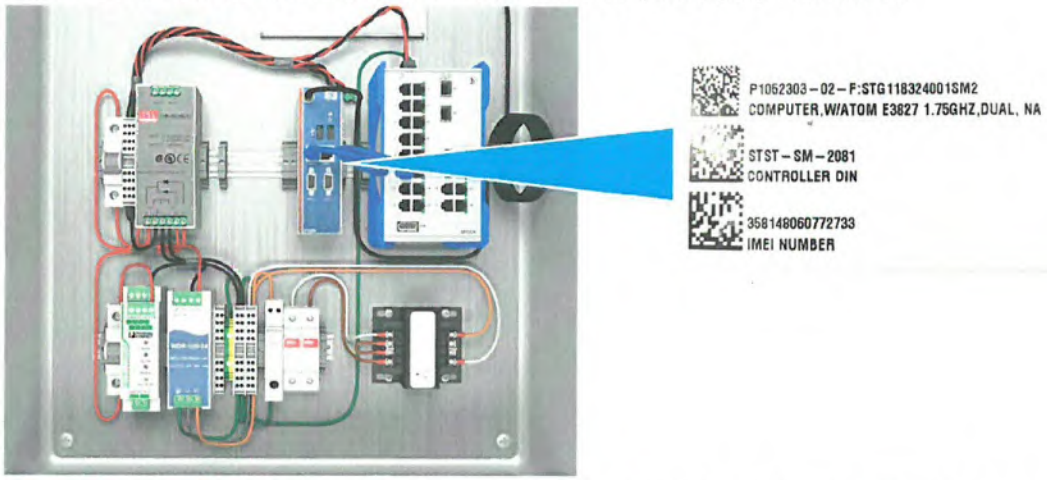
1. Part number
2. Option codes
3. Serial number

NOTE: The label pictured here is an example label. Refer to the actual Megapack label for applicable ratings and specifications per option codes.

For more information about option codes, refer to the *Megapack Option Codes Quick Reference Guide*.

The Standard Site Controller serial number and VIN are located on a label on the side of the Standard Site Controller computer in the Standard Site Controller Enclosure:

Figure 11. Standard Site Controller Serial Number (Example) - Location



The VIN is typically labeled *CONTROLLER DIN* and takes the format *STST-SM-####*.

The Large Site Controller serial number is located on the side of the Large Site Controller computer.

2 Site Architecture

2.1 Overview of Site Components

In addition to one or more Megapacks and the Tesla Site Controller, a Megapack site may require other support equipment. Typical components include:

- Meters (battery meter required, other meters optional)
- Transformer
- Switchgear
- Customer communication network connection

Each of these components is described later in this section.

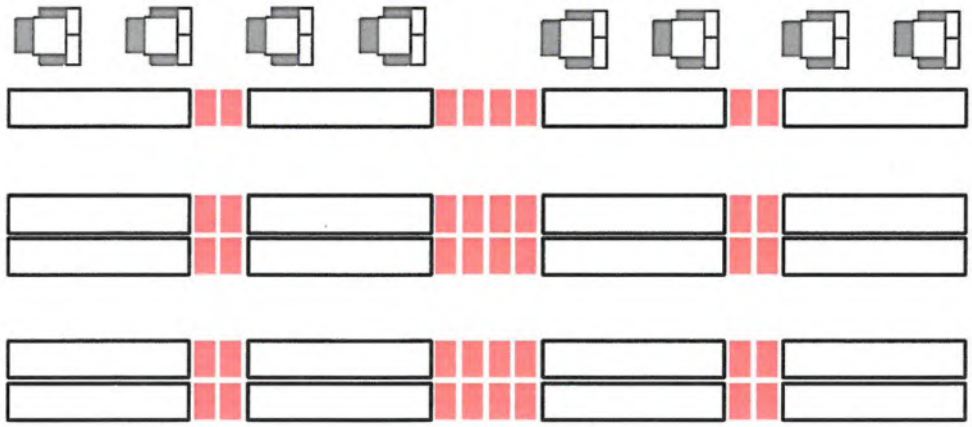
2.2 CMA Overview

A Capacity Maintenance Agreement (CMA) guarantees power and energy capacity over the life of the product. A capacity-maintained system adds units over time to maintain power and energy; therefore, the site and foundation designs and the electrical infrastructure must pre-allocate space for the additional units during initial construction. This prevents the need to re-permit the entire site later in its lifecycle. A CMA site is also designed with sufficient Megapack capacity to account for battery degradation, so that additional Megapacks are not required. A CMA must be contracted at the beginning of the project.

Guidance must be given to installation partners to ensure they understand the purpose of the space left for future CMA units, and they do not attempt to optimize layout during initial construction. Access must also be provided for a crane so that the supplementary CMA units can be added or removed as needed.

Upon request, Tesla can provide specifications for CMA lengths of 10, 15, or 20 years. If a site intends to use a CMA, contact Tesla for additional site design assistance.

Figure 12. Example CMA Layout



2.3 Product Configurations

Megapack may be configured to meet specific site and project requirements. A fully populated Megapack has the following nominal ratings at 480 V AC:

Table 2. Nominal Fully Populated Ratings

System Duration	AC Power (KWp)	AC Power (kVA)	AC Minimum Initial Energy (kWh)
2-hour	1341.0	1358.5	2682.0
4-hour	770.1	786.5	3080.4

2.3.1 Peak Power

Peak Power mode increases the real discharge power command the user can send to the system, up to an alternate maximum value that is configured at system commissioning. The actual capability of the system to meet the higher commandable power is highly dependent on temperature, product configuration, duration of the command, and state of charge.

For information about commanding Peak Power mode, refer to the *Tesla Energy Controls and Communications Manual*.

NOTE: Peak Power is only enabled on sites for which it is contracted. Contact your Tesla account manager during the contract phase for more information.

2.4 Energy Meter Design

The Tesla Site Controller uses various meter inputs for different control functions, so energy metering, in various capacities as described in *Energy Meter Functions* on page 17 below, is required in order for the system to operate.

Energy meters must be provided, installed, and configured by the contractor. Tesla will confirm communication with these energy meters but is not responsible for their accuracy.

The Tesla Site Controller supports only the following meter hardware, using TCP/IP communication:

- Accuenergy Acuvim IIR/IIE/IIW – with additional AXM-WEB2 Ethernet module for Modbus TCP
- Schneider PowerLogic ION8650
- Schneider PowerLogic ION7550
- Nexus 1262
- SEL 735

NOTE: Projects with export limitation, or that require fast response times (less than 2 seconds), must use approved Acuvim meters communicating over a Modbus TCP interface. This is required for both the site and battery meters to meet system requirements.

NOTE: Tesla requires a specific firmware version on Acuvim meters. If the meter is not purchased through Tesla, inform Acuvim at the time of purchase that the meter is intended for a Tesla project.

NOTE: The system requires Ethernet to connect meters to the Tesla Site Controller. RS-485 is not supported.

NOTE: Tesla is not responsible for the accuracy of the energy meters provided, installed and configured by the customer. Please consult with the energy meter manufacturer in the event of faulty communications from energy meters.

NOTE: See the *Megapack Installation Manual* for instructions on connecting energy meters.

2.4.1 Energy Meter Functions

Meters can be used in several capacities, not all of which are required.

Every site requires a battery meter that measures the AC energy output of the battery system. Some meters, such as a site meter (which measures the net load of the site with the battery system included), solar meter, generation meter, or others, are optional depending on application.

If a meter is indicated as optional in this guide, it means the meter may not be required in order for the battery to receive and execute charge or discharge commands. However, depending on the use case, these meters may be required in order to send the correct commands. Therefore, **consider the intended operation of the system before deciding which meters to include in the design.**

For example:

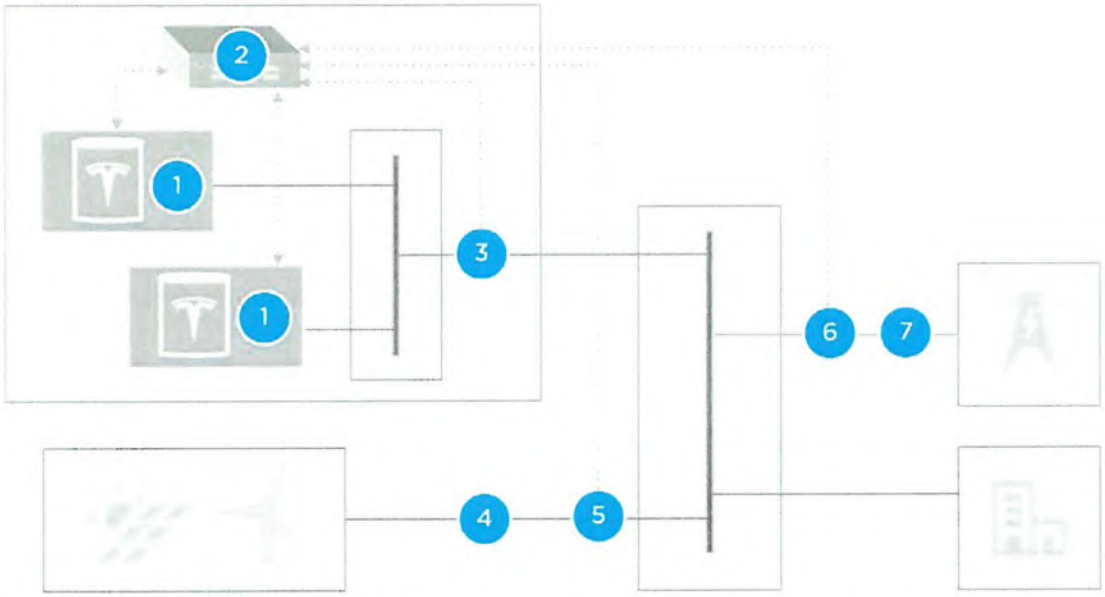
- Systems that intend to collect the Federal Investment Tax Credit for a combined PV and storage system may be required to charge only from the PV, in which case a revenue meter is required.
- Systems connected to a utility may be forbidden from exporting battery power to the grid, in which case a site meter, and possibly a solar meter (if there's onsite generation) may be required.
- Sites involving PV installations or wind or other power sources may require an additional generation meter.

Meters are required or optional as described below:

- Battery meter – required
- Site meter – required for certain applications
- Solar meter – required for certain applications
- Generator meter – optional
- Revenue / Utility meter - optional site-level requirement
- Bus meter – optional
- Load meter – calculated or optional

Your site may have additional meters as required per design. An example metering overview appears below:

Figure 13. Metering Overview - Example



(Dashed lines indicate communication with Tesla Site Controller)

1. Tesla battery system
2. Tesla Site Controller
3. Battery meter
4. Revenue meter
5. Solar (or wind) meter
6. Site meter
7. Utility meter

2.4.2 Battery Meter

All systems require a battery meter. The battery meter is bidirectional and is used to measure the AC power and energy charge and discharge of the system. The Tesla Site Controller uses the battery meter for closed-loop controls to ensure high accuracy on the power setpoint. The customer can either provide a single aggregated meter for the system or multiple battery meter inputs if the system is segregated. Check with Tesla for configuration options if more than one battery meter may be needed.

2.4.3 Site Meter

The site meter monitors the feed from the utility or the point of common coupling (PCC). It measures the site import (negative for any export). The site meter is required for the following control functions described in the *Tesla Energy Controls and Communications Manual*:

- *Site control*
- *Opticaster*
- *Voltage control* (where the voltage reference is the site voltage)
- *Non-export control* (where required by utilities)
- Powerhub UI/reporting (to show energy production in the Tesla Powerhub platform)

2.4.4 Solar Meter

A solar meter is required in order to configure the site to charge only from solar.

A solar meter is recommended for:

- Opticaster sites that have solar (to improve tariff optimization and forecasting)
- Microgrid sites (to aid in troubleshooting/diagnostics with waveform capture)
- Powerhub UI/reporting (to show energy production in the Tesla Powerhub platform)

2.4.5 Generator Meter

A generator meter is recommended for:

- Microgrid sites (to aid in troubleshooting/diagnostics with waveform capture)
- Powerhub UI/reporting (to show energy production in the Tesla Powerhub platform)

2.4.6 Bus Meter

The bus meter is optional and can be used to ensure that the battery system does not overload an intermediate bus or transformer on the system.

2.4.7 Load Meter

The load data provided by the Tesla Site Controller is a calculated value based on the site, battery, and generation values. The system cannot have both a load and site meter. If a system does not have a site meter (for example, in an off-grid microgrid), a load meter can be installed to provide a direct rather than a calculated value for load data.

2.4.8 UL 1741 PCS Requirements

UL 1741 PCS compliance may be required by the interconnecting utility or site host. If UL 1741 PCS compliance is required according to applicable site design, follow the guidance in this section.

The Tesla battery system is UL 1741 PCS-compliant with the following nominal voltages:

- 480 V
- 505 V
- 518 V

The Tesla battery system is certified to UL 1741 PCS for the energy storage system (ESS) operating mode of **import only**. Using this mode, the Tesla battery system will not export active power from the battery to the grid (Area EPS).

Compliance with UL 1741 PCS can be achieved for system sizes under 20 MW with an Accuenergy meter according to the requirements below.

2.4.8.1 Meters

The Tesla battery system's UL 1741 PCS compliance is only compatible with the following meters:

- Acuvim IIR-D-50-5A-P1
- Acuvim IIR-D-60-5A-P1

- Acuvim IIW-D-50-5A-P1
- Acuvim IIW-D-60-5A-P1

2.4.8.2 Current Transformers

The Tesla battery system is UL 1741 PCS-compliant when an Acuvim meter operating as a site meter is installed with UL 2808-compliant CTs with 5 A on the secondary and between 86 A and 24,000 A on the primary. The maximum battery system currently supported by our UL 1741 PCS certification is 24,000 A per phase. To improve safety, Tesla suggests using a CT with a burden resistor, such as the following Accuenergy AcuCT series models:

- AcuCT-3135R
- AcuCT-4161R
- AcuCT-5170R

CT Labeling Requirements

You must post the following label near the installation of the CTs:

WARNING: THIS SENSOR IS PART OF POWER CONTROL SYSTEM. DO NOT REMOVE. REPLACE ONLY WITH SAME TYPE AND RATING.

2.4.8.3 Voltage Sensing Configurations

The Tesla battery system's UL 1741 PCS compliance requires that the voltage sensing configuration be one of the following:

- 3LN direct connection
- 3LN with 3PTs

2.4.8.4 Busbar Labeling Requirements

The PCS-controlled current setting for each busbar shall be indicated with a field-applied marking label on the conductor or in close proximity to the busbars. Refer to the label below, filling the blank with the following value: (Maximum Nameplate Current)x(Number of installed Tesla units per site):

Figure 14. PCS Field Marking Label

PCS controlled current setting: _____ Amps

2.4.8.5 Required UL 1741 PCS Compliance Information

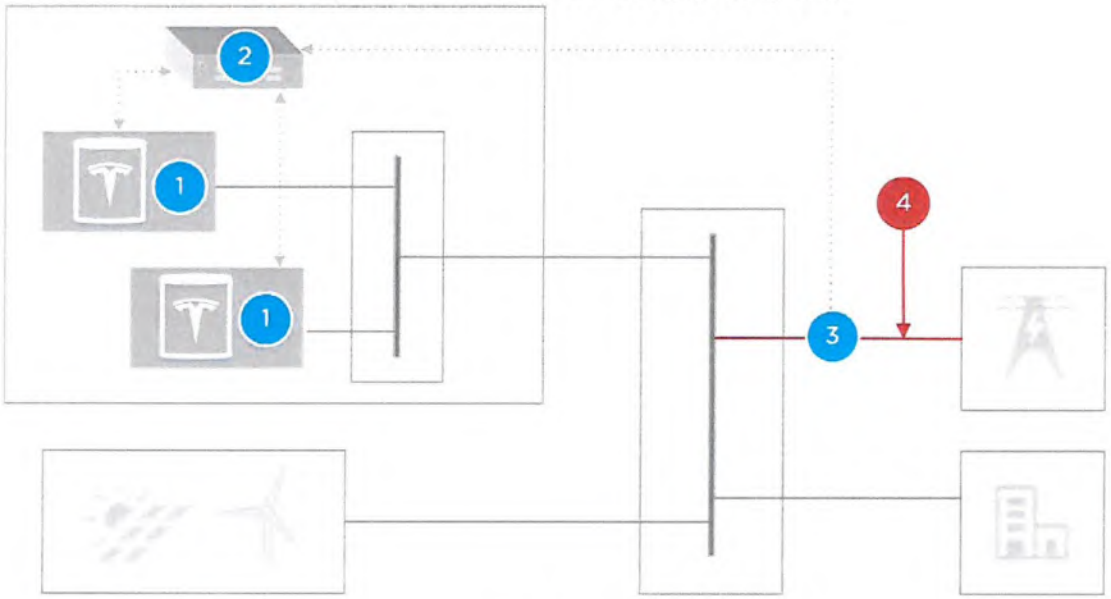
This system is equipped with a power control system (PCS). All PCS controlled busbars or conductors shall be protected with suitably rated overcurrent devices appropriately sized for the busbar rating or conductor ampacity.

Notice: The maximum operating currents in controlled busbars or conductors are limited by the settings of the power control system (PCS) and may be lower than the sum of the currents of the connected controlled power sources. The settings of the PCS controlled currents may be used for calculation of the design currents used in the relevant sections of NEC Article 690 and 705.

Warning: Only qualified personnel shall be permitted to set or change the setting of the maximum operating current of the PCS. The maximum PCS operating current setting shall not exceed the busbar rating or conductor ampacity of any PCS controlled busbar or conductor.

Maximum overcurrent protection rating per each PCS controlled conductor's location: 41,600 A.

Figure 15. Single Line Diagram for UL 1741 PCS-Compliant System



(Dashed lines indicate communication with Tesla Site Controller)

1. Tesla battery system
2. Tesla Site Controller
3. Site meter
4. PCS controlled conductors

2.5 Transformer Design

In order to operate, Megapack requires a solidly grounded circuit to ensure that the line-to-ground voltage does not exceed 300 V AC during steady-state conditions. The circuit is solidly grounded by connecting the Megapack terminals to the wye side of a transformer. The transformer may be:

- A step-up/step-down transformer
- A grounding transformer
- An isolation transformer

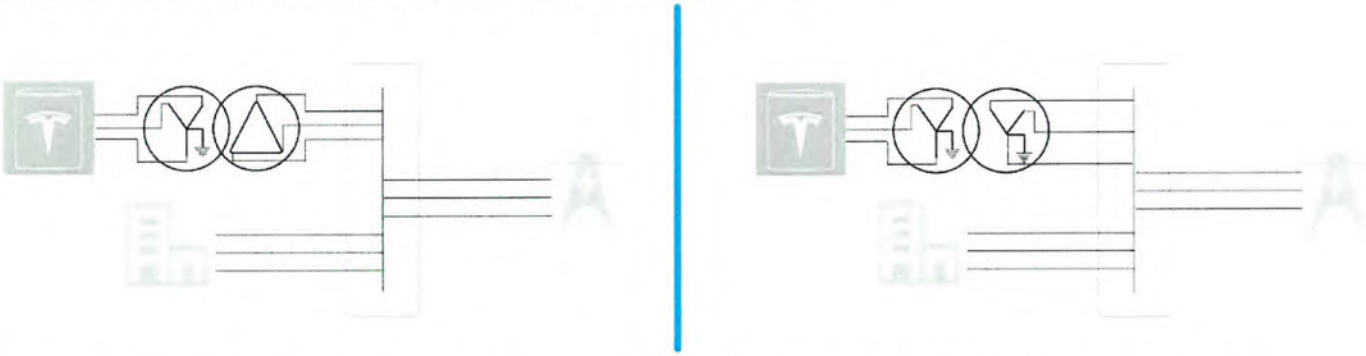
The customer's engineer should ensure that the requirements listed here are met alongside other technical considerations such as utility compliance, protection, maintenance, certification and load requirements. See the approved transformer configurations below. For alternative transformer configurations, contact Tesla for review.

NOTE: For detailed information about islanding and the Islanding Controller, refer to the *Microgrid Islanding Controller Specification* and the *Tesla Energy Controls and Communications Manual*.

2.5.1 Approved On-Grid (Grid-Following) Configurations

The side of the transformer connected to Megapack must be a wye-grounded connection. The other side of the transformer may be a delta or wye connection for on-grid (grid-following) applications.

Figure 16. On-Grid (Grid-Following) Transformer Configurations

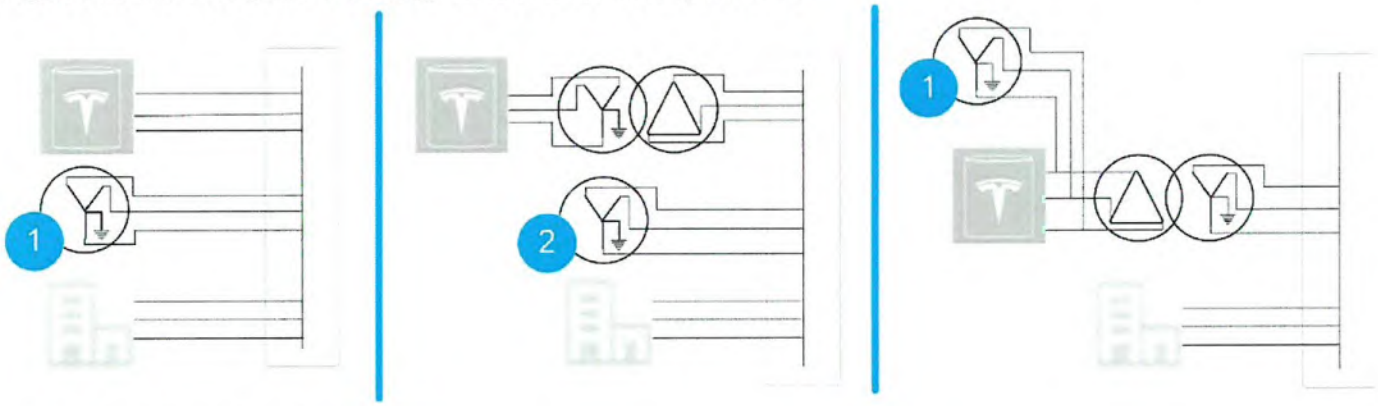


NOTE: For grid-following applications, the solidly grounded circuit may be provided by the utility transformer.

2.5.2 Approved Off-Grid (Grid-Forming) Configurations

The side of the transformer connected to Megapack must be a wye-grounded connection. The other side of the transformer must be a delta connection for off-grid (grid-forming) applications.

Figure 17. Off-Grid (Grid-Forming) Transformer Configurations

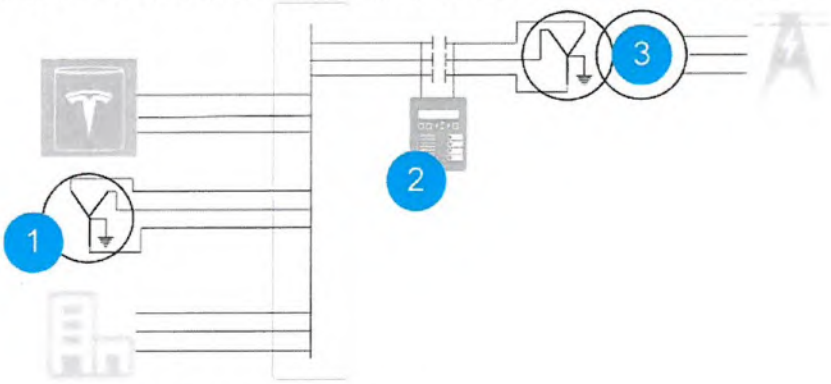


1. Grounding Transformer
2. Optional Grounding Transformer: An example of a potential system ground source and neutral source for line-to-neutral loads if present. This is not required for Megapack's proper operation in this example.

2.5.3 Approved Islanding Configurations

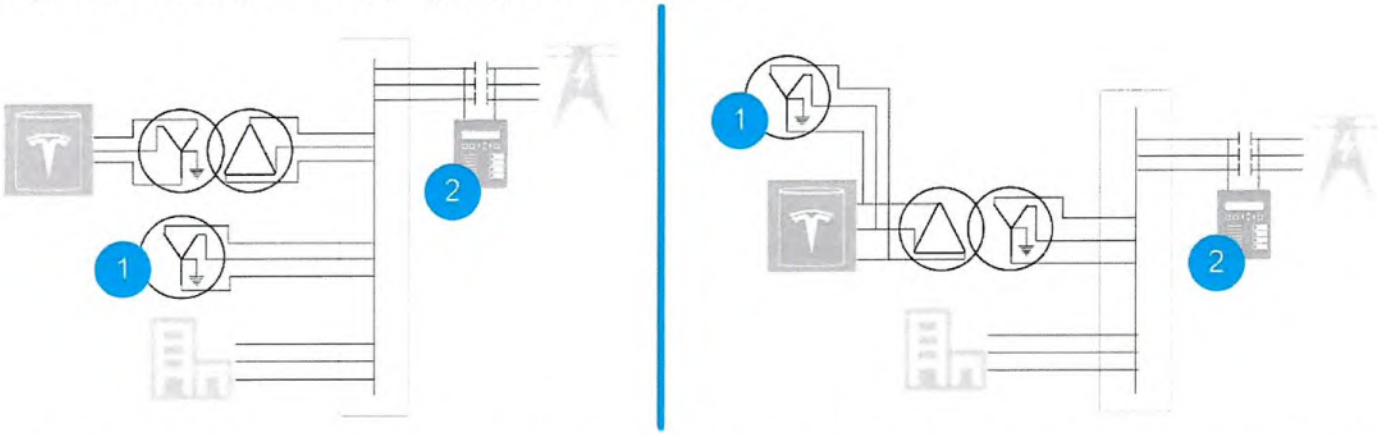
For islanding applications, ensure that a solidly grounded circuit exists during both on-grid and off-grid operation, as shown in the figures below. Depending on the project requirements, the grounding transformer may require disconnection when on-grid.

Figure 18. Islanding with a Utility Transformer and a Grounding Transformer



1. Grounding Transformer
2. Islanding Controller
3. Delta or wye

Figure 19. Islanding with a Step-up/Step-down Transformer



1. Optional Grounding Transformer: An example of a potential system ground source and neutral source for line-to-neutral loads if present. This is not required for Megapack's proper operation in this example.
2. Islanding Controller

2.5.4 Transformer Rating

The total short-circuit withstand rating of the Megapack is 85 kAIC. Ensure that your transformer is designed to provide less than this fault current at inverter terminals.

Customers can parallel multiple Megapacks on a single secondary (low voltage side) winding. One transformer grouped with several Megapacks is called a "transformer block."

Megapacks do not require galvanic isolation from each other; therefore, a standard single winding primary single winding secondary transformer is sufficient for connecting multiple Megapacks. Megapack also does not require any additional transformer features such as k-factor or shielding requirements.

For operations and maintenance needs the line side bus bars and cables within the Megapack must be able to be isolated and locked out from the secondary of the transformer. This can be generally performed with a no-load disconnecting means at the secondary of the transformer (due to the circuit breaker in the Megapack performing the load break functionality), or via a load break disconnect at the primary winding. Arc flash, personal safety and operational procedures should be considered when selecting the means of disconnection.

For more information or with specific questions, contact your Tesla representative.

2.6 Network and Internet Considerations

The Tesla Site Controller and meters communicate using Modbus TCP/IP, therefore, connectivity requirements must be part of the design.

Tesla requires communication between the Tesla Site Controller and all meters and Megapacks onsite. Every Megapack requires a wired Ethernet connection to the Tesla Site Controller. In multi-Megapack sites, this often requires the use of customer-supplied Ethernet switches and may require the use of fiber. Refer to the Controls and Communication Manual for further control details.

The Tesla Site Controller requires an internet connection. It has a built-in cellular connection that can provide a communication link between the Tesla Site Controller and Tesla via the internet. If the cellular network is not sufficient, a hardwired internet connection is mandatory. Refer to the Controls and Communication Manual for further control details. Additionally, if the customer wants a network connection for a control interface, the Tesla Site Controller is also the customer point of connection to the Megapack.

For more information or with specific questions, contact your Tesla representative.

The Tesla Site Controller requires network connectivity to control the Megapack. Ensure adequate connectivity by installing a permanent external antenna at sites where the Tesla Site Controller is installed inside metal enclosures such as switchgear cabinets, in concrete buildings such as parking structures, or in areas with poor coverage. See the *Megapack Installation Manual* for additional instruction on external antenna installation.

NOTE: Some projects may use external cell antennas different from the included external antenna. The standard Tesla Site Controller computer has an RP-SMA female connector (outer threading and pin) and requires an antenna with an RP-SMA male connector (inner threading and hole).

NOTE: Removing any component from the Tesla Site Controller enclosure other than the antenna (for example, to mount the backplane in a different enclosure or control room) must meet the environmental requirements on the Tesla datasheet and is not covered in the certified installation configuration. Discuss any modifications with Tesla prior to installation.

2.7 SCADA

For many applications, Megapack can be operated as a standalone system as detailed in the *Tesla Energy Controls and Communications Manual.* However, for custom solutions, Megapack can be integrated with a supervisory control and data acquisition (SCADA) system to expand its functionality.

The *SCADA Design Manual* further outlines what items to consider when designing a SCADA system, what additional features may be supported by Tesla, and how to integrate them with the Tesla Site Controller.

3 Civil Design

3.1 Site Safety

Ensure that you bear the listed *Important Safety Information* on page 4 and all safety considerations in mind while designing your site, including:

- Do not install batteries in areas where temperatures routinely approach or exceed 50°C (122°F).
- Do not install batteries near heating equipment or heat sources.
- Protect the installation area from flooding or more than 15 cm (6 in) of standing water for more than 30 minutes.
- Ensure that all installations comply with the appropriate local fire, electrical, and building code requirements.

3.2 Mechanical Specifications

Table 3. Megapack Dimensions and Mass (Weight)

Width	Depth	Height	Max. Shipping Mass (Light)	Max. Shipping Mass (Standard)
7168 mm	1659 mm	2522 mm	20400 kg	25400 kg
(282 ¼ in)	(65 ¼ in)	(99 ¼ in)	(44970 lb)	(56000 lb)

NOTE:

- Mass (weight) as listed is maximum shipping mass. Mass changes depending on product configuration and can be configured lighter based on project-specific requirements.
- Dimensions as listed are as measured for the enclosure envelope exclusive of anchor feet.
- Do not use the dimensions above as anchoring specifications. For structural and anchoring details, see the *Megapack Layout* drawing in *Megapack Drawings* on the Partner Portal.

Table 4. Standard Site Controller Enclosure Dimensions and Mass

Width	Depth	Height	Max. Mass (Weight)
255 mm	560 mm	724 mm	21.4 kg
(10 in)	(22 in)	(29.2 in)	(47.2 lb)

3.2.1 Enclosure Colors

Megapack's exterior paint color code is *RAL 9016 Traffic White*. Touch-up paint ships as a Megapack accessory.

Figure 20. Megapack Enclosure Color

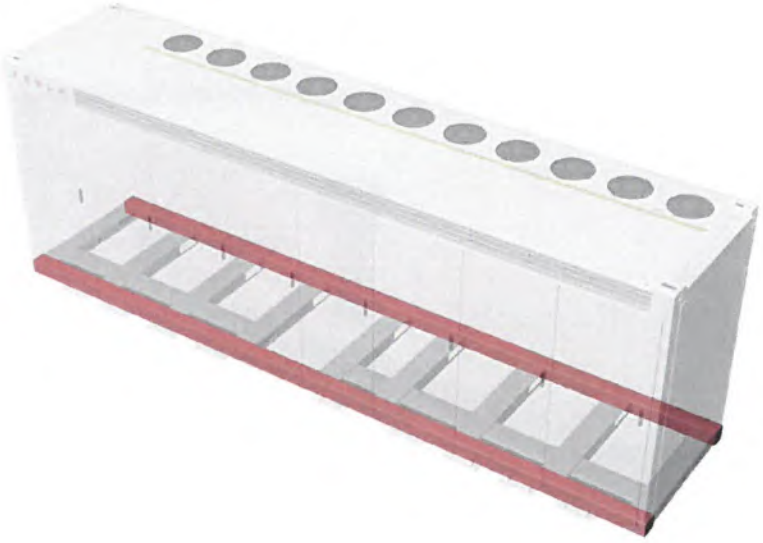
The Standard Site Controller Enclosure is unpainted and is a flat grey color.

Figure 21. Standard Site Controller Enclosure Color

3.3 Equipment Bearing Areas and Anchoring

Megapack requires support along the length of the long sides to a width of 200 mm (8 in.). The foundational sections that must be supported are shown below:

Figure 22. Megapack Ground Support



Megapacks must be anchored to their foundations using their anchor brackets. For single Megapack installations, anchors are required to be installed at the front and rear of the Megapack. For installations with two or more Megapacks installed back-to-back (at the distance specified in *Observing Clearances* on page 35), anchors are required at the front of each Megapack only, and Megapacks are secured together using coupling at the ISO corner fittings of each Megapack.

NOTE: For anchor locations per Megapack installation type and complete anchor installation instructions, refer to the *Megapack Installation Manual*.

Figure 23. Megapack Anchor Brackets

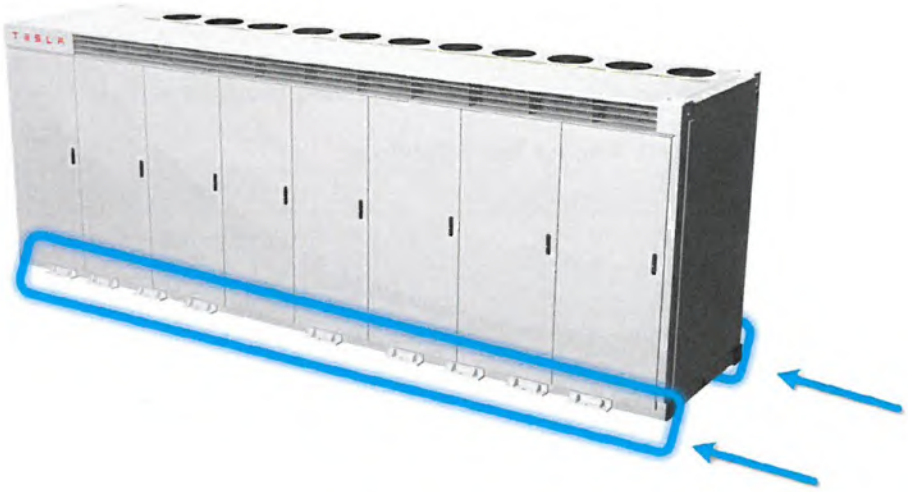


Table 5. Anchor Bracket Dimensions

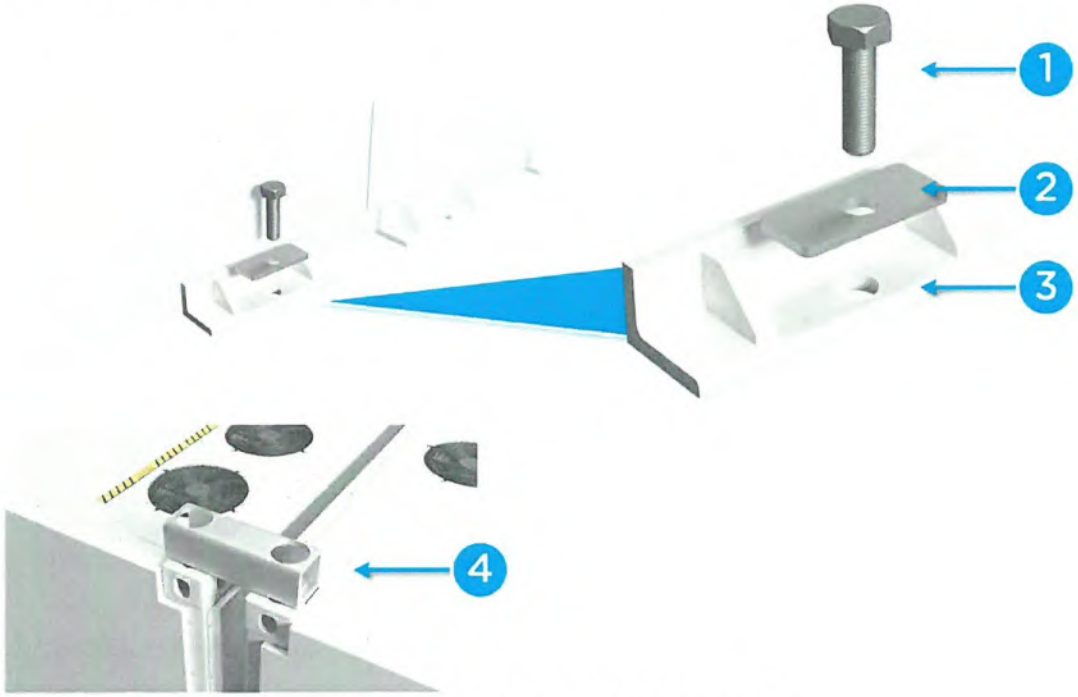
Description	Length	Depth
Anchor bracket	360 mm (14 in)	102 mm (4 in)

3.3.1 Anchor Requirements

Anchors must be provisioned by the customer as selected by the structural engineer of record per site- and foundation-specific requirements according to the guidelines in this section.

NOTE: For complete anchor installation instructions, refer to the *Megapack Installation Manual*.

Figure 24. Anchoring Equipment



1. Anchor - customer-provided; customer- and site-specific
2. Washer - delivered with Megapack
3. Bracket - welded on to Megapack
4. Coupling (required for back-to-back installations only)

When provisioning anchor hardware for Megapack, consider the following requirements:

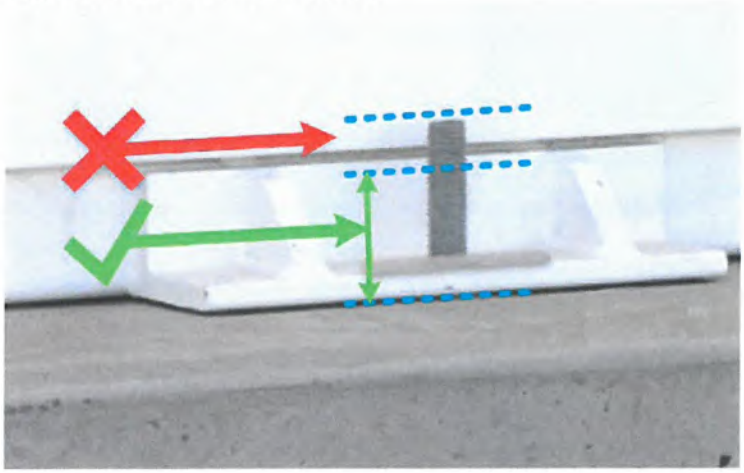
Table 6. Anchor Specifications

Specification	Requirement
Quantity - Single	10 (5 in front; 5 in rear)
Quantity - Back-to-back	9 (in front)
Material	Stainless steel
Max allowable anchor diameter	27 mm (1 in)
Anchor hole diameter	30 mm (1.125 in)
Anchor position tolerance	± 11 mm (7/16 in)

⚠ **CAUTION:** If using a concrete foundation, the structural engineer must provide the minimum allowable distance from the installed anchor to the edge of the foundation.

In addition, note that anchor hardware must not protrude greater than 76 mm (3 in) above the foundation surface:

Figure 25. Anchor Protrusion



⚠ **CAUTION:** Modification of anchor brackets is not permitted in any way.

Additional anchoring considerations:

- Stainless steel is required for anchor hardware in all installations
- Hilti KB-TZ 5/8" SS wedge anchors or 5/8" Dia HAS-R 304/316 SS and Hilti HIT-HY 200 epoxy anchor system are recommended
- The final anchor selection must be made by the structural engineer of record.
- Refer to the seismic and wind specification values in *Environmental Specifications* on page 32.

3.3.1.1 Additional Considerations for Concrete

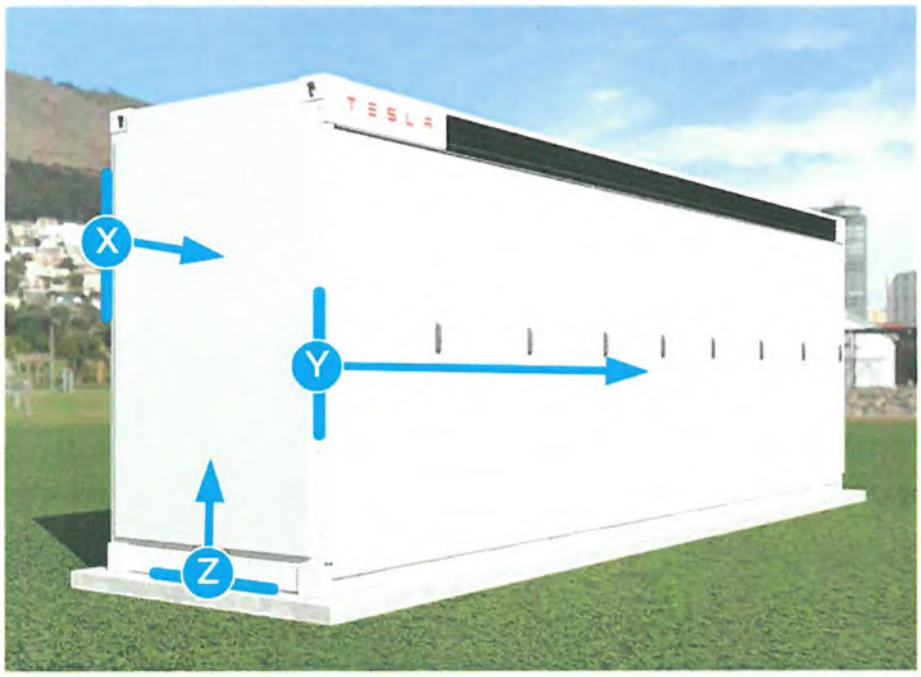
If using concrete foundations, follow these guidelines in addition to the above:

- Concrete rebar reinforcement location must be coordinated with equipment anchor locations to avoid overlap.
- The pad thickness and size shall be sufficient to accommodate Megapack anchoring as required per ACI 318 or equivalent local standards.
- Specify rebar with a minimum and maximum allowed spacing, to allow the contractor to adjust rebar spacing to avoid conflicts with equipment anchoring
- Alternately, the minimum concrete cover over the rebar can be increased to exceed anchor embedment depth, to avoid rebar conflicts with equipment anchoring.

3.4 Center of Gravity

The Megapack center of gravity varies depending on the option code, notably its energy ratings (the EC## option code). Other option codes, including the number of Powerstages (PS##), should have little impact on the unit's center of gravity. Contact your Tesla representative for more information.

Figure 26. Megapack Center of Gravity Dimensions



- X = Distance from rear panel
- Y = Distance from left panel
- Z = Distance from base

Table 7. 4-Hour Megapack Center of Gravity by Rating (EC Option Code)

Rating	Mass (Weight)	X	Y	Z
EC06	13080 kg (22890 lb)	798 mm (31 ⅜ in)	3584 mm (141 ⅛ in)	1576 mm (62 in)
EC07	14200 kg (31300 lb)	798 mm (31 ⅜ in)	3707 mm (146 in)	1533 mm (60 ⅜ in)
EC08	15320 kg (33775 lb)	798 mm (31 ⅜ in)	3584 mm (141 ⅛ in)	1497 mm (59 in)
EC09	16440 kg (36250 lb)	798 mm (31 ⅜ in)	3761 mm (148 in)	1468 mm (57 ¾ in)
EC10	17560 kg (38715 lb)	798 mm (31 ⅜ in)	3584 mm (141 ⅛ in)	1443 mm (56 ¾ in)
EC11	18680 kg (41190 lb)	798 mm (31 ⅜ in)	3799 mm (149 ⅝ in)	1421 mm (56 in)

Rating	Mass (Weight)	X	Y	Z
EC12	19800 kg	798 mm	3583 mm	1403 mm
	(43650 lb)	(31 3/8 in)	(141 1/8 in)	(55 1/4 in)
EC13	20920 kg	798 mm	3661 mm	1344 mm
	(46120 lb)	(31 3/8 in)	(144 1/8 in)	(52 7/8 in)
EC14	22040 kg	798 mm	3583 mm	1293 mm
	(48590 lb)	(31 3/8 in)	(141 1/8 in)	(50 7/8 in)
EC15	23160 kg	799 mm	3702 mm	1247 mm
	(51060 lb)	(31 1/2 in)	(145 3/4 in)	(49 1/8 in)
EC16	24280 kg	799 mm	3583 mm	1206 mm
	(53530 lb)	(31 1/2 in)	(141 1/8 in)	(47 1/2 in)
EC17	25400 kg	799 mm	3735 mm	1169 mm
	(56000 lb)	(31 1/2 in)	(147 in)	(46 in)

Table 8. 2-Hour Megapack Center of Gravity by Rating (EC Option Code)

Rating	Mass (Weight)	X	Y	Z
EC06	13080 kg	798 mm	3310 mm	1501 mm
	(28840 lb)	(31 3/8 in)	(130 1/4 in)	(59 1/8 in)
EC07	14200 kg	798 mm	3549 mm	1466 mm
	(31300 lb)	(31 3/8 in)	(139 3/4 in)	(57 3/4 in)
EC08	15320 kg	798 mm	3359 mm	1436 mm
	(33775 lb)	(31 3/8 in)	(132 1/4 in)	(56 1/2 in)
EC09	16440 kg	798 mm	3628 mm	1412 mm
	(36250 lb)	(31 3/8 in)	(142 7/8 in)	(55 5/8 in)
EC10	17560 kg	798 mm	3393 mm	1391 mm
	(38715 lb)	(31 3/8 in)	(133 5/8 in)	(54 3/4 in)
EC11	18680 kg	798 mm	3495 mm	1325 mm
		(31 3/8 in)	(137 5/8 in)	(52 1/8 in)

Rating	Mass (Weight)	X	Y	Z
	(41190 lb)			
EC12	19800 kg	798 mm	3418 mm	1268 mm
	(43650 lb)	(31 ⅜ in)	(134 ½ in)	(49 ⅞ in)
EC13	20920 kg	798 mm	3561 mm	1218 mm
	(46120 lb)	(31 ⅜ in)	(140 ¼ in)	(48 in)
EC14	22040 kg	798 mm	3437 mm	1174 mm
	(48590 lb)	(31 ⅜ in)	(135 ⅜ in)	(46 ¼ in)
EC15	23160 kg	799 mm	3613 mm	1135 mm
	(51060 lb)	(31 ½ in)	(142 ¼ in)	(44 ⅝ in)

3.5 Environmental Specifications

Table 9. Environmental Specifications

Operating Temperature*	-30°C to 50°C (-22ºF to 122ºF)
Humidity	Up to 100% condensing
Storage	-40°C to 60°C (-40ºF to 140ºF)**
Maximum Altitude	3000 m (9840 ft) above sea level
Wind	Category 5 hurricane sustained wind speeds of up to 157 mph (252 km/h)
Ingress Rating	IP66/ NEMA 3R (Main enclosure) IP20 (Thermal system) IP67/ NEMA 3R (Standard Site Controller Enclosure)
Impact Rating	IK09
Noise	<75 dBA SPL at a 10-meter distance from any side surface of the enclosure, at full thermal system performance***
Seismic Rating	IEEE 693-2018 High PL: *ZPA*=1.0 g 5% damping IEEE 693-2005 High PL: *ZPA*=1.0 g 2% damping ICC-ES AC 156-2018 S_{DS}=2.50 g z/h=0 I_p=1.5

**Installation in full sun raises the temperature inside the enclosure above ambient temperature. This temperature rise is not a safety risk but can impact the performance of the batteries. A canopy to shield the installation from direct sun exposure is permitted, as long as the canopy does not impact the ability to operate fans, or to service, remove, or replace the equipment and is outside the top clearance distance.*

*** Megapack may not be stored for more than 24 hours at these temperatures. Always refer and adhere to the* Megapack Transportation and Storage Guidelines *for all shipping and storage of Megapack.*

****This noise level assumes a 2-hour Megapack configuration with the maximum number of fans (11), all running at 100% duty cycle. In practicality, the system is designed to remain well under this noise level with a reduced fan duty cycle, and fans operating at 100% will not be common in most climates. In many cases, based on the expected operating profile and ambient temperatures of most locations, we expect noise levels closer to 60 dBA SPL at 10 m. For more information on noise levels, please contact Tesla.*

NOTE: Each Megapack contains approximately 540 L / 140 gal of 50-50 ethylene glycol-water mix and approximately 7.6 kg of R-134a in the coolant system. Depending on the number of Megapacks installed on a site storage, use and handling of these substances may require reporting, hazard management plans, or containment procedures as required by local codes and regulations. Refer to the *Megapack Operations and Maintenance Manual* for details.

3.6 Foundation Design

Observe the foundation design requirements noted below, including construction, clearance, and installation requirements.

3.6.1 Foundation Construction

Megapacks must be installed on a foundation or base strong enough to support the weight of the equipment listed in the sections above and to resist all anchor loads. Observe equipment clearances per *Observing Clearances* on page 35.

Foundation or base examples include, but are not limited to, concrete pad, grade beams, structural steel deck or skid. The foundation and anchoring design must be performed by a civil or structural engineer registered in the jurisdiction where the system is being installed in accordance with local building codes. Consult the site geotechnical report for the geotechnical design requirements.

For installations that do not use a concrete pad, such as a steel skid, the following considerations must be respected:

- Equipment must all be installed on a single level surface
- AC, control and communications conduit must stub up from below grade (skid) into the enclosure. All non-concrete pad designs must be approved by Tesla before work begins.

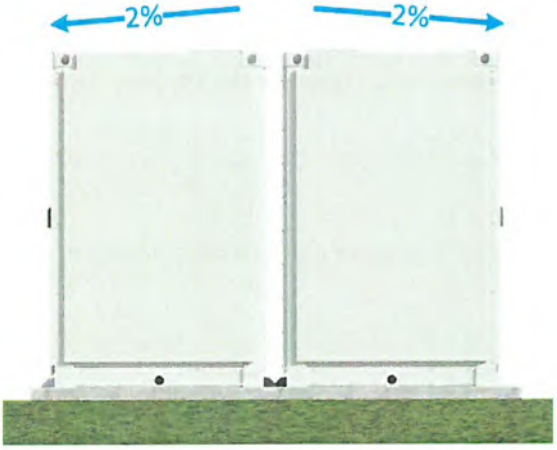
3.6.2 Foundation Installation Requirements

NOTE: Foundation requirements apply to Megapack units as well as any CMA units (*CMA Overview* on page 15). CMA foundations must be installed at the same time as Megapack foundations.

- Foundation finish must have a smooth, even surface of uniform texture and appearance, free from bulges, depressions, and other imperfections that would impact equipment anchorage or foundation/base drainage.
    - If the foundation top surface is concrete, it must have a Class B finish.

- The top of the foundation must be above adjacent grade, 305 mm (12 in) maximum, with the edge of the foundation a maximum of 305 mm (12 in) from the front of Megapack. If the site does not allow this foundation height, contact Tesla. The foundation may not be below grade and must conform to local construction standards and regulations.
- A maximum of 13 mm (0.5 in) differential settlement is permitted.
- Foundation must be sloped 2% (+/- 0.5%) downwards from back of Megapack to front to allow positive drainage toward the front.
    - For example, given a Megapack depth of 1,659 mm (65 ¼ in), the 2% (1.15°) slope means that the front of the Megapack is 33 mm (1 ¼ in) lower in elevation than the back.
    - If you are installing Megapacks back-to-back, the foundation must be sloped downwards 2% towards the front of each Megapack:

      Figure 27. 2% (1.15°) Foundation Slope Towards Front

NOTE: If you are unable to provide for this slope, contact your Tesla representative.

- Ensure that the foundation is designed to prevent animals and insects from accessing Megapack's underside or debris from accumulating under Megapack.
- The area around the foundation must be designed to prevent standing water.
    - Any walls must be designed with sufficient clearance and be provisioned with features such as drains or weep holes to allow for proper drainage.
    - Megapack can withstand no more than 15 cm (6 in) of standing water for up to 30 minutes.
- Ensure that the foundation observes all clearance requirements as listed in *Observing Clearances* on page 35.
    - This includes designing for door clearance. Ensure that the doors of each Megapack are not constrained by any adjacent cabinet or structure. Refer to specific dimensions for door swing in *Door Clearance and Maximum Door Swing Requirements* on page 38.
- For anchoring requirements, see *Anchor Requirements* on page 28.
    - Concrete pad and equipment anchorage design shall meet ACI 318 and ASCE 7 requirements or the local building code requirements as required by the Authority Having Jurisdiction (AHJ).
    - Post-installed anchors (anchors installed into existing hardened concrete) must be approved to resist seismic loads in the installation jurisdiction and have a current ICC-ES or IAPMO report. Where anchoring conditions require an engineered design, it must be performed in accordance with the ICC-ES or IAPMO report and the cracked concrete provisions of ACI 318-11, Appendix D.

⚠ **CAUTION:** Modification of anchor brackets is not permitted in any way.

3.7 Inspecting Fencing

Megapack shall be installed in a manner that deters access by persons who are not qualified. When deterring access, fences, screens, walls, or barriers no shorter than 2.1 m (7 ft) in height are suggested. The distance from any fence to the equipment shall match the clearance requirements listed in *Observing Clearances* on page 35, or as noted per the exceptions below. Fencing shall be locked and posted with a placard stating "Authorized Users Only," or similar. If applicable, see 2018 IFC 1206.2.8.7.3.

Exception: If the installation is located within a property that already contains perimeter fencing to prevent unauthorized public access, additional fencing might not be required.

3.8 Observing Clearances

Observe the following clearance requirements referring to the appropriate diagrams.

NOTE: The clearances listed are as required by the product. Additional clearances to non-Megapack equipment may be required per local codes and regulations.

3.8.1 Equipment Clearances

NOTE: All clearances listed must be observed from Megapack to any equipment including other Tesla-provided components such as the Standard Site Controller Enclosure.

Figure 28. Equipment Clearance Requirements - Side View / Front View

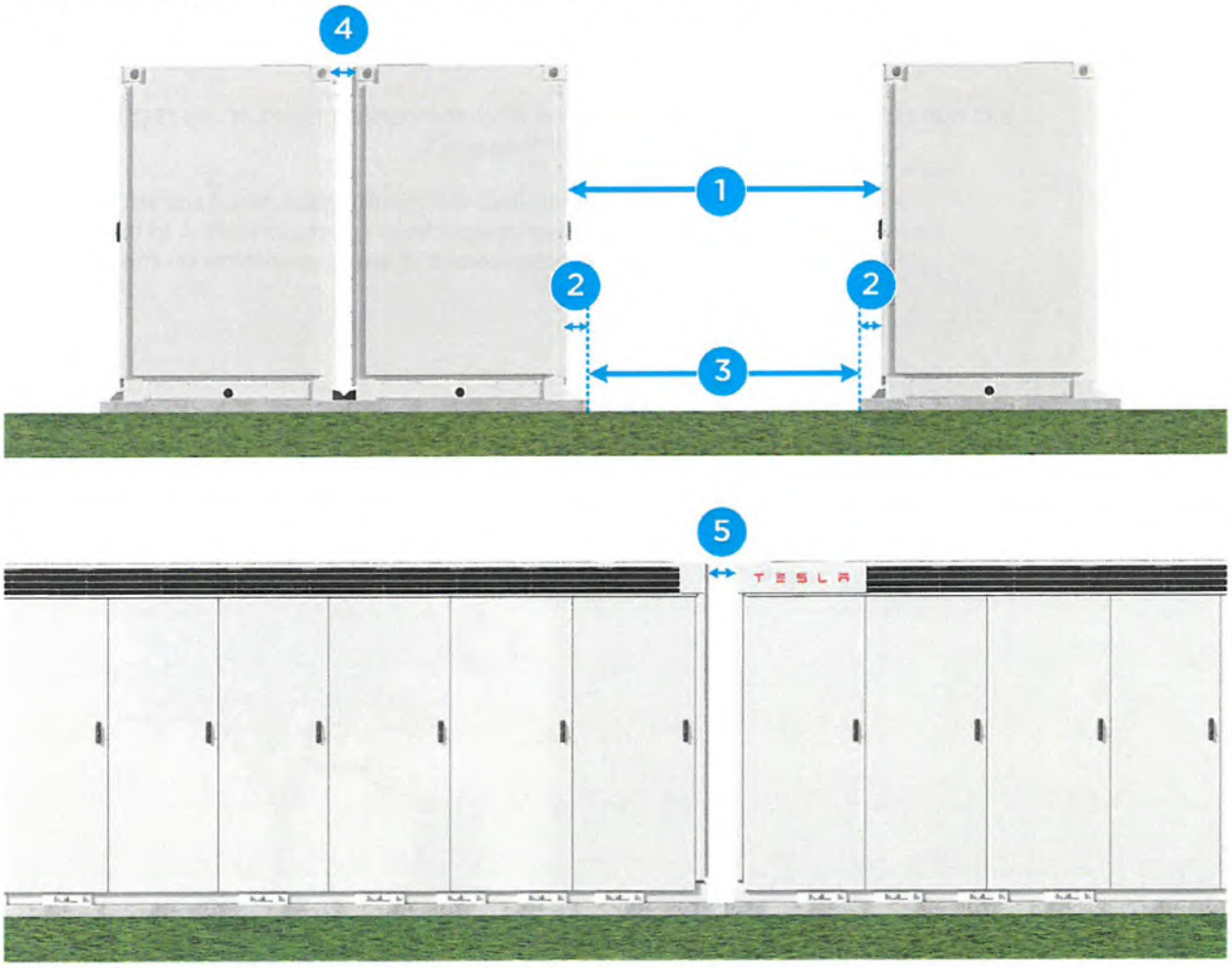


Table 10. Equipment Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Front	2440 mm (96 in)	None	Measured from face of doors. Tesla-required clearance for maintenance access.
2	Foundation overhang	100 mm (4 in)	305 mm (12 in)	Varies depending on anchor and site design but must fall within this range. See *Equipment Bearing Areas and Anchoring* on page 26 for more information.
3	Drive aisle	1960 mm (77 in)	None	Measured from foundation. Tesla-required clearance for maintenance access.
4	Back-to-back coupling	150 mm (6 in)	200 mm (7 ¾ in)	Measured from the outside faces of the ISO corners at top of Megapack. Any spacing at back of adjacent Megapacks greater than 8 inches (203 mm) is considered stand-alone and such Megapacks must be installed accordingly (using rear anchors). Once installed, minimum absolute clearance between Megapacks is approximately 4 in (100 mm) due to Megapack's thermal insulation on the back surfaces.
5	Side	150 mm (6 in)	None	Measured from the outside faces of the ISO corners at top of Megapack. Once installed, minimum absolute clearance between Megapacks is approximately 4 in (100 mm) due to Megapack's thermal insulation on the side surfaces.

3.8.2 Exposures and Fire Clearances

Figure 29. Exposure Clearances - Isometric View / Side View

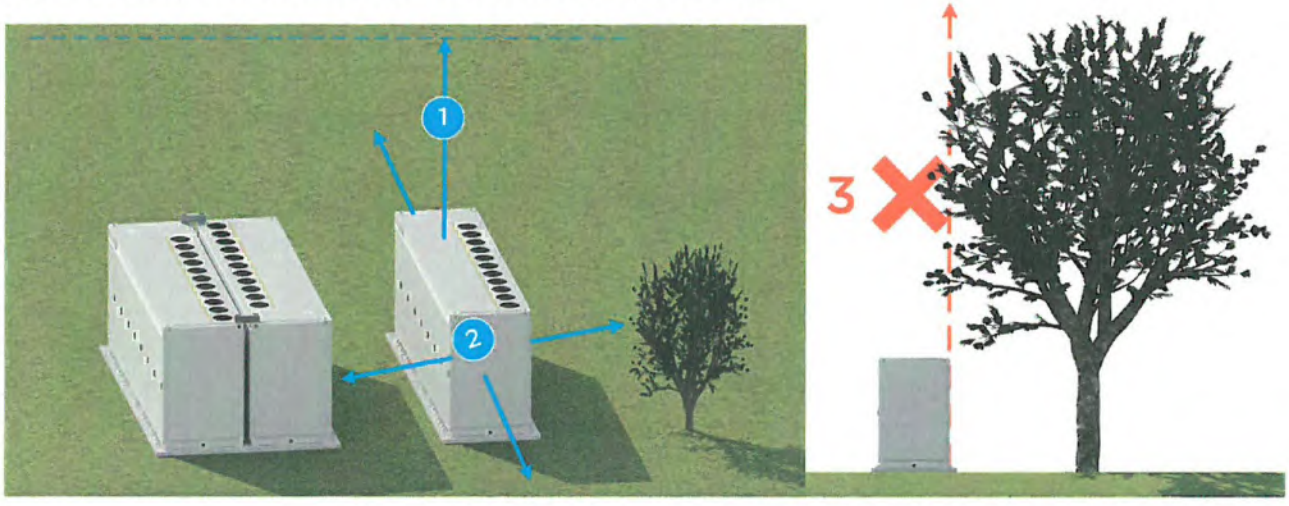


Table 11. Exposure Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Vertical	2440 mm (96 in)	None	Must extend the entire area of the service clearance. Some service equipment extends beyond the roof of the enclosure. Megapack may only be installed by a crane, thus actual clearance during installation will be greater.
2	Combustible	1530 mm (60 in) *Do not install Megapack under combustible objects.*	None	Minimum clearance as noted is required on all sides from combustible objects including trees, wooden fences, and other combustible structures. Megapack must not be installed under combustible objects. **NOTE: For Megapacks with option code C008 (see *Megapack Labels* on page 12), 915 mm (36 in) of non-combustible surface (for example dirt, gravel, concrete) must extend beyond the perimeter of the Megapack enclosure.**
3	Vertical combustible	NA	NA	**Do not install Megapack under combustible objects, at any distance.**

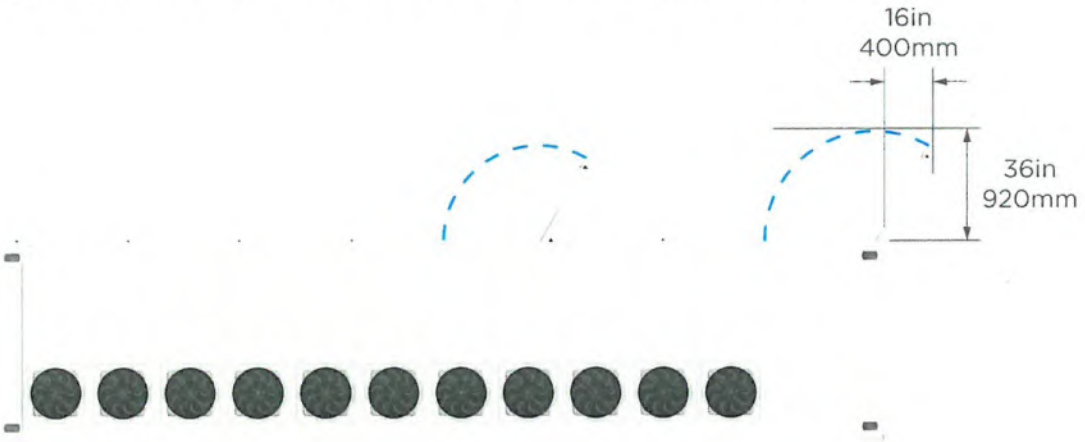
NOTE:

- Megapack is not intended to be installed within 3050 mm (120 in) from accessible means of egress and exposures (such as buildings, public ways, and hazards not associated with electrical grid infrastructure as defined by the clearance requirements in the International Fire Code and NFPA 855).
- Any installation that requires clearances of less than 3050 mm (120 in) to accessible means of egress or exposures may require a freestanding fire barrier per requirements in the International Fire Code and NFPA 855.

3.8.3 Door Swing

To allow full door clearance and access to all components, sites must be laid out to allow 16 in (400 mm) of clearance past the enclosure footprint for the last door on the left. The site layout must ensure that no wall or other structure interferes with any door opening fully:

Figure 30. Door Clearance and Maximum Door Swing Requirements



3.9 Site Conditions and Access

- For Tesla personnel to perform maintenance, Tesla must retain access to the site and all Tesla equipment, and must have the ability to remove any locks preventing such access. Refer to *Megapack Door Security* on page 38 for information on securing and locking doors while retaining Tesla access.
- The site shall provide and maintain a clear access route to the front of each Megapack for delivery, installation, replacement, and removal of Megapack components with weight as listed in *Mechanical Specifications* on page 25. The site must maintain access for both crane and forklift.
    - Refer to front and drive-asile clearance requirements as specified in *Observing Clearances* on page 35.
- For non-grade installations, please contact Tesla.
- Keep the doors of all enclosures free of obstruction (snow, sand, blown debris, etc.) during system operation. For any concerns, contact Tesla during the site design phase.
- Equipment cannot be tilted and shall be transported and lifted vertically at all times. For maximum temporary tilt during transportation, refer to the *Megapack Transportation and Storage Guidelines*.

3.9.1 Megapack Door Security

All Megapack doors have the ability to be locked. The Customer Interface Bay (*Customer Interface Bay Overview* on page 43), as the primary customer interface for Megapack, is not required to be locked. The other doors do not need regular access and should remain closed.

NOTE: Access to the Customer Interface Bay may be subject to local codes and regulations.

Installing Locks

Combination locks are shipped with Megapack, either pre-installed on Megapack doors or delivered in the Accessory Kit. Install these locks to ensure doors are not left open unnecessarily:

- **Set combination to 4585** for coordinated access with Tesla field service personnel. Tesla must have ability to unlock doors. If you choose a different combination, advise your Tesla contact in writing.
- If Tesla field service personnel arrives on site and observes locks are not installed, they will proactively install and coordinate with onsite personnel.
- For keyed locks, a double hasp is required to allow Tesla access by unlocking Tesla's lock.

3.10 Site-Level Power

To ensure that sites can be commissioned safely and serviced effectively, the site design shall include at least 1 (one) receptacle socket positioned such that the outlet is not more than 15 m (50 ft) from all Megapacks at the site. The receptacle should be designed to local requirements for human use & safety and should include a ground fault circuit interrupter (GFCI). Common access points can include the block-level transformer, lighting, or network enclosure.

The receptacle socket shall be rated to at least 2,400 VA at the local voltage. For current sizing, assume no more than one receptacle will be used at full power simultaneously at any given time. For North American sites, the recommendation is to provide NEMA 5-20 receptacles.

4 Mechanical Design

4.1 Hazard Mitigation and Safety

Tesla conducts extensive analysis and testing to assess hazardous conditions related to Tesla products. Megapack includes multiple layers of protection to mitigate hazardous electrical and fire conditions. All built-in protection systems do not require user input or feedback. The following safety features are included in Megapack and have been tested and validated during UL9540A testing:

- **Over pressure vents in the internal roof (under the fans and radiators):** The vents are designed to allow for any build-up of smoke, gas, or flames to vent out of the roof rather than out of the front doors. The vents are passive and do not require actuation or external control.
- **A continuously operated "sparker" system designed to minimize the risk of deflagration in the event of hazardous gas build-up:** The system ensures that any gases cannot build up to hazardous concentrations. The system is powered internally and does not require external supply of power or controls.
- **A layer of external thermal insulation on the back and sides of the enclosure:** This material mitigates the risk of thermal runaway propagation from one Megapack to another even when installed 100 mm (4 in) apart.

Megapack does not contain built-in smoke, gas, or fire detection or suppression features. When required by the AHJ, third-party multi-spectrum IR heat or flame detectors can be installed externally at the site-level. These systems are a proven option to detect Tesla product thermal runaway events.

Water-based suppression is appropriate for mitigating the spread of fire involving a Megapack. Refer to the Tesla *Lithium-Ion Battery Emergency Response Guide* for detailed hazard and response information.

4.2 Thermal Management

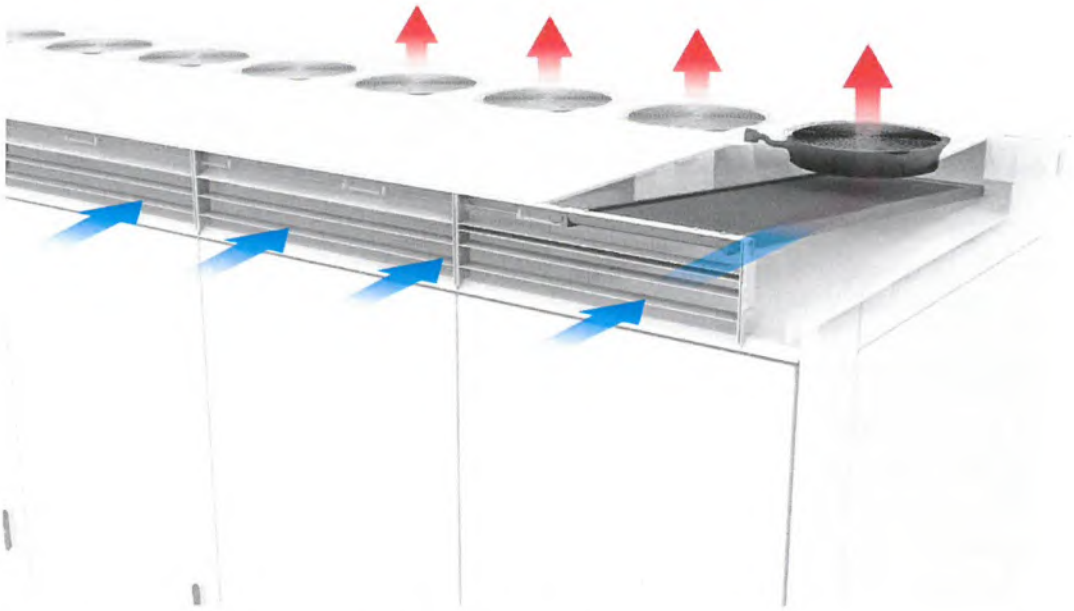
Megapack includes a thermal management system that provides active cooling and heating to the internal Megapack components. An external HVAC or thermal system is therefore not required for Megapack to operate.

Megapack is designed to be installed outdoors within the rated operating temperature specifications. Indoor installations are not allowed without consulting Tesla.

NOTE: The physical characteristics of the project site may cause localized heating effects (rise above ambient) adjacent to Megapack – for example, an installation in a location with a strong heat island effect, black pavement (parking lots), or in full direct sunlight. Although not required by Tesla, shade structures or canopies may help mitigate local environmental heating effects. Ultimately, the customer must understand the risk to performance of localized heating effects and take responsibility for any mitigation. Any shade structures must conform to the distances detailed in *Observing Clearances* on page 35.

Air flows through the enclosures as shown below:

Figure 31. Megapack Airflow



4.2.1 Megapack Thermal Subsystem

The thermal system includes radiators and pumps that circulate a 50/50 ethylene glycol / water coolant mix through the battery to maintain thermal control. The thermal subsystem also includes R134a (1,1,1,2-Tetrafluoroethane) refrigerant in a sealed system. All Megapacks ship with the necessary coolants and refrigerants included.

Since the thermal subsystem is a fully closed-loop system with a compressor, the refrigerant line includes a pressure relief valve that can activate if incorrect maintenance or operation creates excessive pressure. The system operates autonomously and does not require user feedback.

4.3 Service Roof and Snow Loading

Some service procedures may require an approved technician to access Megapack using the enclosure's roof. When necessary, Megapack is designed for a service load of ~150 kg (330 lbs).

Megapack's roof is designed to withstand up to 150 psf (730 kg/m^2) of snow loading. If the site may experience greater than 150 psf of snow loading, contact Tesla to discuss and approve mitigation solutions.

5 Electrical Design

5.1 Power Specifications

The Powerstage inverter modules in Megapack are a current-limited source rated at 86 A.

NOTE: Refer to the *Megapack Interconnection Datasheet* for additional information.

WARNING: In order to operate, Megapack requires a solidly grounded circuit such that the line-to-ground voltage does not exceed 300 V AC.

5.1.1 Grid-Connected (Utility-Interactive) Mode

Table 12. Grid-Connected Electrical Specification

Max Continuous Output Current (per Powerstage)	86 A
Overload Capability	120% of rated current (10 sec max)
Input Voltage Range	860-960 V DC
Output Voltage Range	360-555 V AC (380-505 V AC nominal)
Standard Site Controller Enclosure Input Voltage Range	120 V AC +/- 12 V AC 240 V AC +/- 24 V AC 480 V AC +/- 48 V AC
Large Site Controller Input Voltage Range	9-48 V DC
Nominal Frequency (configurable)	50 or 60 Hz
Frequency Range	40-70 Hz
Phases	3
System Configuration	3-wire, Wye **Note:** Grounded Wye required at transformer secondary
Peak Efficiency	> 98.9%
Full Load Efficiency	98.5%
CEC Weighted Efficiency	98.84%
Power Factor at Full Load	> 99%
Adjustable Power Factor (Controller Feature)	-1 to +1
Total Current Demand Distortion (TDD)	< 1.2%
Power Regulation Accuracy	< 2%
Overvoltage Category	Category III up to 3000 m
Maximum Short Circuit Current	85 kAIC

5.1.2 Supplemental Specifications for Grid-Forming (Islanding) Mode

Table 13. Grid-Forming Additional Electrical Specifications

Total Voltage Harmonic Distortion (THD)	< 8% (Individual Harmonic: Max 6%)

5.1.3 Short Circuit Current Values

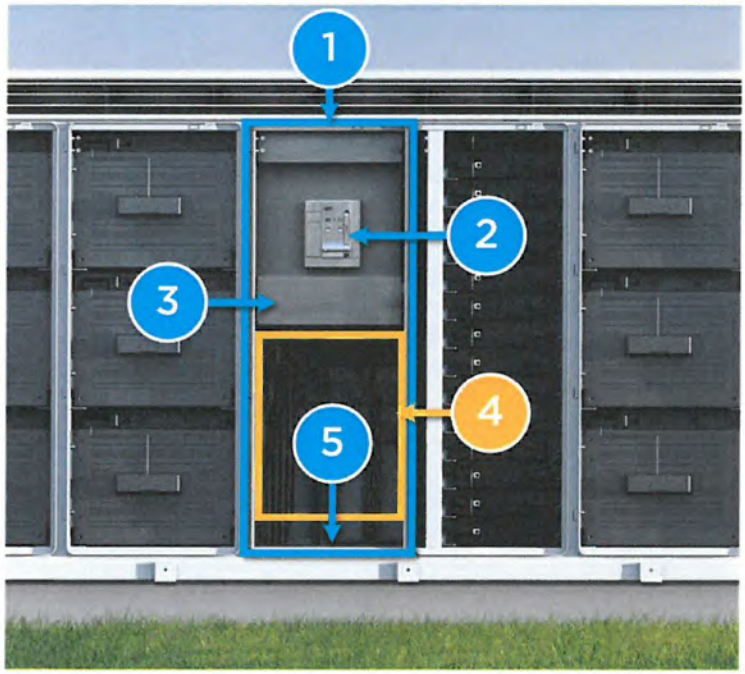
The per-unit short circuit current in the case of a three-phase-to-ground bolted fault is 1.2 per unit.

5.2 Customer Interface Bay Overview

After Megapack has been anchored, all of the interface required for installation, operation, and maintenance is located in the Customer Interface Bay. It contains:

- AC bus bars to allow for terminations to the site distribution transformer or AC distribution panel
- AC circuit breaker
- Customer I/O area, where all other terminations are made
- The interface port for rapid diagnostics and system health
- Access to the control boards for maintenance or repairs

Figure 32. Customer Interface Bay Overview



1. Customer Interface Bay
2. AC circuit breaker
3. Customer I/O area
4. AC bus bars
5. Conduit openings (3) covered by gasketed floor panels

5.3 Customer I/O Wiring Detail

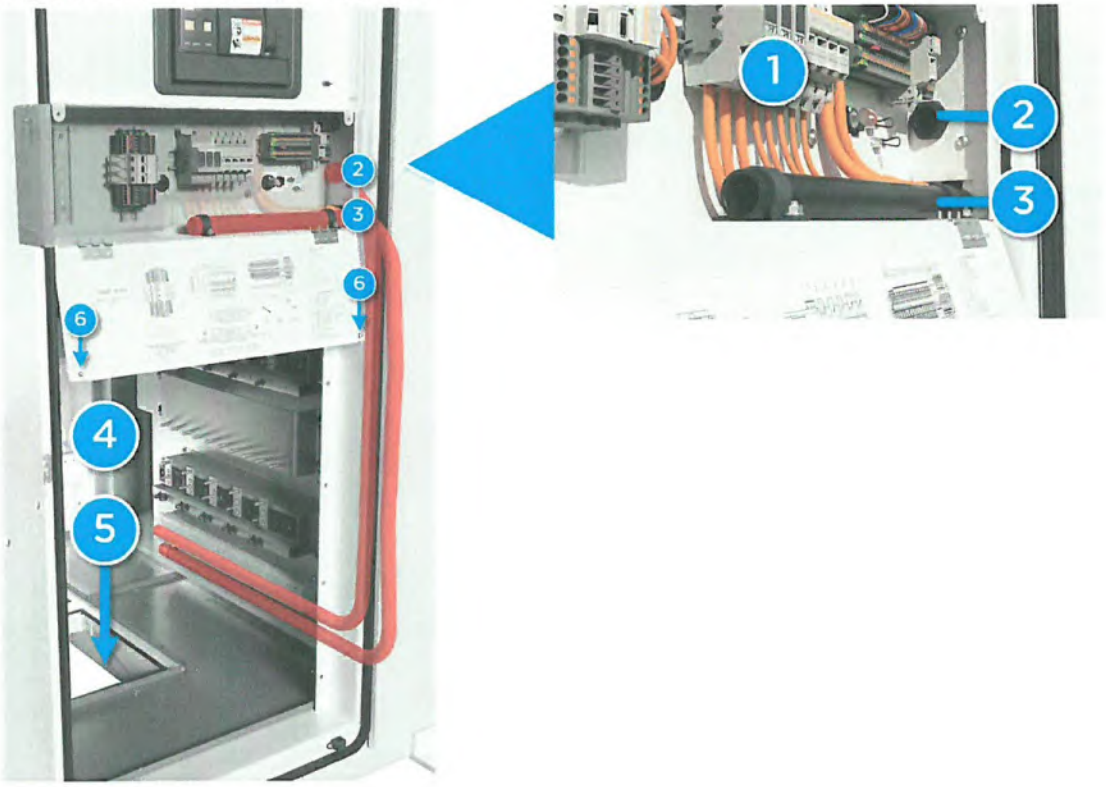
Each Megapack includes a single customer interface (I/O) area consisting of a wiring compartment inside the Customer Interface Bay. This compartment contains all the necessary non-power connections to be made to the Megapack. The compartment is behind a tool-accessible door (secured with Phillips head #3 screws) and shall only be accessed during operation while following site safety procedures.

Two conduits are provided to the right of the customer I/O area: one for LV (or communications) conductors and one for power conductors. Both conduits are 25 mm (1 in.) in diameter and run from the customer I/O area through the right side of the AC bus bar area to just above the gasketed floor panels.

NOTE: For detailed bus bar dimensions, refer to *Bus Bar Dimensions* in *Megapack Drawings* on the Partner Portal.

Pull wiring through the conduits as required (see below figure).

Figure 33. Customer I/O Conduit



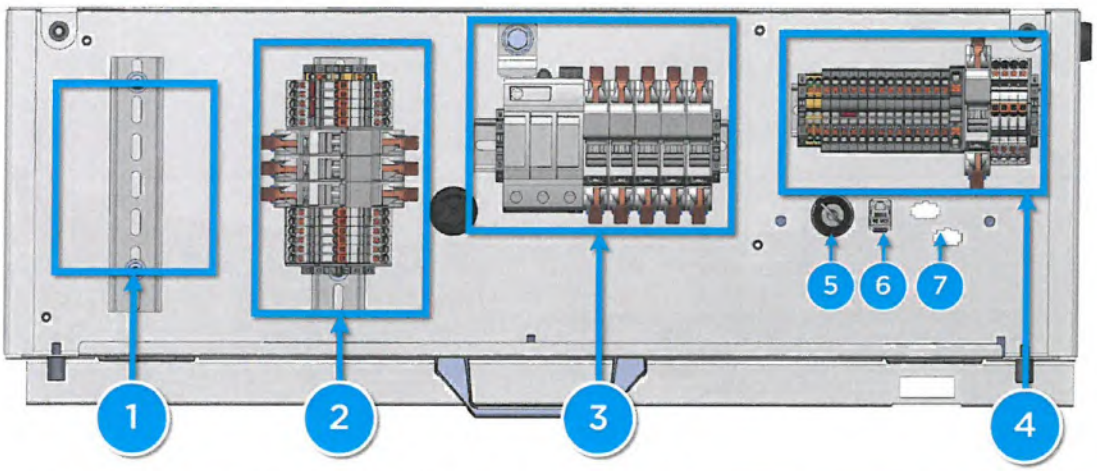
1. Customer I/O area
2. Communications conduit (25 mm / 1 in. diameter)
3. Power conduit (25 mm / 1 in. diameter)
4. AC bus bar area
5. Conduit openings
6. Phillips head #3 screws

⚠ **DANGER:** Always refer to *Important Safety Information* on page 4 at the beginning of this document before beginning any work on Megapack.

The customer I/O area is partially pre-wired. Only some on-site wiring is needed depending on the project needs. See wiring details below.

NOTE: Refer to detailed drawings of these terminals in *Customer I/O Terminal Blocks* in *Megapack Drawings* on the Partner Portal.

Figure 34. Customer I/O Wiring



1. **Customer-provided meter** – see detail below in *Customer-Provided Meter* on page 45.
2. **AC line side** – see detail below in *AC Line Side Area* on page 46.
3. **AC & DC load side** – see detail below in *AC & DC Load Side Area* on page 46.
4. **Low voltage** – see detail below in *Low Voltage Area* on page 47.
5. **DC lockout** - A safety feature (HVIL – High Voltage Interlock Loop) in the form of a captive-closed key contact for the enable line. When the key is opened and removed, the enable line is broken. This provides a keyed isolation point for working on the DC bus.
6. **Ethernet** - An RJ45 female connection intended to connect to the LAN 2 network on the Tesla Site Controller.
7. **CMA low-voltage external interface**.

5.3.1 Customer-Provided Meter

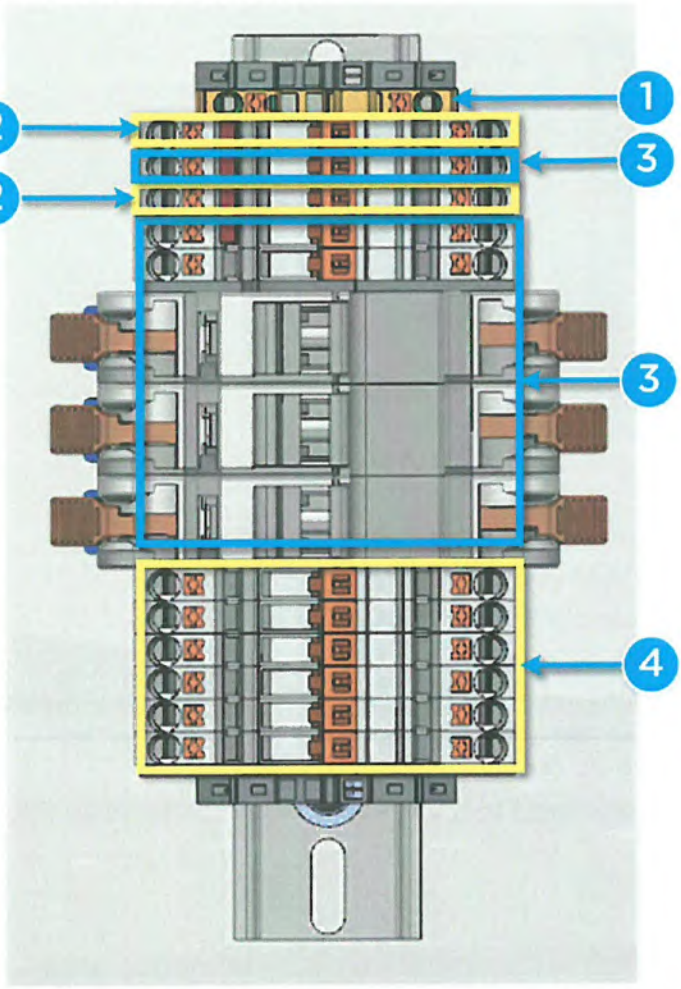
Dedicated space and a DIN rail for a customer-provided meter is located inside the customer I/O area in this space.

Bends in the AC bus bars (callout #4 *Customer Interface Bay Overview* on page 43) are provided for mounting a set of current transformers in order to wire the meter. Tesla recommends using Rogowski coils. See *Bus Bar Dimensions* in *Megapack Drawings* on the Partner Portal for detailed dimensions.

See the *Megapack Installation Manual* for more information about wiring meters.

5.3.2 AC Line Side Area

Figure 35. AC Line Side Area



1. **Ground** - A single ground terminal connected to chassis ground via the DIN rail is provided.
2. **AC power** - Two terminal blocks are provided to facilitate distribution of L-L AC power. Power is jumpered from the adjacent terminal blocks. This is intended to provide power for a Tesla POI SCADA enclosure or Tesla Field Network Enclosure. Contact Tesla for details.
3. **Line side bus bar taps** - The taps (L1, L2, L3) are each factory-connected to a fused (4A) terminal block. The fused terminal blocks are then field wired to the additional three disconnect terminal blocks for testing purposes.

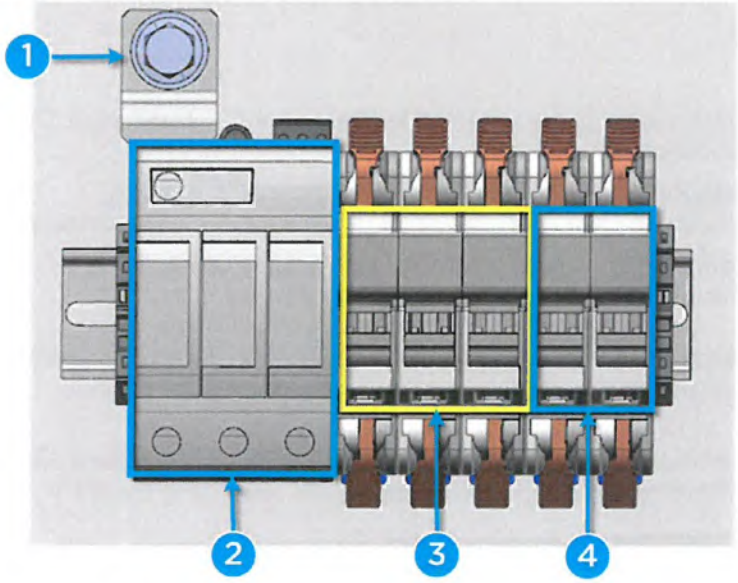
   ⚠ **DANGER:** These connections are directly connected to the line side bus bar and are not protected before entering the customer I/O area.

4. **Current transformer terminals** - Six test disconnect terminals are provided for current transformers to be connected to. The current transformers themselves are not provided.

5.3.3 AC & DC Load Side Area

The connections within this area are Tesla-only and do not require any site installation.

Figure 36. AC & DC Load Side Area



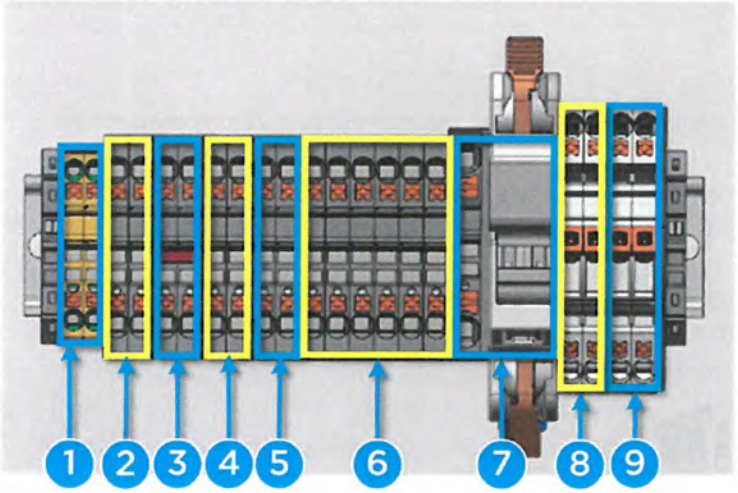
1. **Ground**
2. **SPD** - Factory-installed surge protection device.
3. **AC load side fuses** - Factory-installed load side AC fuses providing power to the Tesla control boards.
4. **DC fuses** - Factory-installed 30A fuses providing DC power to the thermal bay (+ and -)

DANGER: When working with SPD and AC load side fuses, ensure that the circuit breaker is in open position.

5.3.4 Low Voltage Area

CAUTION: All terminals in the low voltage (LV) area should be limited to 24 V. **Do not wire higher voltage in this area.** Wiring higher voltage into this area risks damage to terminals and internal components.

Figure 37. Low Voltage Area



1. **Ground** - A pair of terminals connected to chassis ground via the DIN rail.
2. **AC area dead front switch** - A pair of terminals connected to a dry-contact dead front switch.

- Intended to be connected to an upstream protection device to detect when the AC line side bus bar area is opened
- No power supply required

3. **Remote Shutdown Command** - A pair of terminals used to command the Megapack DC bus to 0 V DC and then, 100 ms later, shunt-trip the Megapack breaker.
   - The terminals ship with a jumper installed. Removing the jumper will command a remote shutdown by interrupting the integrated 20 mA DC signal circuit to the Megapack bus controller.
   - Closing the circuit must be done in a manner that mimics a jumper. Do not apply a wetting voltage, as the circuit cannot share a common/return with other circuits.
4. **12-24 V DC Jumpstart** - A pair of terminals intended for connecting to the 12-24 V DC jumpstart from the Standard Site Controller Enclosure. See *Jumpstart Power Requirements* on page 52 for details regarding the jumpstart functionality.
5. **24 V DC Backup** - A pair of terminals intended to provide 24 V DC backup power to the Standard Site Controller Enclosure. See *DC Backup Power Requirements* on page 51 for details regarding the 24 V DC backup functionality.
   - Megapack can provide up to 4 A at 24 V while in an active state (*Always Active* = true). In this state, the energy is provided from the battery modules and is available regardless of the incoming AC power to Megapack.
   - This feature cannot be used if Megapack is faulted, the DC interlock is open, or the system is off.

   NOTE: This feature was designed primarily for off-grid operation and may cause an on-grid system to consume additional energy (up to 35 kWh per Megapack per day).
6. **Breaker Open/Closed/Tripped Status** - 3 pairs of terminals directly connected to the breaker auxiliary dry-contact status terminals. See the *Siemens WL Breaker Manual* for more details.
   - "Breaker Open" is open when breaker is open
   - "Breaker Closed" is closed when breaker is open
   - "Tripped Status" closes when breaker trips
7. **External 24 V pre-charge input** - A pair of terminals (- and +) that accept pre-charge input of 24 V. Maximum 8 AWG (10 mm^2); minimum 480 W power supply.
   - XX36 (-)
   - XX37 (+) - fused at 30A
8. **Close Permissive command** - A pair of terminals used to permit or restrict closing of the Megapack breaker.
   - Closing the integrated 20 mA DC signal circuit to the Megapack bus controller will permit closing of the Megapack breaker. Opening the integrated 20 mA DC signal circuit will NOT cause a trip of the breaker.
   - Closing the circuit must be done in a manner that mimics a jumper. Do not apply a wetting voltage, as the circuit cannot share a common/return with other circuits.
   - Closing this circuit does not guarantee the Megapack breaker will close. If the enable line is open, the Megapack breaker will not close.
   - Megapack does not ship with a jumper installed but the breaker can always be manually closed. A motor can be field-retrofitted to allow automatic charging of the spring-loaded breaker.

   NOTE: Removing the Close Permissive will prevent remote close actuation; it will not trip the breaker.
9. **Trip Command** - A pair of terminals used to command a trip of the Megapack breaker.

- Closing the integrated 20 mA DC signal circuit to the Megapack bus controller will command the trip of the Megapack breaker
- Megapack ships without a jumper. Closing the circuit must be done in a manner that mimics a jumper. Do not apply a wetting voltage, as the circuit cannot share a common/return with other circuits.
- Trip Command logic takes precedence over the Close Permissive Command

5.4 Underground Conduit Positioning

Megapack requires conduit to run AC conductors and communications wiring between system components and to the site's main AC panel.

The table below summarizes the wiring interfaces needed. All wires and conduits are supplied by the contractor.

NOTE: For detailed conduit dimensions, refer to *Megapack Layout* in *Megapack Drawings* on the Partner Portal.

Table 14. System Wiring Interface Summary

From Equipment	To Equipment	Wiring Interface	Minimum Conduit Size
Megapack	Controller or field network enclosure	Shielded CAT5e or CAT6	25 mm (1")
Megapack	Controller or field network enclosure	DC conductors (for communication control power or microgrid applications)	25 mm (1")
Megapack	Grid interconnection	AC conductors (3-phase, and ground)	100 mm (4")
Controller	AC power supply	AC conductors (2-phase and ground), min. 2 mm^2 / 14 AWG	25 mm (1")
	Meters	TCP meters: Shielded CAT5e or CAT6	25 mm (1")

NOTE: All conduit stub-ups must land inside the AC window in the bottom of the Megapack enclosure.

Figure 38. Megapack AC Conduit Window Location (at bottom of Customer Interface Bay)

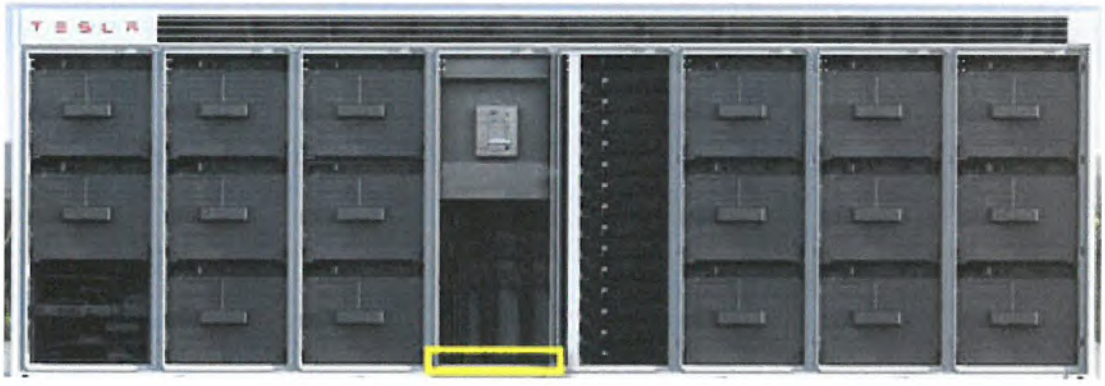


Figure 39. Megapack AC Conduit Window (as viewed looking from above into Customer Interface Bay)

CAUTION: Do not modify the outer enclosures of any Megapack component. Modification of any sort voids the warranty, as well as the certification and UL/NRTL listing provided with the product. If underground AC conduit cannot be run as shown, contact Tesla to discuss alternatives. Tesla must approve the non-standard installation before work begins.

Each Megapack requires a 3-wire circuit (3 phases, ground) connection. Conductors enter the Megapack via a bottom conduit window and terminate on the AC bus bars in the customer interface bay. Note that the transformer requires a grounded wye at the secondary (see *Transformer Design* on page 21 for details).

Megapack is provided with three AC bus bars to connect three phases with conductors with a maximum of 1000 MCM (500 mm^2) per connection:

- 2-hour Megapack: 9 sets of conductors
- 4-hour Megapack: 6 sets of conductors

NEMA 1.75 in, 2-hole grounding studs are also provided.

Auxiliary power is not required. Megapack pulls auxiliary power for the control power and thermal management from the DC bus, and therefore requires no field work.

5.5 Megapack Wiring

5.5.1 AC Power Requirements

Dedicate a separate 3-phase circuit for each Megapack. Use 90ºC copper or aluminum wire (the internal ambient temperature can reach 70ºC). The connections allow for 9 conductors per phase with a maximum of 1000 MCM (500 mm^2) conductors. Pre-installed threaded studs are provided on a tin-plated aluminum bus supporting NEMA 1.75 (44 mm) in 2-hole lugs. The earth connection allows for 9 connections of up to 500 MCM (250 mm^2), sized for NEMA 1.75 in (44 mm), 2-hole lug ground studs.

NOTE:

- Size the AC output wiring per local electrical codes.
- Megapack can have varying power ranges depending on the number of Powerstages installed. The contractor and engineer of record are responsible for sizing conductors accordingly.

Provide an equipment grounding connection for each power circuit. The grounding conductor size depends on local requirements and the Megapack breaker rating.

⚠ **CAUTION:** If an equipment grounding connection is not provided as part of the power circuit, an appropriate low-resistance ground fault path must be supplied. This solution must be compliant with local requirements and approved by Tesla.

5.5.2 DC Backup Power Requirements

If designing for backup power, note the following wiring requirements:

- Wire length of 45 m or less, 2 mm^2 [14 AWG]
- Connect to Megapack terminals:
  - XX18 - 24V DC+ OUTPUT - SITE CONTROLLER CONN
  - XX19 - 24V DC- OUTPUT - SITE CONTROLLER CONN
- Max continuous current: 4 A

5.5.3 Jumpstart Wiring

If Megapack will be configured with hardwired jump-start ability, design the jumpstart wiring circuit per the instructions in *Backup Power Requirements* on page 51, and connect through conduit from the Standard Site Controller Enclosure to these two Megapack terminals:

- XX16 - JUMPSTART INPUT +
- XX17 - JUMPSTART INPUT –

5.6 Standard Site Controller Enclosure Wiring

The Standard Site Controller Enclosure must be powered from a dedicated 120-480 V circuit. Its internal transformer adjusts voltage as required. The engineer of record must design the means and methods of pulling this circuit.

If you are implementing backup or jumpstart functionality, address electrical design of the Standard Site Controller Enclosure as indicated below (see also *Grid-Connected Electrical Specification* on page 42).

5.6.1 Backup Power Requirements

To provide an uninterruptible power supply (UPS) to the Standard Site Controller Enclosure, three types of power supply are available:

1. **Megapack-provided power** - 24 V power is available as long as the DC bus is up and the power supply board is functional. The DC bus is always up when *Always Active* mode is true, unless the system is down for maintenance (the enable line is broken) or experiencing rare and severe types of faults. See *DC Backup Power Requirements* on page 51 for wiring requirements.
2. **Customer-provided DC power** - As an alternative to the 24 V DC from Megapack above, customers can provide a 24 V DC UPS that terminates into the 24 V DC redundancy module in the Standard Site Controller Enclosure.

3. **Customer-provided AC power** - Customers can supply power from a UPS or other backed-up power supply (strongly recommended for microgrids and high-reliability sites). This supply must terminate upstream of the AC transformer in the Standard Site Controller Enclosure. Do not add components to or modify the Standard Site Controller Enclosure

NOTE: When Megapack is faulted or in standby mode, the DC bus will go down.

5.6.2 Jumpstart Power Requirements

If the battery system will be configured with hardwired jump-start ability, design the jumpstart wiring circuit per the instructions below:

- Wire length of 15 m or less, 2 mm^2 [14 AWG]
- Power requirement: 20 W
- Input voltage range: 12-24 V

5.7 Megapack Settings

Megapack settings must be configured in advance by Tesla. Talk to your Tesla representative if any of the default settings should be modified. The defaults for the Megapack follow each region's grid code.

5.7.1 Overload

Megapack is capable of providing an additional 20% kVA overload for up to 10 seconds when followed by and preceded by a minimum of 10 minutes of operation at rated power or lower. In other words, Megapack can handle 1 equivalent full overload every 10 minutes if running at 100% current. This is purely a feature of the Megapack hardware. Actual realization of this overload power is also a function of the available DC power.

Overload capability can be configured by Tesla at the customer's request, with an allowed percentage of overload from 0-20% and allowed overload time from 0-10 seconds.

5.7.2 Voltage Ride-Through

Table 15. Setting Ranges

Parameter	Setting Range	Resolution
Voltages	0.00-Maximum HVRT Allowed	0.01 per unit
Times	0.00-60.00 sec*	0.01 sec

** Time allowed a specific per-unit voltage depends on the nominal voltage rating. Typically, default settings and acceptable ranges are tested as part of a specific certification. For deviations from certified settings in a region, please contact a Tesla Sales Engineer.*

Megapack has five voltage and time setpoints for low voltage ride-through (LVRT), configurable to the following ranges:

Table 16. Megapack LVRT Settings

Parameter	Default Values for 480 V
LVRT Point 5	88% @ 2.00 sec
LVRT Point 4	60% @ 1.00 sec
LVRT Point 3	45% @ 0.13 sec

Parameter	Default Values for 480 V
LVRT Point 2	45% @ 0.13 sec
LVRT Point 1	45% @ 0.13 sec

Megapack has four high voltage ride-through (HVRT) setpoints, with one instantaneous trip voltage setting, configurable to the following ranges:

Table 17. Megapack HVRT Settings

Parameter	Default Values for 480 V
HVRT Point 3	120% @ 0.13 sec
HVRT Point 2	120% @ 0.13 sec
HVRT Point 1	110% @ 1.00 sec
HVRT max trip	121%

Table 18. Maximum HVRT Values

Nominal System Voltage	400 V AC	420 V AC	440 V AC	480 V AC	505 V AC
Maximum HVRT Allowed	168%	160%	153%	140%	133%

Table 19. Trip Accuracy

Trip Setting	Accuracy
Voltage	+/- 2% of nominal voltage
Time	Longer of +/- 100 mS or 1% of set point
Frequency	+/- 0.01 Hz

Megapack ships with the following pre-defined settings:

Table 20. Interconnection System Default Response to Abnormal Voltages

Default Settings	
Voltage range (% of base voltage)	**Clearing time (s)**
$V < 45$	0.16
$45 \leq V < 60$	1
$60 \leq V < 88$	2
$110 < V < 120$	1
$V \geq 120$	0.16

In addition to ride-through capability, Megapack is capable of adding or removing VARs during VRT events to help support voltage regulation during the fault event.

LVRT behavior has two adjustable parameters: voltage and time pairs. K-factor (reactive current support coefficient) adjusts the amount of reactive current supplied to support grid voltage during a fault. This coefficient is multiplied by the per-unit voltage sag/swell to determine the amount of reactive current (up to rated current) supplied to support the voltage. There are separate coefficients for sag and swell.

Setting a K-factor to 0 disables reactive current support. This feature complies with the German Medium Voltage Grid Code requirements for renewable energy inverters (BDEW).

During VRT (grid fault) events, reactive current is automatically prioritized over real current. Megapack supplies negative sequence reactive current (up to rated current per phase) to support voltage imbalance due to grid faults under the same algorithm listed above.

During a grid fault, Megapack maintains its output power setpoint unless it is operating in current limit or the reactive current demand consumes the available output current capacity.

5.7.3 Frequency Ride-Through

Megapack has three under-frequency (UF) and three over-frequency (OF) trip points and times, as well as one under-frequency instantaneous trip point and one over-frequency instantaneous trip point. These parameters are configurable to the ranges listed in the table below:

Table 21. Megapack Frequency Trip Points

Trip Point	Frequency Range	Time (sec)	Notes
Instantaneous UF Trip	40 Hz-70 Hz	N/A	0.1 Hz resolution
UF Trip Time 3	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
UF Trip Time 2	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
UF Trip Time 1	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
OF Trip Time 1	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
OF Trip Time 2	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
OF Trip Time 3	40 Hz-70 Hz	0-600	0.1 Hz and 0.01 second resolution
Instantaneous OF Trip	40 Hz-70 Hz	N/A	0.1 Hz resolution

The Frequency Ride-Through (FQRT) settings are pre-programmed in the Megapack to comply with IEEE 1547 requirements per the table below:

Table 22. Megapack FQRT Default Settings

Function	Frequency (Hz)	Clearing Time (s)
UF1	< 57	0.16
UF2	< 59.5	2
OF1	> 60.5	2
OF2	> 62	0.16

5.7.4 Harmonics

When in grid-connected mode, Megapack complies with the IEEE 1547 harmonic current distortion requirements.

5.7.5 Grid-Connected Features

5.7.5.1 Active Anti-Islanding

All systems are equipped with active anti-islanding using the Sandia Frequency Shift methodology. Megapack autonomously and automatically detects an island condition, in which case it isolates from the grid and reports a trip to the user. Megapack can detect the island condition and trip within 2 seconds of island creation. An island condition is detected even if multiple Megapacks are connected on the same island area.

5.7.5.2 Passive Anti-Islanding

Megapack also optionally includes a rate of change of frequency (ROCOF) trip, which is configurable to site and user requirements. ROCOF is disabled by default, but Megapack detects an island condition and trips regardless of whether or not this feature is enabled. The ROCOF parameters available include:

Table 23. ROCOF Settings

Feature Name	Effect	Setting Range	Default
ROCOF Enable	Turns ROCOF on or off	n/a	Off
ROCOF Fault Limit	Sets the rate of change required for a trip	0.1-100.0 Hz/sec	1 Hz/sec
ROCOF Time Delay	Sets how long the rate of change has to be present for the Megapack to trip	0-1 seconds	1 second

NOTE: Anti-islanding can be disabled by a qualified Tesla technician or personnel only.

5.7.5.3 Automatic Grid Reconnection

Megapack automatically reconnects to the grid after a serious grid fault event. Megapack's configurable settings determine when and under what conditions it automatically reconnects to the grid.

Table 24. Reconnection Delay Timer Default Settings

Feature Name	Effect	Setting Range	Default
Reconnect Time Delay	The amount of time Megapack waits before reconnection, after the grid returns within the frequency and voltage windows defined above	0-1,000 sec	300 sec
Reconnect Min. Voltage	The minimum voltage at which Megapack interprets the grid is within tolerable conditions	0-150%	88.33%
Reconnect Max. Voltage	The maximum voltage at which Megapack interprets the grid is within tolerable conditions	0-150%	105.83%
Reconnect Min. Frequency	The minimum frequency at which Megapack interprets the grid is within tolerable conditions	40-70 Hz	59.3 Hz
Reconnect Max. Frequency	The maximum frequency at which Megapack interprets the grid is within tolerable conditions	40-70 Hz	60.5 Hz

The Reconnect voltage and frequency parameters are also used to determine whether it is safe for Megapack to synchronize to the grid upon initial start-up. Megapack has no time delay to connect to the grid after initial start-up.

5.7.6 Island Grid Controls

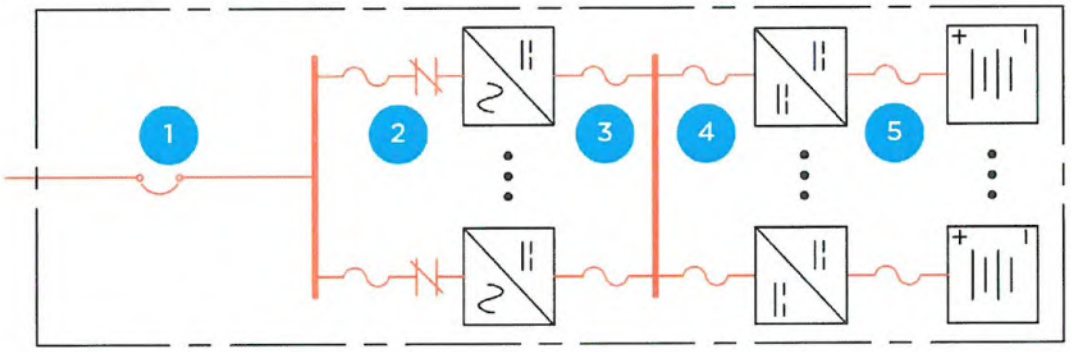
Megapack is capable of generating an island grid voltage. Its algorithm has been designed to be compatible with generators, renewable energy sources, and other microgrid assets. There are practical and sizing restrictions with microgrids that must be considered during site design.

Islanding typically requires additional hardware. For further design questions on this feature, talk to your Tesla representative.

5.8 System Protection Features

Megapack has both software and hardware system protection features as detailed below.

Figure 40. Megapack Protection Features



1. AC circuit breaker
2. Powerstage AC fuse and contactor
3. Powerstage DC fuse
4. DC/DC fuse
5. Battery module fuse

5.8.1 Battery Module Overcurrent Protection

The battery modules contain DC high speed, single use disconnects located in touch-safe holders mounted on the battery modules. Battery modules are also fused at both the input and output of the DC/DC (see callouts #4 and #5 in *Megapack Protection Features* on page 56). Fuses must only be serviced by Tesla-approved personnel.

5.8.2 Powerstage DC Fuses

Each Powerstage is equipped with its own set of DC fuses.

5.8.3 Powerstage AC Protection

Each Powerstage is equipped with its own AC contactor and AC fuses.

DANGER: Capacitors might have residual stored energy after the DC disconnect handle is actuated. Wait at least 5 minutes before entering the cabinet.

5.8.4 AC Circuit Breaker

The Customer Interface Bay contains a pre-installed AC circuit breaker to provide distribution system protection. Upon fault detection, the bi-directional circuit breaker will open to isolate the Megapack system. The breaker is not part of the internal Megapack protection scheme and must be programmed on-site according to site-specific plans or engineering guidance.

WARNING: Opening the circuit breaker will not ensure that the Megapack DC bus is de-energized. Refer to *Remote Shutdown* in *Low Voltage Area* on page 47 or the *Tesla Energy Controls and Communications Manual* for complete BESS shutdown command information.

NOTE: Additional protection or switching means at the output of the Megapack may be required depending on the jurisdiction. Protection and switching philosophy must be verified by the customer's engineer of record and should comply with regional and local codes.

Consult the manufacturer's documentation for the full AC circuit breaker specification:

Siemens Reference Documents

- *Siemens Low Voltage WL Circuit Breakers Selection and Application Guide: https://www.downloads.siemens.com/download-center/download?BTLV_43311*
- Product URL: *https://new.siemens.com/us/en/products/energy/low-voltage/low-voltage-circuit-breakers/wl-power-circuit-breakers.html*

Figure 41. AC Circuit Breaker

The circuit breaker is shipped with pre-configured general trip settings that must be changed upon arrival through the Electronic Trip Unit (ETU). The ETU has configurable settings for Long-time overcurrent protection (L), Short-time delayed overcurrent protection (S), Instantaneous Overcurrent Protection (I), Ground Fault Protection (G), and other features provided below. The Engineer of Record is responsible for the configuration of the ETU settings for system protection and proper operation.

External monitoring and control of the Megapack-specified circuit breaker is not a default offering. Through the Customer Interface Bay one can access terminals for external closing (Close Permissive Command), opening (Trip Command), and breaker status. The Customer Interface Bay allows for the use of external relays to command the breaker however, Megapack will only close the breaker if the system has been deemed safe from the Megapack logic. The Trip Command takes precedence over the Close Permissive Command.

NOTE: See *Low Voltage Area* on page 47 for more information on these commands and design of breaker monitoring and control.

Tesla AC circuit breaker part numbers:

- Megapack 4 Hour – L2F316TGJAXXACN
- Megapack 2 Hour – L2F320UGJAXXACN

NOTE: The breaker trip power supply is fed from multiple sources in the customer I/O area. While operating normally (above 0% state-of-charge and not faulted) power is provided by the battery modules. Jumpstart power (if provided) can also be used.

NOTE: The breaker open/close buttons are located 1730 mm (68.1 in) from the base of the Megapack. If the chosen foundation will place these buttons outside of local regulatory height requirements, ensure another method of compliance is provided (raised workstation, remote open/close terminals, etc.).

Table 25. Default Circuit Breaker Settings

ETU Pre-Configured Trip Settings	Megapack 4 Hour	Megapack 2 Hour
I_n (Plug Rating)	1600A	2000A
I_r (Long-time Current)	0.7 (1120A)	1.0 (2000A)
t_r* (Long-time Delay)	2 sec (6720A)	2 sec (12000A)
I_{sd} (Short-time Current)	1.25 (2000A)	1.25 (2500A)
t_{sd} (Short-time Delay)	0.1 sec (I^2t)	0.1 sec (I^2t)
I_i (Instantaneous Current)	1.5 (2400A)	1.5 (3000A)
I_g (Ground-fault Current)	B (300A)	C (600A)
t_g (Ground-fault Delay)	0.2 sec (I^2t)	0.2 sec (I^2t)
Toggle Switches	I^2t, I_n=Off	I^2t, I_n=Off

*I_n uses the same delay as t_r, long time delay.

Table 26. AC Circuit Breaker Control Summary

Breaker State	Trip Command	Close Permissive Command	Resulting Megapack Behavior
Open	Not Asserted	Asserted	Depending on desired behavior, the Megapack will perform internal checks and may close the breaker autonomously.
Open	Not Asserted	Not Asserted	The breaker will remain open until the Close Permissive is asserted.
Open	Asserted	Asserted	The breaker will remain open; the Trip Command takes precedence over the Close Permissive Command and the internal Megapack breaker operations.
Open	Asserted	Not Asserted	The breaker will remain open; the Trip Command takes precedence over the internal Megapack breaker operations.
Closed	Not Asserted	Asserted	The Megapack will operate per its internal logic; which may open the breaker
Closed	Not Asserted	Not Asserted	The Megapack will operate per its internal logic; which may open the breaker
Closed	Asserted	Asserted	The breaker will be tripped
Closed	Asserted	Not Asserted	The breaker will be tripped

5.8.5 Ground Fault Protection

Megapack is provided with a DC ground fault detection system. Megapack measures insulation resistance prior to operation and looks for excessive leakage current during operation.

The 900 V DC system is ungrounded (neither side of the DC link is grounded). The DC system is controlled, monitored, and protected by Tesla's DC Bus Controller (DCBC), which is located in the customer interface area and interfaces with all battery modules on a given DC bus. The DCBC contains ground fault protection in the form of isolation detection that continually monitors resistance to ground on both legs.

The 450 V battery side of the DCDC is also ungrounded, and protection is similar to the 900 V DC system. The battery module BMS runs isolation detection to ensure both legs are isolated from ground. A ground fault within the battery module turns the faulted Module off and allows the Megapack to continue operating.

Megapack also contains an AC circuit breaker with ground-fault trip settings. See *AC Circuit Breaker* on page 56 for more information.

5.8.6 Enclosure Safety and Enable Circuit

Megapack includes an enable circuit as a safety feature. Opening the door of any battery module or Powerstage bay shuts down all components that have sourcing abilities (DC/DC, DC/AC, or thermal controls).

The customer interface bay contains an AC circuit breaker that can be locked in the open position, as well as a DC Bus Keyed Lockout that can interrupt the enable circuit. The customer interface bay door is not part of the enable circuit, as it does not provide direct access to high voltage equipment. The enable circuit does not trip the AC breaker.

A remote shutoff connection is provided to which customers can connect via terminals in the customer I/O area. Operating the remote shutoff will trip the enable circuit and the AC circuit breaker.

Within the customer interface bay, the AC bus bars are covered by a touch-safe dead front panel that must be removed for access. This touch-safe panel has a dead front switch that will open the enable line when the panel is removed. The switch has an additional dry contact that can be wired to an upstream protection device to trip the upstream breaker and de-energize the line side bus bars.

Customer I/O also includes a captive-key DC Bus Keyed Lockout that is tied to the enable line for service and maintenance procedures. When the switch is opened the enable line is broken and the key can be used to manage LOTO procedures or similar.

The Megapack internal monitoring system uses the enable circuit to monitor for critical system faults and de-energize the system if needed. It is not recommended to use the enable feature as a means to de-energize the system; for example, do not open a Megapack door during operation as a means of shutting the system down. When deliberately de-energizing the system, always use the Tesla Site Controller to command a soft shutdown.

5.8.7 Required Protective Studies

While Megapack provides system protection features as outlined above, the system design engineer is responsible for providing Tesla the following information based on site conditions and protection studies for Tesla's review and approval:

- Arc flash calculations showing the available energy at the Megapack AC bus
- Isolating methods plan or switching scheme identifying the order of opening and who is responsible for each step
- See the *Megapack Construction Checklist* for more information on submitting switching scheme information

5.8.8 Lightning Protection Design

Protection from direct lightning strike: Megapack enclosures have internal frames that act like a Faraday cage, diverting currents to flow around the internal components but not through them. There is no expected impact on Megapack functionality due to a direct lightning strike. Hence, air terminations or lightning masts are not required to protect Megapack enclosures.

Protection from indirect lightning strike: Megapacks are designed with adequate power electronic component sizing and creepage clearance, in addition to monitored surge protection on the line side of Powerstages. Tests in accordance with IEEE C62.41.2 and IEEE C62.45 demonstrate that internal circuits and components of Megapack are protected from induced overvoltage from indirect lightning strikes.

5.9 Shutting the System Down

5.9.1 Shutting Down in an Emergency

⚠ **WARNING:** If smoke or fire is visible, do not approach the Megapack and do not open any of its doors.

⚠ **CAUTION:** External safety features such as E-stops and upstream breakers differ by region and design. Always be aware of your site's safety design and external safety features.

To shut down the system in an emergency or for unknown behavior:

1. If an external E-stop button or remote shutdown contact to Megapack is present, engage it.
2. If Megapack is serviced upstream by an external AC breaker or disconnect, open the breaker or disconnect.
3. Only if safe to do so, open the Customer Interface Bay door to access the AC breaker, remove the DC lockout key, and apply Lock Out, Tag Out (LOTO) if needed (see *Performing a Lock Out, Tag Out* on page 61).
4. Contact Tesla at *IndustrialStorageSupport@tesla.com* to advise that the system has been shut down.

Refer to the *Lithium-Ion Battery Emergency Response Guide* for details on response to a hazardous event.

5.9.2 Performing a Planned Shutdown

Perform this procedure for a single Megapack configuration:

1. If possible, command a soft shutdown of the system using the software via the Tesla Site Controller by commanding a power set point of zero. If the site manager does not have the means to command power, contact *IndustrialStorageSupport@tesla.com* to request the power shutdown command.
2. Open the site or feeder AC breaker or disconnect (if one is present).
3. Open the Megapack AC breaker to isolate the Megapack from the grid or other energy sources.

5.9.3 Performing a Planned Shutdown, Multiple Megapacks

If Tesla requests a qualified technician to prepare a site for a service action, or all power to a site must be suspended, follow these steps to safely de-energize Megapack and isolate upstream equipment:

1. Determine whether the entire site should be shut down, or only one Megapack.
    - **If shutting down power to the entire site,** command a soft shutdown of the system using the software via the Tesla Site Controller. If the site manager does not have the means to command power, contact *IndustrialStorageSupport@tesla.com* to request the power shutdown command.
        - On-grid system: command a power setting of zero
        - Microgrid system: change *Island Control Mode* to 2

- **If shutting down power to only one Megapack**, the power commands on the Tesla Site Controller do not require a change (but a change is permitted if desired).

2. Isolate AC power at the appropriate AC breaker.
   - **If shutting down power to the entire site,** open the site-wide AC breaker or disconnect to remove grid power.
   - **If shutting down power to one Megapack**, open the nearest upstream AC branch breaker (if a true breaker is present) that isolates that block.
3. Lock and tag out the AC breaker with an approved lock and tag that shows your personal information.
4. Open the Megapack AC disconnect to isolate the Megapack(s) from the grid or other energy sources.
5. **Wait** for Tesla Service or a Tesla-approved entity to arrive or provide further direction.

5.9.4 Performing a Lock Out, Tag Out

Lock Out, Tag Out (LOTO) is a procedure by which potentially dangerous machinery is ensured to be de-energized and locked in a de-energized state. Obtain and use an approved lock and a tag with your personal information on it. Notify all personnel that may be operating on, or within the vicinity of, the system being locked out. LOTO should be used any time the system is turned off and power is removed.

NOTE: Only Tesla or a Tesla-approved entity shall perform any corrective maintenance within the Megapack. All Tesla or Tesla-approved entities must complete Tesla's LOTO training.

⚠ **WARNING:** Only the person indicated on the lock and tag may move or remove the lockout device. Never move or remove locks and tags of other personnel on-site.

To perform a Lock Out, Tag Out:

1. Open the Customer Interface Bay to access the AC circuit breaker (see *Customer Interface Bay Overview* on page 43).

Figure 42. AC Circuit Breaker

1. Lock ring
2. Spring-loaded lever

2. Push up on the spring-loaded lever (callout #2, above) to unlock the lock ring (callout #1, above), and use a flat-head screwdriver to pull out the lock ring:

Figure 43. AC Circuit Breaker – Unlocking the Lock Ring

3. Insert the lock, lock it, and secure the AC circuit breaker:

Figure 44. AC Circuit Breaker – Locked

NOTE: This is the preferred LOTO procedure inside Megapack since it physically depresses the *Open* circuit button and forces the circuit breaker to stay open.

6 Installation

6.1 Logistics

The Megapack enclosure can be treated like an ISO standard shipping container, despite its custom dimensions. ISO 1161-type corner fittings are provided in all top corners to aid transportation and logistics. Megapack arrives onsite on a flatbed trailer and can be offloaded by lifting from the four top corners. Depending on site constraints and lifting equipment, additional rigging (spreader bars, shackles, etc.) may be required. Non-North American Megapacks may be delivered within a 40 foot High Cube (HC) shipping container.

See the *Megapack Transportation and Storage Guidelines* document for additional details.

6.2 Site Activities

The following site activities must take place for every Megapack being installed:

- Unloading
- Anchoring
- Wire and cable connections
    - 380-505 V (3 wire + ground circuit)
    - Communications (Ethernet/Fiber)
    - Control (Breaker status, etc...)
- Megapack commissioning, system commissioning and miscellaneous fine tuning
- Electrical inspection and testing

6.3 Signage Requirements

Signage must be posted in approved locations in accordance with local codes and standards.

7 Regulatory Compliance

7.1 General Compliance Information

Megapack will be compliant with all major global safety and grid code standards for battery energy storage systems. *Megapack Compliance Packet*, a full compliance packet of completed certifications in all regions, is available on the Tesla Partner Portal.

7.2 Environmental Compliance

Each Megapack contains approximately 540 L (140 gal) of 50-50 ethylene glycol-water mix, and approximately 7.6 kg (16.8 lb) of R-134a refrigerant in the coolant system. These substances are built into the Megapack and do not need to be added at the time of installation at site. Depending on the number of Megapacks installed on a site, storage, use and handling of these substances during maintenance events may require reporting, hazard management plans, or containment procedures as required by local codes.

7.2.1 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

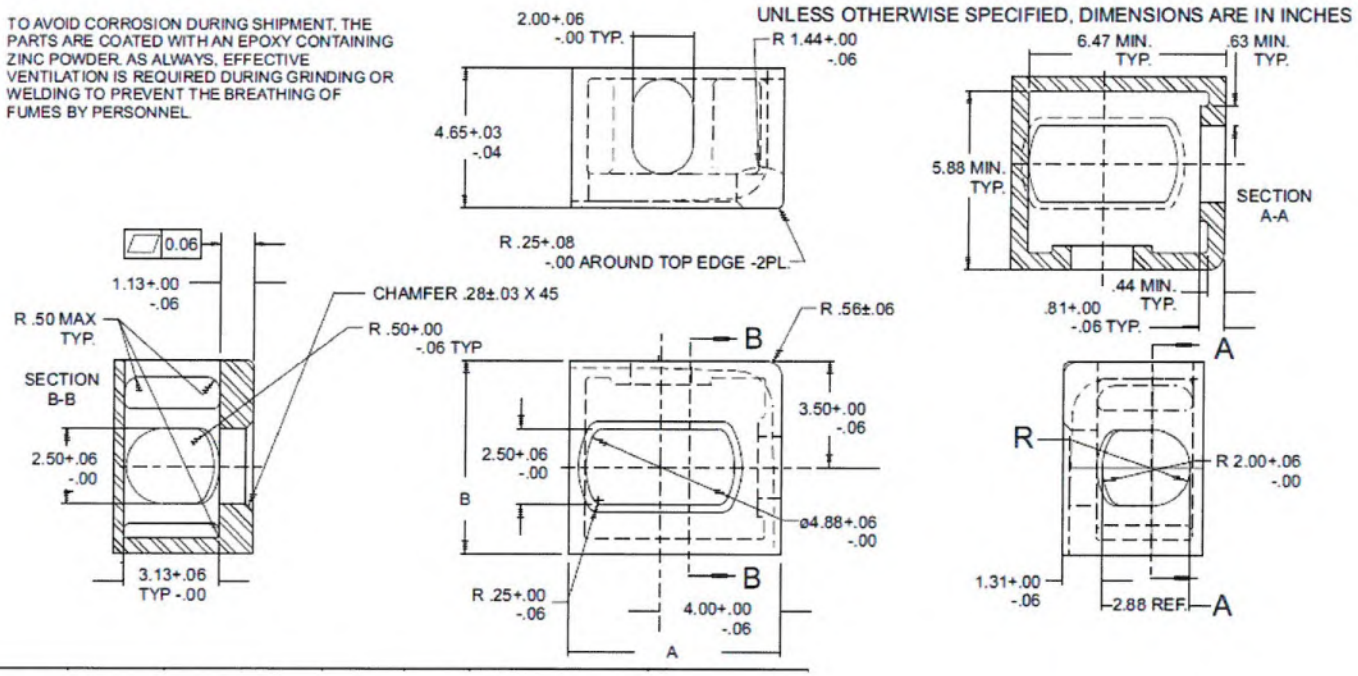
The Regulation (EC) No 1907/2006 of the European Parliament and of the Council of December 18, 2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) entered into force on June 1, 2007. Tesla agrees with the purpose of REACH, which is to ensure a high level of protection of human health and the environment. Tesla is compliant with all applicable requirements of REACH.

The registration requirements do not apply to Tesla, since it is neither a manufacturer nor an importer of preparations into Europe.

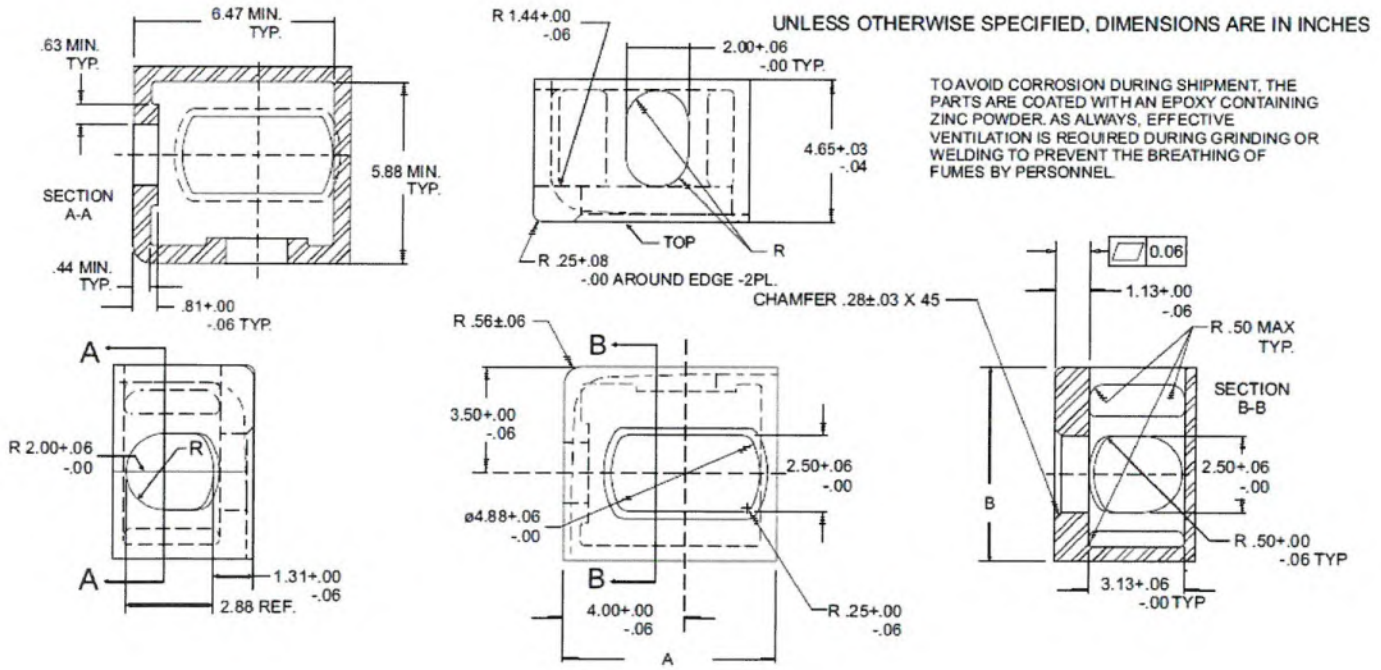
However, product (article) manufacturers or importers into Europe are obligated under Article 33 of REACH to inform recipients of any articles that contain chemicals on the Substances of Very High Concern (SVHC) candidate list above a 0.1% concentration (by weight per article). As of October 2016, products manufactured and marketed by Tesla do not contain substances on the REACH SVHC candidate list in concentrations greater than 0.1% by weight per article. Tesla continues to monitor the developments of the REACH legislation and will communicate with our customers according to the requirement above.

Appendix A – ISO Corner Dimensions

CORNER FITTING ISO 1161 TYPE - TOP RIGHT (243000C-TR)



CORNER FITTING ISO 1161 TYPE - TOP LEFT (243000C-TL)



Revision History

Revision #	Date	Description	Initials
1.0.0	07-01-2019	• Initial Release	JG/JK
1.1.0	09-20-2019	• Updated language for 3-wire configuration • Removed erroneous Powerpack references • Updated Circuit Breaker PNs and information • Updated Voltage-Ride Through tables	JK
1.1.1	01-29-2020	• Abbreviated short-circuit information	MW
1.2	February 26, 2020	• Removed pre-production watermark • All new Tesla Site Controller information • New Customer I/O wiring figures • New Customer I/O wiring drawing • New Customer Interface Bay Conduit Entry diagram • Updated anchoring requirements • Added site-level lighting language • Added signage requirement language • More detailed description of component locations, added detail on AC conduit window, added component numbering key • Clarified breaker trip power supply options • Added grounded circuit voltage requirements • Clarified clearance spec and language • Added total short-circuit withstand rating 85 kAIC • Updated electrical specifications • Updated product specs • Fixed and clarified pad slope deviation requirements • Changed wire specifications for backup and jump start	MW
1.3	March 2, 2020	• Edited Maximum HVRT table • Edited Customer I/O LV wiring spec • Added conduit diameter and figure to Customer I/O area	MW
1.4	June 26, 2020	• Format changes for transfer to DITA system • Updated drawings in Appendix • Updated anchoring information • Clarified electrical powering of Tesla Site Controller from a dedicated 120-480 V circuit	MW

Revision #	Date	Description	Initials
		• Removed details of 518 V operation; updated output voltage range • Removed the Over-Temperature topic • Enhanced backup power wiring section • Enhanced LV area wiring details • Updated XX36 and XX37 terminal wire spec • Updated DC fuses spec in AC & DC Load Side Area • Updated noise rating and provided additional information • Added DC/DC detail in System Protection Features • Added Megapack Schematic functional line diagram • Updated enclosure dimensions and weight • Removed imbalanced phase load note • Added new Site Safety section • Enhanced Hazard Mitigation and Safety as well as fire protection information • Enhanced transformer information • Updated label • Updated clearance information • Modified quantities of 2-hour and 4-hour conductor sets • Added arc flash safety information • Updated circuit breaker image • Added information about shutting the system down	
1.5	June 30, 2020	• Updated language about clearances to include egresses • Updated fencing language • Clarified 100 ms delay for Remote Shutdown • Removed Switchgear section and added note about potential switching to AC Circuit Breaker section	MW
1.6	July 14, 2020	• Added ISO corner fitting drawings • Modified jumpstart wiring voltage range • Added site-level power guidance • Replaced references to HV cables with power conductors • Added note about clearances to non-Megapack equipment • Clarified site access requirement	MW
1.8	August 7, 2020	• Clarified (increased) sustained wind speed specification (Cat 5)	MW
1.9	October 16, 2020	• Added *Voltage Classification* topic. • Generalized foundation language to replace pad- or grade-beam-specific language	MW

Revision #	Date	Description	Initials
		• Added diagram of location of site-level lighting conduit • Moved drawings from appendix to a ZIP file on Partner Portal • Added minimum drive aisle clearance requirement between Megapack foundations • Clarified minimum foundation overhang and other clearance figures and provided new diagrams • Enhanced content about wiring for backup power • Clarified maximum anchor protrusion in *Anchoring Design* • Added UL 1741 PCS requirements • Updated with improved fully populated energy ratings	
2.0	November 5, 2020	• Amended UL 1741 PCS requirements • Updated clearance diagrams for clarity • Added new *Lightning Protection Design* topic	MW
2.1	December 23, 2020	• Provided more specific foundation slope requirements in *Foundation Installation Requirements* on page 33. • Added section about protecting the IP66 enclosure: *The Megapack IP66 Enclosure* on page 10. • Added *Megapack Door Security* on page 38 section. • Added wye/delta configuration to *Transformer Design* on page 21. • Added illustration to *Center of Gravity* on page 29 and updated figures. • Introduced terminology for variants of Tesla Site Controller: Standard Site Controller, and Large Site Controller. Umbrella name still Tesla Site Controller. • Added input voltage range for Large Site Controller to *Grid-Connected (Utility-Interactive) Mode* on page 42. • Aligned terminology on Customer Interface Bay flooring: openings in floor are *conduit openings* (was: AC conduit window, AC window); covers for the openings are *gasketed floor panels* (was: AC gland plates, gland plates). • Added non-combustible clearance requirement for Megapacks with option code C008 in *Exposures and Fire Clearances* on page 36.	MW
2.2	January 12, 2021	• Removed lighting provisions. • Adjusted precision of clearance measurements (*Observing Clearances* on page 35). • Clarified requirements for equipment grounding (*AC Power Requirements* on page 50).	
2.3	February 16, 2021	• Added Megapack paint color code (*Enclosure Colors* on page 25). • Updated label (*Megapack Labels* on page 12).	

Revision #	Date	Description	Initials
		• Updated AC circuit breaker part numbers *AC Circuit Breaker* on page 56). • Added *Peak Power* on page 16 topic. • Adjusted site-level power receptacle socket guidance (*Site-Level Power* on page 39). • Updated *Foundation Installation Requirements* on page 33.	

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CONFIDENTIAL INFORMATION - SHARED UNDER NDA ONLY

Megapack Site Design Manual - Revision 2.3 - Published February 16, 2021

Attachment E

2020 Emergency Response Guide

TESLA

Lithium-Ion Battery Emergency Response Guide

For Tesla Energy Products including Powerwall, Powerpack, and Megapack – TS-00004027 – REV 2.1

PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product or documentation modifications at any time, with or without notice.

The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

This document does not create contractual obligations for Tesla or its affiliates, except to the extent expressly agreed in a contract.

ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, please send an email to: *energy-pubs@tesla.com*.

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CONTENTS

1.1 Scope

This guide serves as a resource for emergency responders and Authorities Having Jurisdiction (AHJs) with regards to safety surrounding Tesla Energy Products. Tesla Energy Products are defined as rechargeable lithium-ion battery energy storage products designed, manufactured, and sold by Tesla, and include products such as Megapack, Powerpack, and Powerwall. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. TESLA, INC. makes no warranty, expressed or implied, with respect to this information.

2.1 Identification of Company and Contact Information

Table 1. Company and Contact Information

Products	Tesla Energy Products, designed for residential, commercial, and industrial/utility energy applications, and modules and sub-assemblies that can be installed in such products. Specific part numbers are listed below.	
Locations	Headquarters (USA)	3500 Deer Creek Road Palo Alto, CA 94304 USA Tel. No. +1 650-681-5000 (do not use for emergencies, see below)
	Europe and Africa	Burgemeester Stramanweg 122 1101EN Amsterdam, The Netherlands Tel. No. +31 20 258 3916 (do not use for emergencies, see below)
	Australia and Asia	Eastern Aoyama Building 4F 8-5-41 Akasaka, Minato-ku, Tokyo, Japan 107-0052 Tel: +81 3 6890 7700 (do not use for emergencies, see below)
	Manufacturer (USA)	3500 Deer Creek Road Palo Alto, CA 94304 USA Tel. No. +1 650-681-5000 (do not use for emergencies, see below)
Emergency Contacts	CHEMTREC	For Hazardous Materials (or Dangerous Goods) Incidents: Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Contract Number: CCN204273 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)
	Tesla Service Support Contacts	Powerpack & Megapack: • Hotline numbers (24h / 7 coverage): ◦ North America: +1 (650) 681-6060 ◦ Australia: +1800 294 431 ◦ New Zealand: +0800 995 020 ◦ Japan: +0120 975 214

- Asia/Pacific: +61 2 432 802 81
- Email support: *IndustrialStorageSupport@tesla.com*

Powerwall:

- Hotline numbers (24h / 7 coverage):
  - North America: +(877) 798-3752
  - United Kingdom: +44 8000988064
  - Germany: +49 800 724 4529
  - Italy: +39 800596849
  - South Africa: +27 87 550 3480
- Email support:
  - North America: *PowerwallSupportNA@tesla.com*
  - Australia/New Zealand: *PowerwallSupportNA@tesla.com*
  - Japan: *EnergyCustomerSupportJP@tesla.com*
  - Europe/Middle East/Africa: *EnergySupportEmea@tesla.com*

2.2 SDS and Product Information

Safety Data Sheets (SDS) are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article." OSHA has defined "article" as a manufactured item other than a fluid or particle; (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities (e.g., minute or trace amounts) of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

Tesla Energy Products referenced herein meet the OSHA definition of "article." Thus, they are exempt from the requirements of the Hazard Communication Standard and do not require an SDS. However, SDS are available for non-cell materials found inside these products.

Tesla Energy Products contain sealed lithium-ion battery cells (cells) that are similar to rechargeable batteries in many consumer electronic products. Cells are individually hermetically sealed cylinders approximately 21 mm in diameter and 70 mm in length.

Cells each contain lithium ion electrodes, which can be composed of either:

- Lithium Nickel Cobalt Aluminum Oxide (NCA material), LiNixCoyAlzO2;
- Lithium Nickel, Manganese, Cobalt Oxide (NMC material) LiNixMnyCozO2;
- Lithium Nickel, Manganese Oxide (NMO material), LiNixMnyO2
- Lithium Cobalt Oxide, LiCoO2;
- or a mixture of these compounds

THE CELLS AND BATTERIES DO NOT CONTAIN METALLIC LITHIUM. Individual cells have nominal voltages of approximately 3.6 V.

Tesla Energy Products also include sealed thermal management systems containing coolants and/or refrigerants. Safety Data Sheets (SDS) are available for these liquid materials.

Table 2. Thermal Contents

Non-Cell Materials with SDS found in Tesla Energy Products	Approximate Quantity
Ethylene glycol 50/50 mixture with water	Powerwall 1: 1.6 L of 50/50 mixture Powerwall 2: 2.3 L of 50/50 mixture Powerpack 1: 22 L of 50/50 mixture Powerpack 2: 26 L of 50/50 mixture Powerpack Inverter: 11 L of 50/50 mixture Megapack: 540 L of 50/50 mixture Powerpack Pod Module: none Megapack Battery Module: none
R134a: 1,1,1,2-Tetrafluoroethane refrigerant	Powerwall 1, 2: none Powerpack 1, 2: 400 g Megapack: 7.6 kg Powerpack Pod Module: none Megapack Battery Module: none

Individual lithium-ion cells are connected to form modules. Modules are battery sub-assemblies. These modules are installed in Tesla Energy Products. Approximate specifications of Tesla Energy Products are listed below.

Table 3. Approximate Tesla Energy Product Specifications

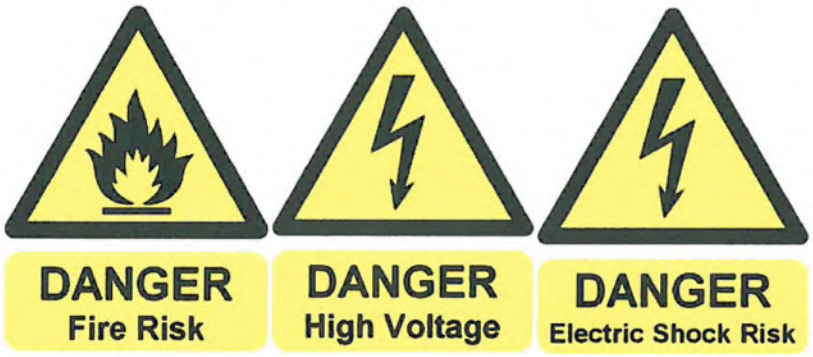
Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight (kg)	Height (cm)	Width (cm)	Depth (cm)
Powerwall 1 Versions								
1050100-x*y*-z*	POWERWALL, 2KW, 7KWH	<30 (DC)	450 (DC)	-	95 (210 lb)	130 (51 in)	86 (34 in)	18 (7 in)
1067000-x*y*-z*	POWERWALL, 3.3KW, 7KWH	<30 (DC)	450 (DC)	-	95 (210 lb)	130 (51 in)	86 (34 in)	18 (7 in)

Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight (kg)	Height (cm)	Width (cm)	Depth (cm)
1068000-x*y*-z*	POWERWALL, 6.6KW, 10KWH	<30 (DC)	450 (DC)	-	101 (223 lb)	130 (51 in)	86 (34 in)	18 (7 in)
Powerwall 2 Versions								
1092170-x*y*-z*	AC POWERWALL	<30 (DC)	450 (DC)	300 (AC)	114 (251.3 lb)	115 (45.3 in)	75 (29.6 in)	14 (5.75 in)
1112170-x*y*-z*	DC POWERWALL	<30 (DC)	450 (DC)	-	115 (254 lb)	112 (44 in)	74 (29 in)	14 (5.5 in)
Powerpack 1 Versions								
1047404-x*y*-z*	POWERPACK (2hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	1680 (3700 lb)	219 (86 in)	97 (38 in)	132 (52 in)
1060119-x*y*-z*	POWERPACK (4hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	1665 (3670 lb)	219 (86 in)	97 (38 in)	132 (52 in)
1121229-x*y*-z*	POWERPACK (4hr continuous net discharge)	<30 (DC)	450 (DC)	480 (AC)	2160 (4765 lb)	219 (86 in)	97 (38 in)	132 (52 in)
Powerpack 1.5 Version								
1089288-x*y*-z*	POWERPACK 1.5 C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	1622 (3575 lb)	219 (86 in)	131 (51.5 in)	82 (32.5 in)
Powerpack 2 / 2.5 Versions								
1083931-x*y*-z* (1130518-x*y*-z*)	POWERPACK 2,C/4 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160	219 (86 in)	131 (51.5 in)	82 (32.5 in)

Part Number (Reman Number if available)	Description	Module Voltage – as shipped (V)	Max System DC Voltage	Max System AC Voltage	Weight (kg)	Height (cm)	Width (cm)	Depth (cm)
					(4765 lb)			
1083932-x*y*-z*	POWERPACK 2,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 (4765 lb)	219 (86 in)	131 (51.5 in)	82 (32.5 in)
1490025-x*y*-z*	POWERPACK 2.5,C/4 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 (4765 lb)	219 (86 in)	131 (51.5 in)	82 (32.5 in)
1490026-x*y*-z*	POWERPACK 2.5,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 (4765 lb)	219 (86 in)	131 (51.5 in)	82 (32.5 in)
1490027-x*y*-z*	POWERPACK 2.5,C/2 SYSTEM	<30 (DC)	960 (DC)	480 (AC)	2160 (4765 lb)	219 (86 in)	131 (51.5 in)	82 (32.5 in)
Megapack (all versions - dimensions as measured for enclosure envelope for 1462965-x*y*-z*)								
1462965-x*y*-z*	MEGAPACK	<450 (DC)	960 (DC)	505 (AC)	25,400 (56,000 lb) (max)	252.2 (99 ¼ in)	716.8 (282 ¼ in) (length)	165.9 (65 ¼ in)
Spare Parts								
N/A	POWERPACK POD MODULE	<30 (DC)	960 (DC)	N/A	98 (215 lb)	12 (5 in)	100 (39 ½ in)	75 (29 ½ in)
N/A	MEGAPACK BATTERY MODULE	<450 (DC)	960 (DC)	N/A	1,085 (2,400 lb)	66 (26 in)	81 (32 in)	149 (59 ½ in)

** Note that the 8th or 9th digit could be any number or letter and the 10th digit could be any letter.*

3.1 General Precautions



The products described by this document are dangerous if mishandled. Injury to property or person, including loss of life is possible if mishandled.

Tesla Energy Products contain lithium-ion batteries. A battery is a source of energy. Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. An internal or external short circuit can cause significant overheating and provide an ignition source resulting in fire, including surrounding materials or materials within the cell or battery. Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed, provided the battery integrity is maintained and seals remain intact. Risk of exposure may occur only in cases of abuse (mechanical, thermal, electrical).

3.2 High-Voltage Hazards

Under normal conditions of use, provided that a Tesla Energy Product enclosure remains closed, handling the product does not pose an electrical hazard. Numerous safeguards have been designed into Tesla Energy Products to help ensure that the high voltage battery is kept safe and secure as a result of a number of expected abuse conditions. All of the constituent component battery cells are sealed within the product as sub-groups within enclosures (Pods for Powerpack or battery modules for Megapack).

In Powerpack and Megapack, the exterior of each Pod/battery module is isolated from internal components and connectors are touch-safe. Pods are then installed in a rigid metal enclosure, which is isolated from high voltage. Megapack battery modules are similarly sealed and cannot be accessed from the exterior. In the Powerwall, the module is contained within the unit and not accessible to non-Tesla personnel. Access to these components is limited to Tesla-authorized personnel only.

A Tesla Energy Product may pose a significant high voltage and electrocution risk if the outer enclosure, Pod / battery module enclosures and/or safety circuits have been compromised or have been significantly damaged. A battery pack, even in a normally discharged condition, is likely to contain substantial electrical charge and can cause injury or death if mishandled. If a Tesla Energy Product has been significantly visibly damaged or its enclosure compromised, practice appropriate high-voltage preventative measures until the danger has been assessed (and dissipated if necessary).

⚠ **WARNING:** NEVER CUT INTO A SEALED TESLA ENERGY PRODUCT ENCLOSURE due to the high voltage and electrocution risks.

For proper installation / removal instructions please contact the Tesla Service Support team.

3.3 Hazards Associated with Mechanical Damage

Mechanical damage to Tesla Energy Products can result in a number of hazardous conditions (discussed below) including:

- Leaked battery pack coolant (see *Hazards Associated with Leaked Coolant* on page 9)
- Leaked refrigerant (Powerpack System and Megapack only, see *Hazards Associated with Leaked Refrigerant (Powerpack and Megapack Only)* on page 9)
- Leaked cell electrolyte (see *Hazards Associated with Leaked Electrolyte* on page 10)
- Rapid heating of individual cells due to exothermic reaction of constituent materials (cell thermal runaway), venting of cells, and propagation of self-heating and thermal runaway reactions to neighboring cells.
- Fire

To prevent mechanical damage to Tesla Energy Products, these items should be stored in their original packaging when not in use or prior to being installed (see *Storage Precautions* on page 16).

3.4 Hazards Associated with Elevated Temperature Exposure

Tesla Energy Products are designed to withstand operating ambient temperatures up to 50°C (122°F), with up to 100% operating humidity (condensing), and storage temperatures up to 60°C (140°F) and <95% relative humidity (non-condensing) for up to 24 hours without affecting the health of the unit.

Prolonged exposure of Tesla Energy Products to temperatures beyond that can drive battery cells into thermal runaway and result in a fire. Exposure of battery packs to localized heat sources such as flames could result in cell thermal runaway reactions and should be avoided.

3.5 Hazards Associated with Leaked Coolant

Thermal management of Tesla Energy Products is achieved via liquid cooling using a 50/50 mixture of ethylene glycol and water. A typical Powerpack battery unit includes about 26 L of coolant (Powerpack 2/2.5) or about 22 L of coolant (Powerpack 1). A typical Powerwall unit includes about 1.6 L of coolant (Powerwall 1) or about 2.3 L of coolant (Powerwall 2). The Powerpack Inverter (fully populated) includes about 11 L of coolant. A typical Megapack includes about 540 L of coolant. Mechanical damage of a Tesla Energy Product that has been installed could result in leakage of the coolant. The fluid is blue in color and does not emit a strong odor.

For information regarding the toxicological hazards associated with ethylene glycol, as well as ecological effects and disposal considerations, refer to the specific Safety Data Sheet (SDS) for battery coolant.

Extended exposure of a Tesla Energy Product to leaked coolant could cause additional damage to the product such as corrosion and compromise of protection electronics.

3.6 Hazards Associated with Leaked Refrigerant (Powerpack and Megapack Only)

The Powerpack and Megapack thermal management system includes 400 g and 7.6 kg respectively of R134a: 1,1,1,2-Tetrafluoroethane refrigerant in a sealed system. Mechanical damage of a Powerpack or Megapack could result in a release of the refrigerant. Such a release would appear similar to the emission of smoke.

For information regarding the toxicological hazards associated with R134a, as well as ecological effects and disposal considerations, refer to the specific Safety Data Sheet (SDS) for R134a.

3.7 Hazards Associated with Leaked Electrolyte

The electrolyte within constituent cells includes a volatile hydrocarbon-based liquid and a dissolved lithium salt (which is a source of lithium ions) such as lithium hexafluorophosphate. The electrolyte in Tesla Energy Products' cells is largely absorbed in electrodes within individual sealed cells. The electrolyte reacts with those materials and is consumed during normal operation of the batteries. As such, the absence of free liquid electrolyte makes it impractical to report the volume of electrolyte within Tesla Energy Products.

The possibility of a spill of electrolyte from Tesla Energy Products is very remote. Electrolyte can be extracted from a single cell using a centrifuge, or under some extreme abuse conditions such as a severe crush. However, it is very difficult to mechanically damage cells in such a way as to cause leakage of electrolyte. Even if a single cell were damaged in a manner that could cause electrolyte leakage, it is extremely difficult to cause a leak from more than a few cells due to any incident. Furthermore, cells are connected into modules which are placed within a sealed steel compartmentalized enclosure. Each compartment has the capacity to contain liquid from a large number of individual cells. For the electrolyte liquid to come into contact with a user of a Tesla Energy Product, the external enclosure, the Pod/battery module enclosure, and the cell would have to be severely mechanically damaged. As such, Tesla Energy Products are deemed not to pose a liquid electrolyte release hazard.

Any released electrolyte liquid is likely to evaporate rapidly, leaving a white salt residue. Evaporated electrolyte is flammable and will contain alkyl-carbonate compounds. Leaked electrolyte is colorless and characterized by a sweet odor. If an odor is obvious, evacuate or clear the surrounding area and ventilate the area.

⚠ **WARNING:** AVOID CONTACT WITH ELECTROLYTE.

Leaked electrolyte solution is flammable and corrosive / irritating to the eyes and skin. If a liquid is observed that is suspected electrolyte, ventilate the area and avoid contact with the liquid until a positive identification can be made and sufficient protective equipment can be obtained (eye, skin, and respiratory protection). Chemical classifier strips can be used to identify the spilled liquid (electrolyte will contain petroleum/organic solvent and fluoride compounds).

In case of an electrolyte leak, the following protective equipment is recommended: an air purifying respirator with organic vapor/acid gas cartridges, safety goggles or a full-face respirator, and safety gloves (Butyl rubber or laminated film (e.g., Silver Shield)). Protective clothing should be worn. Use a dry absorbent material to clean up a spill.

NOTE: An acceptable exposure concentration of electrolyte has not been identified by the American Council of Governmental Industrial Hygienists (ACGIH). In case of electrolyte leakage from the battery, the oral (rat) LD50 is greater than 2 g/kg (estimated).

3.8 Hazards Associated with Vented Electrolyte

Lithium-ion cells are sealed units, and thus under normal usage conditions, venting of electrolyte should not occur. If subjected to abnormal heating or other abuse conditions, electrolyte and electrolyte decomposition products can vaporize and be vented from cells. Accumulation of liquid electrolyte is unlikely in the case of abnormal heating. Vented gases are a common early indicator of a thermal runaway reaction – an abnormal and hazardous condition.

If gases or smoke are observed escaping from a Tesla Energy Product, evacuate the area and notify a first responder team and/or the local fire department. Gases or smoke exiting a lithium-ion battery pack are likely flammable and could ignite unexpectedly as the condition that led to cell venting may also cause ignition of the vent gases. A venting Tesla Energy Product should only be approached with extreme caution by trained first responders equipped with appropriate personal protective equipment (PPE), as discussed in *Firefighter PPE* on page 13.

Cell vent gas composition will depend upon a number of factors, including cell composition, cell state of charge, and the cause of cell venting. Vent gases may include volatile organic compounds (VOCs) such as alkyl-carbonates, methane, ethylene, and ethane; hydrogen gas; carbon dioxide; carbon monoxide; soot; and particulates containing oxides of nickel, aluminum, lithium, copper, and cobalt. Additionally, phosphorus pentafluoride, POF3, and HF vapors may form.

WARNING: AVOID CONTACT WITH VENTED GASES.

Vented gases may irritate the eyes, skin, and throat. Cell vent gases are typically hot; upon exit from a cell, vent gas temperatures can exceed 600°C (1,110°F). Contact with hot gases can cause thermal burns. Vented electrolyte is flammable and may ignite on contact with a competent ignition source such as an open flame, spark, or a sufficiently heated surface. Vented electrolyte may also ignite on contact with cells undergoing a thermal runaway reaction.

4.1 Firefighting Measures

⚠ **CAUTION:** In the event of a response to a Tesla product fire or hazardous event, contact Tesla immediately for technical guidance. Response should only be performed by trained professionals.

To create a significant fire in Tesla Energy Products, the enclosure of the battery unit needs to be subject to an extreme external event, such as direct exposure to a large prolonged fire or severe physical impact. A single cell thermal runaway does not propagate to neighboring cells as demonstrated in testing per UL and IEC standards. In the event of a fire, rigorous full-scale fire testing has shown that Tesla Energy Products perform in a safe and controlled manner, consuming themselves slowly without explosive bursts, deflagrations, or unexpected hazards, and without propagating to neighboring enclosure units. These claims have been validated through large-scale fire testing, with available third-party reports.

4.1.1 Responding to a Venting Tesla Energy Product

Smoke emanating from a Tesla Energy Product can be an indication of an abnormal and hazardous condition. Battery thermal runaway fires are preceded by a period of smoke. The smoke is likely flammable and may ignite at any time. If fire or smoke is observed emanating from a Tesla Energy Product at any time, the following should be performed:

1. If possible, shut off the unit/system (see *Shutting Down in an Emergency* on page 14)
2. Evacuate the area
3. Notify appropriately trained first responders, the local fire department, and any appointed subject matter expert (SME) if available

⚠ **WARNING:** When responding to a fire event with the **Powerpack System**, do not approach the Powerpack units from the front (door-side). Perform all incident response from the sides or rear of the unit. Do not attempt to open the enclosure door or come in contact with the unit. Per testing results, a Powerpack fire will not propagate to neighboring Powerpacks.

⚠ **WARNING:** When responding to a fire event with **Megapack**, do not approach the unit and attempt to open any doors. The doors are designed to remain shut, and built-in deflagration vents in the roof of the unit will vent any smoke and flame out of the top of the unit and front thermal system intake louvers. Per testing results, a Megapack fire will not propagate to neighboring Megapacks.

The Tesla Energy Product should then be monitored for evidence of continued smoke venting. If a fire develops and visible flames appear, it is recommended to apply water spray to neighboring battery enclosures and exposures (see *Defensive Firefighting* on page 13), rather than directly onto the burning unit. Applying water directly to the affected enclosure will not stop the thermal runaway event, as the fire will be located behind several layers of steel material, and direct application of water has shown to only delay the eventual combustion of the entire unit. The door(s) should not be opened in such an event. Testing has shown that a thermal runaway event in a single Powerpack or Megapack does not propagate to a neighboring enclosure, even without the application of water or other suppression sources, but water can be used to further mitigate the hazard spread to exposures and surroundings.

Water spray has been deemed safe as an agent for use on exposed Tesla Energy Products. Water is considered the preferred agent for suppressing lithium-ion battery fires. Water has superior cooling capacity, is plentiful (in many areas), and is easy to transport to the seat of the fire. Gaseous agents such as CO2, Halon, or dry chemical suppressants may temporarily suppress flaming of lithium-ion battery packs, but they will not cool lithium-ion batteries and will not limit the propagation of cell thermal runaway reactions. Metal fire suppressants such as LITH-X, graphite powder, or copper powder are not appropriate agents for suppressing fires involving lithium-ion battery packs as they are unlikely to be effective.

If water is used directly on the enclosure that is burning, electrolysis of water (splitting of water into hydrogen and oxygen) may contribute to the flammable gas mixture formed by venting cells, burning plastic, and burning of other combustibles.

A battery fire may continue for several hours and it may take 24 hours or longer for the battery pack to cool after it has been fully consumed by a thermal runaway event. A lithium-ion battery fire that has been seemingly extinguished can flare up again if all cells have not been consumed due to the exothermic reaction of constituent materials from broken or damaged cells, or unburnt cells. Allow the battery pack to fully consume itself and then cool the burned mass by flooding with water. After all fire and smoke has visibly subsided, a thermal imaging camera can be used to actively measure the temperature of the unit.

4.1.2 Defensive Firefighting

Tesla's recommendation is to fight a Tesla Energy Product fire defensively. The fire crew should maintain a safe distance and allow the battery to burn itself out. Fire crews should utilize a fog pattern to protect neighboring units or exposures or control the path of smoke. A single one-and-three-quarter inch (~5cm) hand line has shown to be sufficient. Applying water directly on the burning unit will only delay the burn and not suppress it. A battery fire may continue for several hours and may result in multiple flare-up events due to the way thermal runaway propagates throughout the enclosure. It may take 24 hours or longer for the battery pack to cool once completely consumed.

4.1.3 Firefighter PPE

Firefighters should wear self-contained breathing apparatus (SCBA) and fire protective turnout gear. Cells or batteries may flame or leak potentially hazardous organic vapors if exposed to excessive heat, fire or over voltage conditions. These vapors may include volatile organic compounds (VOCs), hydrogen gas, carbon dioxide, carbon monoxide, soot, and particulates containing oxides of nickel, aluminum, lithium, copper, and cobalt. Additionally, phosphorus pentafluoride, POF3 and HF vapors may form.

⚠ **WARNING:** Shutting off power to a Tesla Energy Product does not de-energize the battery, and a shock hazard may still be present.

⚠ **WARNING:** If smoke or fire is visible, do not approach the product or open any of its doors.

To shut off the Powerpack System, Megapack, or Powerwall in an emergency:

5.1 Powerpack System

1. If an external E-stop button or remote shutdown contact to Powerpack is present, engage it.
2. If Powerpack is serviced upstream by an external AC breaker or disconnect, open the breaker or disconnect.
3. Only if safe to do so, open the DC disconnect switch on the inverter door.

5.2 Megapack

1. If an external E-stop button or remote shutdown contact to Megapack is present, engage it.
2. If Megapack is serviced upstream by an external AC breaker or disconnect, open the breaker or disconnect.
3. Only if safe to do so, open the customer interface bay door to access the AC breaker, remove the DC lockout key, and apply Lock Out, Tag Out (LOTO) if needed.

5.3 Powerwall

1. If an E-Stop button is present, engage the E-Stop.
2. Open the AC disconnect installed upstream of the system.

6.1 First Aid Measures

6.1.1 Electric Shock / Electrocution

Seek immediate medical assistance if an electrical shock or electrocution has occurred (or is suspected).

6.1.2 Contact with Leaked Electrolyte

The constituent battery cells are sealed. Contents of an open (broken) constituent battery cell can cause skin irritation and/or chemical burns. If materials from a ruptured or otherwise damaged cell or battery contact skin, flush immediately with water and wash affected area with soap and water. If a chemical burn occurs or if irritation persists, seek medical assistance.

For eye contact, flush with significant amounts of water for 15 minutes without rubbing and see a physician at once.

6.1.3 Inhalation of Electrolyte Vapors

If inhalation of electrolyte vapors occurs, move person into fresh air. If not breathing give artificial respiration and seek immediate medical assistance.

6.1.4 Vent Gas Inhalation

The constituent battery cells are sealed and venting of cells should not occur during normal use. If inhalation of vent gases occurs, move person into fresh air. If not breathing give artificial respiration. Seek immediate medical assistance.

7.1 Storage Precautions

Powerpack systems, Powerwalls, and sub-assemblies should be stored in approved packaging prior to installation. Megapack does not include packaging and can be stored as-shipped with a tarp.

Do not store Tesla Energy Products in a manner that allows terminals to short circuit (do not allow the formation of an electrically-conductive path).

Elevated temperatures can result in reduced battery service life. Tesla Energy Products can withstand ambient temperatures of -40°C to 60°C for up to 24 hours. However, Tesla Energy Products stored for longer than one month should be stored at ambient temperatures between -20°C and 30°C (-4°F and 86°F), at humidity <95%, and protected from condensation. Storing at temperatures outside the recommended range can result in degradation of product lifetime. Do not store Tesla Energy Products near heating equipment.

Ideally, a Tesla Energy Product should be stored at 50% state of charge (SOC) or less. Tesla Energy Products should not be stored for extended periods either at a full SOC or completely discharged since both conditions adversely impact battery life. Tesla Energy Products should not be stored untended for longer than twelve months since battery service life likely will be adversely impacted.

The storage area should be protected from flooding.

Long-term storage areas should be compliant with the appropriate local fire code requirements.

Acceptable storage density of battery packs and storage height of battery packs will be defined by the local authority having jurisdiction (AHJ). Requirements and limits will be based upon a number of factors including the structural and fire protection characteristics of the storage area and recommendations for fire protection promulgated by the National Fire Protection Association (NFPA) and similar organizations. At the time of this writing, no standard Commodity Classification has been defined for lithium-ion cells or battery packs (see 2016 NFPA 13: Standard for the Installation of Sprinkler Systems). Tesla products only have a 30-40 % state of charge (SOC) while in storage which reduces the energy impact on fire occurrences. As an example of the reduced energy, the 30% level has been determined to be acceptable for air flight shipping based upon extensive testing and analysis in conjunction with the FAA. Tesla recommends treating lithium-ion cells and batteries in packaging as equivalent to a Group A Plastic Commodity.

8.1 Handling, Storage, and Transportation of Damaged Tesla Energy Products

If the event of damage to a Tesla Energy Product, contact Tesla immediately.

If a Tesla Energy Product has been damaged (battery enclosure has been dented or compromised), it is possible that heating is occurring that may eventually lead to a fire. Damaged or opened cells/batteries can result in rapid heating (due to exothermic reaction of constituent materials), the release of flammable vapors, and propagation of self-heating and thermal runaway reactions to neighboring cells.

Before handling or transporting a damaged Tesla Energy Product, wait at least 24 hours. Smoke may be an indication that a thermal reaction is in progress. If no smoke, flame, sign of coolant leakage, or signs of heat has been observed for 24 hours, the Tesla Energy Product may be disconnected and moved to a safe location. To obtain specific instructions for evaluating, disconnecting, and preparing a damaged Tesla Energy Product for transport, please contact the Tesla Service team.

A damaged Tesla Energy Product should be monitored during storage for evidence of smoke, flame, sign of coolant leakage, or signs of heat. If full-time monitoring of the Product is not possible (for example during extended storage), the Product should be moved to a safe storage location.

A safe storage location for a damaged battery will be free of flammable materials, accessible only by trained professionals, and 50 feet (15m) downwind of occupied structures. For example, a fenced, open yard may be an appropriate safe location. DO NOT STORE DAMAGED TESLA ENERGY PRODUCTS ADJACENT TO UNDAMAGED TESLA ENERGY PRODUCTS. It is possible that a damaged battery may sustain further damage during transportation and may lead to a fire. To further reduce this risk, handle the damaged battery with extreme caution.

9.1 Disposal Procedures

Tesla Energy lithium-ion batteries do not contain heavy metals such as lead, cadmium, or mercury.

The procedures below apply to Tesla Energy Products at the end of their life (EOL). For disposal after a fire or thermal event, please contact Tesla for guidance.

Tesla Energy Products should be disposed of or recycled in accordance with local, state, and federal regulations. Note that regulations regarding disposal of batteries vary by jurisdiction. In the United States, batteries are classified as Universal Waste, and in addition, many individual states have specific regulations regarding disposal of battery packs. For example, in California, all batteries must be taken to a Universal Waste handler or authorized recycling facility.

Tesla Energy Products contain recyclable materials. Tesla strongly encourages recycling. At this time, when a Tesla product must be decommissioned, we request that it be returned to a Tesla facility for disassembly and further processing.

If disposing without return to Tesla, please consult with local, state and/or federal authorities on the appropriate methods for disposal and recycling. Tesla has confirmed that at least two recycling processors are capable of recycling Tesla battery products in North America and three in the Europe, the Middle East and Africa (EMEA) region.

10.1 Maintenance or Repair

Tesla requests all maintenance, service, and repairs of Tesla Energy Products be performed by Tesla-approved service personnel or Tesla authorized repair facilities. This includes all proactive and corrective maintenance over the lifetime of a Tesla Energy Product. Improper service or repair by personnel not approved nor authorized by Tesla could void the product's Limited Warranty, lead to failure of the Tesla Energy product, and potentially result in development of an unsafe condition and unexpected electrical events.

11.1 Transport Information

Lithium-ion batteries are regulated as Class 9 Miscellaneous dangerous goods (also known as "hazardous materials") pursuant to the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air, International Air Transport Association (IATA) Dangerous Goods Regulations, the International Maritime Dangerous Goods (IMDG) Code, European Agreements concerning the International Carriage of Dangerous Goods by Rail (RID) and Road (ADR), and applicable national regulations such as the USA's hazardous materials regulations (see 49 CFR 173.185). These regulations contain very specific packaging, labeling, marking, and documentation requirements. The regulations also require that individuals involved in the preparation of dangerous goods for transport be trained on how to properly package, label, mark and prepare shipping documents.

UN Number	3480
Proper Shipping Name	Lithium Ion Batteries
Hazard Classification	Class 9 Miscellaneous
Packing Group	N/A

NOTE: The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. TESLA, INC. makes no warranty, expressed or implied, with respect to this information.

Revision #	Date	Description
01	14-July-2015	ERG for Tesla Powerpack systems, Powerwalls, and Sub-assemblies
02	3-Sept-2015	Added part numbers, updated weights, voltages, and temperatures, clarified hazards associated with spilled electrolyte, updated storage requirements, updated warning label icons, updated packing group.
03	3-Oct-2016	Added part numbers, minor edits
04	30-June-2017	Added fire ground operations response for Powerpack 2, including approach; exhaust gases; and safety. Updated general product information and contacts, as well as part numbers and reman numbers
05	22-Oct 2018	Reformatted for ease of use and translation; removed Confidential status; corrected phone number for CHEMTREC
06	27-Feb-2019	Updated storage conditions and firefighting measures section to provide further context on response tactics to Tesla Energy Product fires. Adjusted formatting, included graphics for warnings and notices.
07	17-Dec-2019	Updates to contact information (Tesla contact), product specs section, leaked electrolyte section, and inclusion of Megapack throughout the document.
1.8	March 11, 2020	Fixed footer; fixed styles.
2.0	July 8, 2020	• Updated formatting • Updated product specs • Updated contact info • Corrected elevated temperature topic to include Megapack • Corrected name of Tesla Inverter to Powerpack Inverter • Separated information on shutting down into its own topic for visibility • Reorganized the Firefighting section for clarity • Updated language on re-ignition risks

2.1	August 28, 2020	• Added spare parts specifications:
		  ◦ Megapack battery module
		  ◦ Powerpack Pod module

Attachment F

Fire Safety Plan

TABLE OF CONTENTS

1. PROJECT SUMMARY

Condor Energy Storage, LLC project is a battery energy storage system facility using safe, reliable, and commercially proven lithium-ion batteries to store electrical energy. The Condor Energy Storage, LLC project will be a 200 MW system located in City of Grand Terrace, California. This plan is based on an outdoor energy storage solution. Batteries will be installed at grade to accommodate net 200 MW power output.

This Fire Safety Plan describes the approach to hazard mitigation analysis, large scale fire testing, battery provider's fire protection features, and lists the applicable codes and standards that will be followed for the design of the facilities fire protection system.

2. CODE BASIS

2.1.State Requirements

The effective building code as adopted by the State of California is the 2019 edition of the California Building Code (CBC).

Buildings	California Building Code (CBC) – 2019 Edition
Structural	California Building Code (CBC) – 2019 Edition
Mechanical	California Mechanical Code (CMC) – 2019 Edition
Plumbing	California Plumbing Code (CPC) – 2019 Edition
Electrical	California Electrical Code (CEC) – 2019 Edition
Fire	California Fire Code (CFC) – 2019 Edition

2.2.County Requirements

The effective building code as adopted by the San Bernadino County is the 2019 edition of the California Building Code (CBC) as shown under State Requirements.

2.3.Applicable Codes and Standards

The Code Basis for this project is recommended to be the above reference codes, and additional standards listed below:

1. National Fire Protection Association (NFPA)
    a. NFPA 10, Standard for Portable Fire Extinguishers (2018)
    b. NFPA 70, National Electrical Code (2020)
    c. NFPA 72, Fire Alarm and Signaling Code (2019)
    d. NFPA 170, Standard for Fire Safety and Emergency Symbols (2018)
2. Underwriters Laboratories (UL)
    a. UL 9540, Standard for Safety of Energy Storage Systems and Equipment (2020)
    b. UL 9540A, Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems Standard (2019)

3. GENERAL DESCRIPTION OF EQUIPMENT

3.1.Batteries

Battery technology design for outdoor installation will be used at this facility. Batteries will be installed at grade in an industrial zoned area. See drawings SK101 and EXS101 for additional layout details.

4. GENERAL CRITERIA

4.1.Large Scale Fire Testing

Large scale fire testing will be performed by the battery OEM per UL 9540A. NFPA 855 will be reviewed, however, all requirements will not be followed. Large Scale Fire Testing will take precedence.

4.2.Battery OEM-provided Fire Protection Features

Battery OEM conducts extensive analysis and testing to assess hazardous conditions related to battery storage products. Battery technology includes multiple layers of protection to mitigate hazardous electrical and fire conditions. The following safety features are included in battery technology and have been tested and validated during UL9540A testing:

- **Deflagration Prevention:** Deflagration prevention will be achieved by use of deflagration vents, deflagration panels, or "sparker" technology.
- **Thermal Runaway Propagation Prevention:** Batteries will be constructed with materials proven to prevent thermal runaway propagation between via large scale fire testing.

If battery technology does not contain built-in smoke, gas, or fire detection or suppression features, then external fire detection system will be installed.

4.3.Hazard Mitigation Analysis Approach

Fire Suppression Systems: A fire suppression system will not be installed at this facility. Per 9540A testing from battery OEM, water injection is not required to prevent thermal runaway propagation.

Fire Detection and Alarm System: If fire detection and alarm features are not integral to the battery OEM design, fire detection and alarm system will be installed per NFPA 72. Recommendations from the battery OEM will be considered including optical and infrared technologies with remote monitoring capabilities.

Fire Hydrants: See SK101for a layout of the existing fire hydrants around the site. The existing fire hydrants do not provide full coverage per the California Fire Code. New fire hydrants will not be installed where approval requested from and approved by the Fire Official.

Life Safety: A Life Safety Evaluation will be prepared in accordance with the California Building Code.

Fire Truck Access: Fire truck access will be provided within the site. Road widths of 20 feet for one-way roads, and turns with the minimum 19 feet turning radius per the San Bernardino Fire Prevention Standard A1 – Fire Apparatus Access Road Design, Construction and Maintenance. See drawings SK101 for additional layout details.

Battery OEM-provider Hazard Mitigation: The battery technology will have pre-installed Hazard Mitigation protection. See 4.2 for additional details.

Hazard Mitigation Analysis: Hazard mitigation analysis will be performed per CFC Section 1206.

4.4.Permits

Per California Fire Code Section 105.7.2, a construction permit shall be obtained.

4.5.First Responder Training

First Responder Training will be developed in conjunction with the battery OEM and System Integrator.

4.6.Variance and Approvals from Fire Official

The following variances will be requested by the Owner to the Fire Official:

- CFC Section 1206.2.5 – barriers will not be provided between the batteries. Fork lifts in this area will be dedicated for battery maintenance and they need clear access to the batteries.

The following approvals will be requested by the Owner to the Fire Official:

- CFC Section 1206.2.8.3 – approval for battery array installation with spacing less than 3 ft will be requested. Large scale fire testing will prove that spacing less than 3 ft is acceptable and will not result in thermal runaway propagation.

BURNS McDONNELL

CREATE AMAZING.

Attachment G

Calculations

Thermal Calculations
point source model

Fisher Report Summary

Peak	Peak	Avg	Avg	
20 ft	**30 ft**	**20 ft**	**30 ft**	
28.8	9.8	19.1	4.9	**q, heat flux, KW/m2**
6.096	9.144	6.096	9.144	**R, distance, meters**
0.35	0.35	0.35	0.35	**Pr, energy fraction released as radiation, value conservative as per SFPE 1999**
38,426	29,420	25,484	14,710	**P, peak heat release rate, KW, calculated**

Distance to estimates				
5	5	5	5	**Heat Flux, kw/m2**
14.6	12.8	11.9	9.1	**Distance, m**
48.0	42.0	39.1	29.7	**Distance, ft**
10	10	10	10	**Heat Flux, kw/m2**
10.3	9.1	8.4	6.4	**Distance, m**
33.9	29.7	27.6	21.0	**Distance, ft**
12.5	12.5	12.5	12.5	**Heat Flux, kw/m2**
9.3	8.1	7.5	5.7	**Distance, m**
30.4	26.6	24.7	18.8	**Distance, ft**
15	15	15	15	**Heat Flux, kw/m2**
8.4	7.4	6.9	5.2	**Distance, m**
27.7	24.2	22.6	17.1	**Distance, ft**
20	20	20	20	**Heat Flux, kw/m2**
7.3	6.4	6.0	4.5	**Distance, m**
24.0	21.0	19.5	14.8	**Distance, ft**
25	25	25	25	**Heat Flux, kw/m2**
6.5	5.7	5.3	4.0	**Distance, m**
21.5	18.8	17.5	13.3	**Distance, ft**
30	30	30	30	**Heat Flux, kw/m2**
6.0	5.2	4.9	3.7	**Distance, m**
19.6	17.1	16.0	12.1	**Distance, ft**

Battery Malfunction Flammability Analysis: Cell/Module UL9540A Testing

CGA P-23 Method

Component	Mole %	MW	Wt %	LEL	NFN2: Non-Flamm in Nitrogen*	Mole% x NFN2	Mole Frac/LFL	HHV , btu/scf
H2	26	2	2.41	4.0	5.7	4.56	6.50	343
N2	0	28	0.00	-			0.00	0
CO2	0	44	0.00	-			0.00	0
CO	51	28	66.23	12.5	20	2.55	4.08	0
Ch4	10	16	7.42	5	14.3	0.70	2.00	1089
C2	4	30	5.57	3	12	0.33	1.33	1783
C3	9	44	18.37	2.1	6.5	1.38	4.29	1783
C4	0	58	0.00	1.8	5.6	0.00	0.00	1783
C5+	0	72	0.00	1.4	4.4	0.00	0.00	1783
Total	100	21.6	100		Q factor =	9.53		429.9
Frac flamm	100.00		100.00		LFL - >		5.49	

* From CGA P-23 Table 1

LFL estimated based on Le Chatelier's formula

Tesla Battery System: Based on 9540A Cell and Module Level test by TUV
NCA Toxic Emission Calcs: during offgassing prior to combustion

Pollutant	Vol %	Volume (Liter)	MW (g/mol)	Single Cell Emissions (grams)	Single Cell Rate (g/s)	Single Cell Rate (lbs/hr)	Multicell Rate (g/s)	Multicell Rate (lbs/hr)	MegaPack Rate (g/s)	MegaPack Rate (lbs/hr)
Primary Compounds										
H2	26	1.9	2.0	0.2	0.0000	0.0003	0.0549	0.4359	2.6675	21.1710
CO	51	3.8	28.0	4.7	0.0013	0.0103	1.6462	13.0653	79.9594	634.5986
CO2	0	0.0	44.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CH4	10	0.7	16.0	0.5	0.0001	0.0012	0.1845	1.4639	8.9590	71.1035
C2H4	4	0.3	28.1	0.4	0.0001	0.0008	0.1296	1.0284	6.2937	49.9502
C2H6	0	0.0	30.1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C3H6	9	0.7	42.1	1.2	0.0003	0.0027	0.4368	3.4667	21.2161	168.3819
C3H8	0	0.0	44.1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C4	0	0.0	58.1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C5	0	0.0	72.2	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen	0	0.0	28.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	100.0	7.4	21.3	7.0	0.0019	0.0154	2.4570	19.5000	119.3400	947.1429
Trace compounds	**ppm**	**MW**								
HF	500	20.0		3.3E-03	9.1E-07	7.2E-06	1.2E-03	9.1E-03	0.0560	0.4444
HCL	1,000	36.4		1.2E-02	3.3E-06	2.6E-05	4.2E-03	3.3E-02	0.2038	1.6176
HCN	1,600	27.0		1.4E-02	3.9E-06	3.1E-05	5.0E-03	4.0E-02	0.2419	1.9198
Methanol	210	27.0		1.9E-03	5.2E-07	4.1E-06	6.5E-04	5.2E-03	0.0317	0.2520
Styrene	1	104.0		3.4E-05	9.5E-09	7.5E-08	1.2E-05	9.5E-05	0.0006	0.0046
Toluene	3,500	92.0		1.1E-01	2.9E-05	2.3E-04	3.7E-02	2.9E-01	1.8030	14.3096

Flammable concentrations based on cell level 9540A testing
Trace Toxic compounds based on highest range encounted by Tesla in cell and cabinet level testing
Loss of 7g per cell based on Tesla cell level thermal offgassing studies - only offgassing period prior to combustion
Assumes: Atmospheric Normal Temperature and Pressure (298.15K and 100.3 kpa)
Vol % and single cell emissions total provided by manufacturer
Standard temperature and pressure (STP) is defined as 0°C (273.15 K) and 1 atm of pressure

Number of cells in multicell event	1264	10% of a module
Time of event, minutes	60	1 hour
Number of cells in Megapack event	214,812	Entire Megapack
Time of event, minutes	210	3.5 hours
Temperature of release, C	50	

Temperature based on DNV testing prior to ignition, estimated value based on graphs of 50C

Combustion Components

as per Fisher Report

Component	PPM	Notes
Propane	2.2	
Methane	2.9	
CO	83	
CO2	680	
ethylene	2.5	
HF	0.5	
H2	14000	35% LEL, 4% is the LEL
NO2	0.7 mole fr	Estimated based on stoichiometric H2
Water	0.3 mole fr	Estimated based on stoichiometric H2

Smoke Generation From 9540A testing: Smoke Opacity Basis

9540A test results avg Smoke rate	0.68	m2/s
RV/RSP ratio	5.8	average of testing, Hekestad 1994
estimated smoke production, module	3.9	m3/s
Module flow rate, using NO2 density	7.4	kg/s
estimated production, per cell	0.0037	m3/s
Megapack smoke production	805	m3/s
Fraction	0.19	based on timing of thermal activity module/megapack
Assume fraction at any one time	153	m3/s
Assume NO2 density, g/L	1.88	
Flow rate of fraction, kg/s	287	
Low Rate, kg/s, assume 10%	29	
Duration of test, min, module	40	
Duration of MegaPack test, min	210	
Fraction at one time	0.19	
Area of smoke release, assumed size of megapack		
Area of megapack, top, ft2	122.9	
Equivelent dia, ft	12.5	
Fraction average coverage	0.5	
Equivelent dia, ft	8.8	
Equivelent dia, inches	106	

Use 900C as per testing low end temp

From 9540A testing: Smoke Yield estimated basis

Module Weight Loss		
Weight loss, kg	69.7	
Number of cells	1053	
Weight loss per cell, g	66	
Weight loss, Megapack, kg	14219	
Smoke Yield ratio	7.4	Based on NIST Technical Note 1453, high end of range
Total Smoke Yield Megapack, kg	105219	
Test duration, minutes	210	
Smoke rate, kg/s	8.35	

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1vert
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

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RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation, dispersion and cloud explosion - Flammable calculation
Concentration endpoint 1                          LFL mol%
Concentration endpoint 2                    1/2 LFL mol%
Concentration endpoint 3                    1/2 LFL mol%

Dispersion coefficient averaging time             1 min

Baker-Strehlow-Tang parameters

Fuel reactivity                                  High
Obstacle density                                 High
Flame expansion                                   3-D

Overpressure values

Overpressure endpoint 1                          3.00 psi
Overpressure endpoint 2                          1.00 psi
Overpressure endpoint 3                          1.00 psi

  NOTES:
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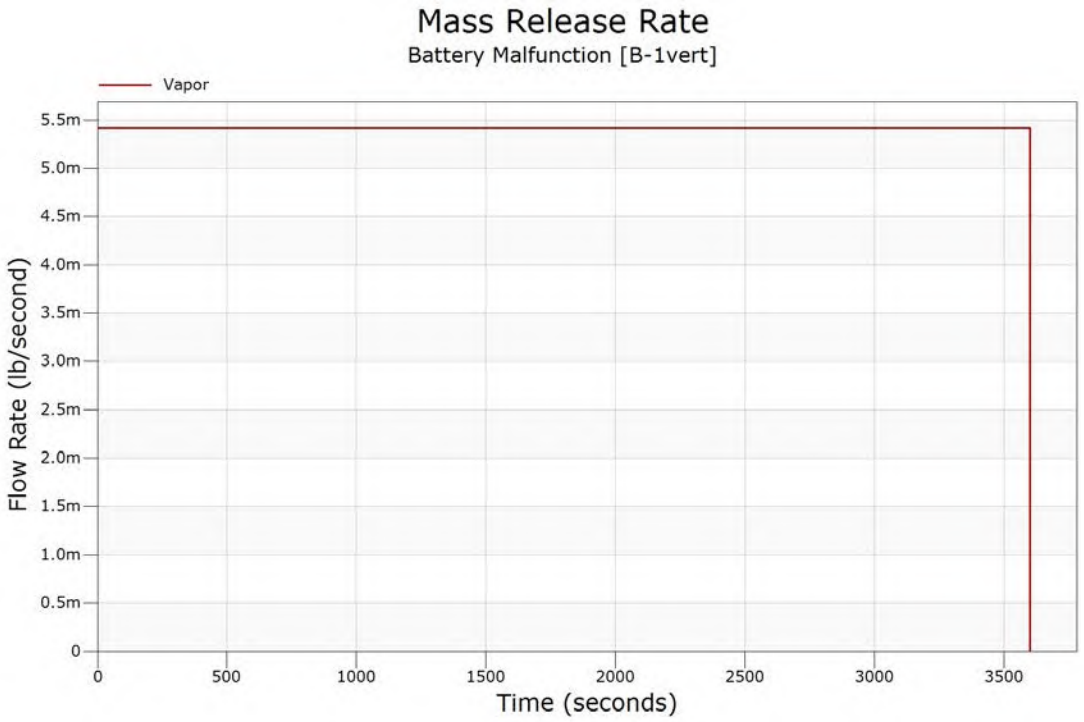
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Flowrate for Jet Fire [immediate ignition] = 0.5417999E-02 lb/sec.
Jet Fire [delayed ignition] = 0.5417999E-02 lb/sec.

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1vert]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Flammable Limits (Mole %) of Fluid Streams

Limit	Feed Stream	Momentum Jet Stream	Liquid Pool Stream
LFL	5.43	5.43	
UFL	33.27	33.27	
LBV		0.39 m/s	

Momentum Jet Dispersion

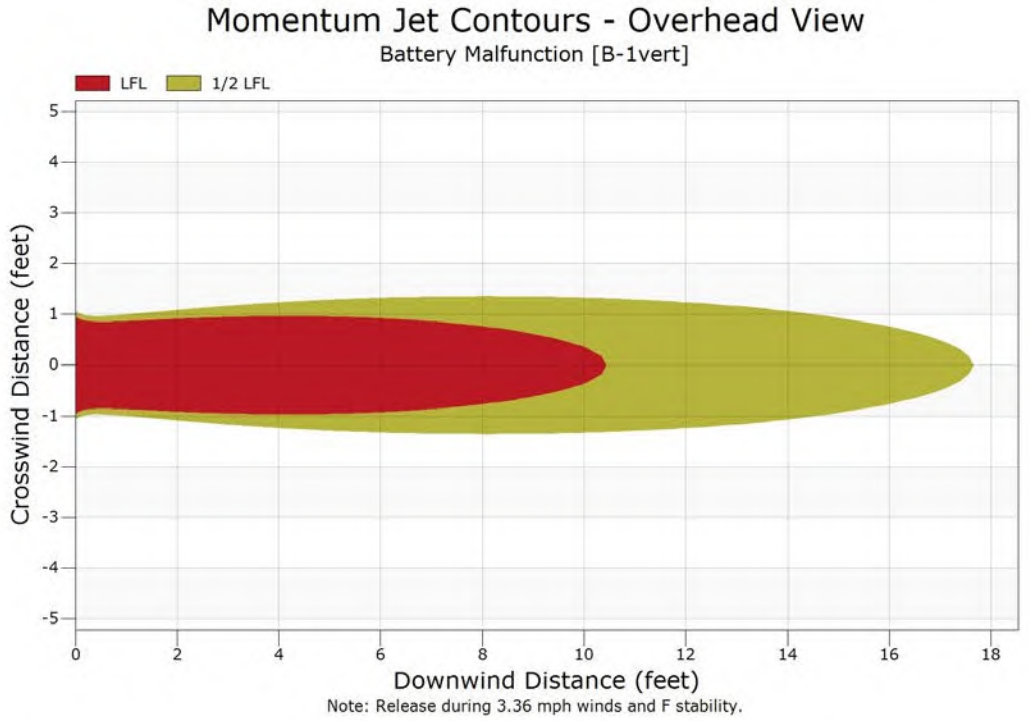
concentration limits

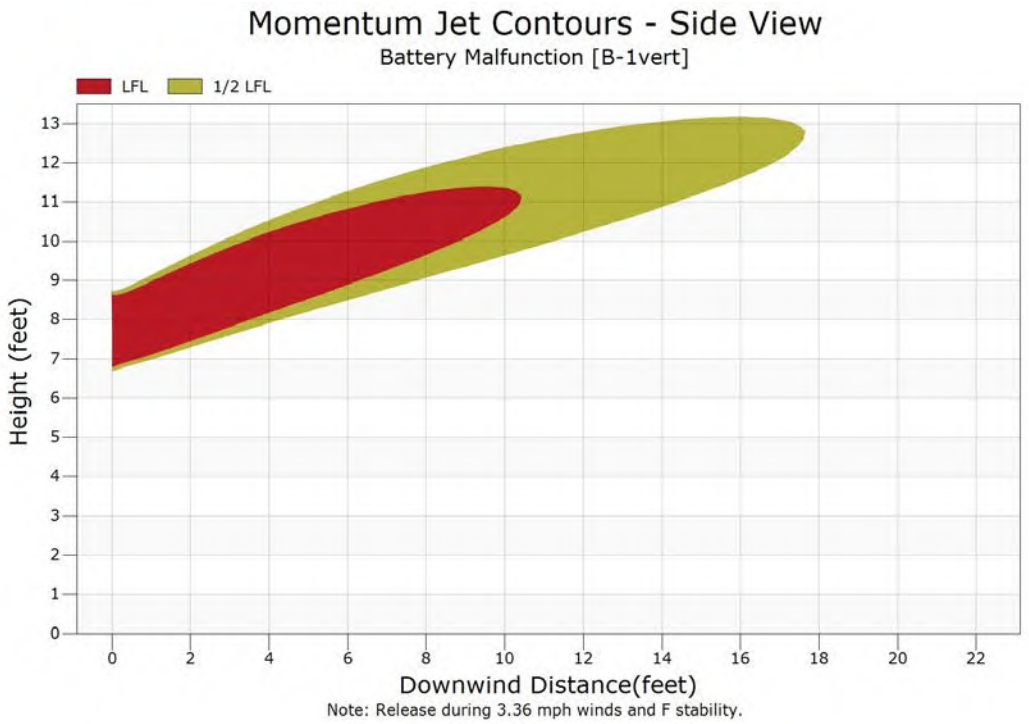
Endpoint 1 (highest) = 0.054276 mole fraction
Endpoint 2 (middle) = 0.027138 mole fraction
Endpoint 3 (lowest) = 0.027138 mole fraction

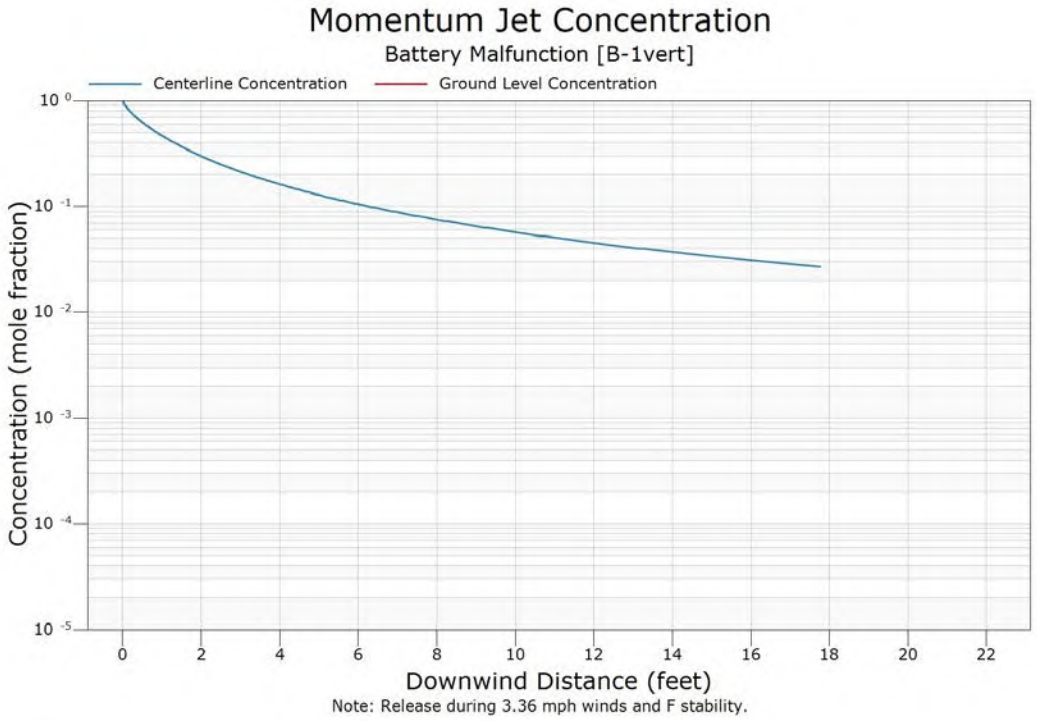
downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1.000000	0.000000	1.1	1.1	1.0	7.7
0.3	0.752273	0.000000	1.0	1.0	0.9	7.8
0.5	0.626005	0.000000	1.0	1.0	0.9	7.8
0.8	0.535606	0.000000	1.0	1.0	0.9	7.9
1.0	0.466592	0.000000	1.0	1.0	0.9	8.0
1.3	0.412142	0.000000	1.0	1.0	0.9	8.1
1.5	0.367693	0.000000	1.0	1.0	0.9	8.2
1.7	0.330699	0.000000	1.1	1.1	0.9	8.3
2.0	0.299584	0.000000	1.1	1.1	0.9	8.4
2.3	0.273057	0.000000	1.1	1.1	0.9	8.5
2.5	0.250294	0.000000	1.1	1.1	0.9	8.6
2.8	0.230566	0.000000	1.2	1.2	0.9	8.7
3.0	0.213360	0.000000	1.2	1.2	1.0	8.8
3.3	0.198131	0.000000	1.2	1.2	1.0	8.9
3.5	0.184698	0.000000	1.2	1.2	1.0	9.0
3.7	0.172729	0.000000	1.2	1.2	1.0	9.1
4.0	0.162003	0.000000	1.2	1.2	1.0	9.2
4.3	0.152309	0.000000	1.3	1.3	1.0	9.3
4.5	0.143674	0.000000	1.3	1.3	1.0	9.4
4.8	0.135714	0.000000	1.3	1.3	1.0	9.5
5.0	0.128455	0.000000	1.3	1.3	1.0	9.5
5.3	0.121922	0.000000	1.3	1.3	1.0	9.6
5.5	0.115893	0.000000	1.3	1.3	0.9	9.7
5.8	0.110404	0.000000	1.3	1.3	0.9	9.8
6.0	0.105263	0.000000	1.3	1.3	0.9	9.9
6.3	0.100460	0.000000	1.3	1.3	0.9	10.0
6.5	0.096089	0.000000	1.3	1.3	0.9	10.0
6.8	0.092000	0.000000	1.3	1.3	0.9	10.1
7.0	0.088189	0.000000	1.3	1.3	0.9	10.2
7.3	0.084652	0.000000	1.4	1.4	0.8	10.3
7.5	0.081311	0.000000	1.4	1.4	0.8	10.3
7.8	0.078198	0.000000	1.4	1.4	0.8	10.4
8.0	0.075310	0.000000	1.4	1.4	0.8	10.5
8.3	0.072575	0.000000	1.4	1.4	0.7	10.6
8.5	0.070010	0.000000	1.4	1.4	0.7	10.6

downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
8.8	0.067560	0.000000	1.4	1.4	0.7	10.7
9.0	0.065288	0.000000	1.4	1.4	0.6	10.8
9.3	0.063109	0.000000	1.3	1.3	0.6	10.8
9.5	0.061054	0.000000	1.3	1.3	0.5	10.9
9.8	0.059111	0.000000	1.3	1.3	0.4	11.0
10.0	0.057272	0.000000	1.3	1.3	0.4	11.0
10.3	0.055498	0.000000	1.3	1.3	0.2	11.1
10.5	0.053834	0.000000	1.3	1.3	0.0	11.2
10.8	0.052255	0.000000	1.3	1.3	0.0	11.2
11.0	0.050747	0.000000	1.3	1.3	0.0	11.3
11.3	0.049314	0.000000	1.3	1.3	0.0	11.3
11.5	0.047951	0.000000	1.3	1.3	0.0	11.4
11.8	0.046639	0.000000	1.3	1.3	0.0	11.5
12.0	0.045382	0.000000	1.2	1.2	0.0	11.5
12.3	0.044195	0.000000	1.2	1.2	0.0	11.6
12.5	0.043053	0.000000	1.2	1.2	0.0	11.6
12.8	0.041943	0.000000	1.2	1.2	0.0	11.7
13.0	0.040894	0.000000	1.2	1.2	0.0	11.8
13.2	0.039891	0.000000	1.1	1.1	0.0	11.8
13.5	0.038917	0.000000	1.1	1.1	0.0	11.9
13.8	0.037982	0.000000	1.1	1.1	0.0	11.9
14.0	0.037076	0.000000	1.1	1.1	0.0	12.0
14.3	0.036227	0.000000	1.0	1.0	0.0	12.1
14.5	0.035387	0.000000	1.0	1.0	0.0	12.1
14.8	0.034600	0.000000	1.0	1.0	0.0	12.2
15.0	0.033824	0.000000	0.9	0.9	0.0	12.2
15.3	0.033088	0.000000	0.9	0.9	0.0	12.3
15.5	0.032374	0.000000	0.9	0.9	0.0	12.3
15.7	0.031674	0.000000	0.8	0.8	0.0	12.4
16.0	0.031009	0.000000	0.8	0.8	0.0	12.4
16.3	0.030367	0.000000	0.7	0.7	0.0	12.5
16.5	0.029748	0.000000	0.6	0.6	0.0	12.5
16.8	0.029145	0.000000	0.6	0.6	0.0	12.6
17.0	0.028556	0.000000	0.5	0.5	0.0	12.6
17.3	0.027993	0.000000	0.4	0.4	0.0	12.7
17.5	0.027451	0.000000	0.2	0.2	0.0	12.7
17.8	0.026929	0.000000	0.0	0.0	0.0	12.8

	Endpoint (mole frac., mixture)	Downwind Distance (feet)	Approximate Time (seconds)
1	0.054276 (LFL)	10.4	3
2	0.027138 (1/2 LFL)	17.6	5
3	0.027138 (1/2 LFL)	17.6	5


Momentum Jet Contours - Overhead View
Battery Malfunction [B-1vert]
LFL
1/2 LFL
Crosswind Distance (feet)
5
4
3
2
1
0
-1
-2
-3
-4
-5
0
2
4
6
8
10
12
14
16
18
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction [B-1vert]
LFL
1/2 LFL
Height (feet)
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0
2
4
6
8
10
12
14
16
18
20
22
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1vert]
Centerline Concentration
Ground Level Concentration
Concentration (mole fraction)
10 0
10 -1
10 -2
10 -3
10 -4
10 -5
0
2
4
6
8
10
12
14
16
18
20
22
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

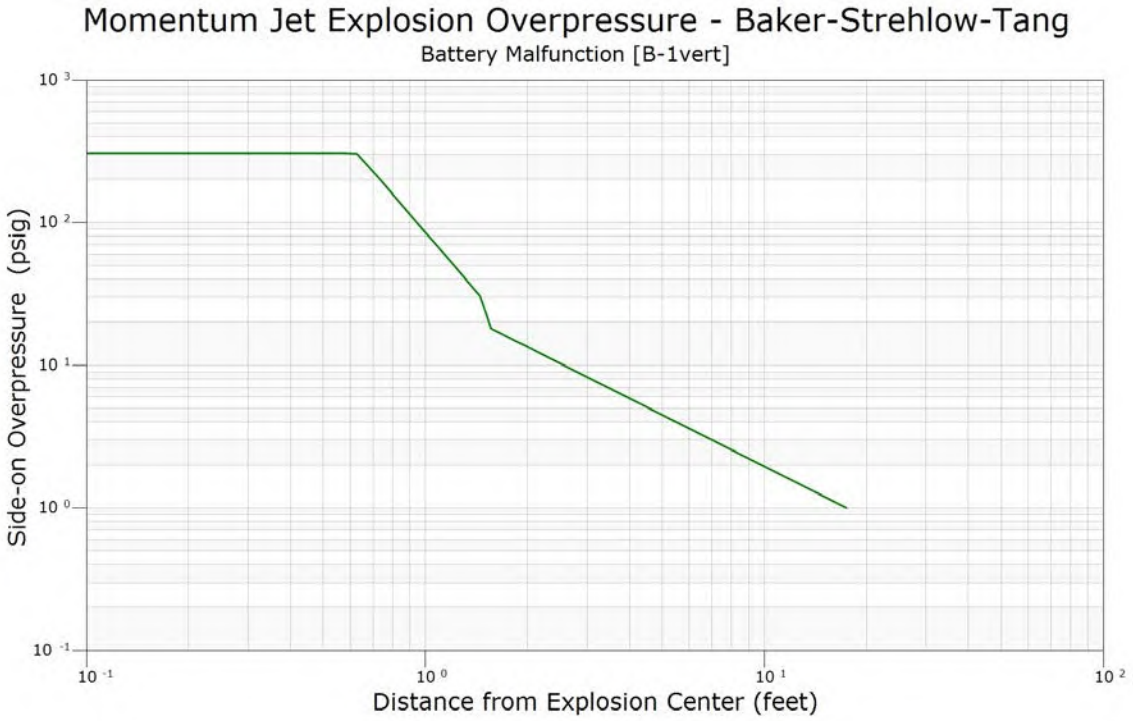
Momentum Jet Explosion

Fuel Reactivity: High Obstacle Density: High
Flame Expansion: 3-D Flame Speed: 5.20

Mass of released material involved in explosion: 0.0162488 lbs.

Distance from Center of Flammable Cloud (feet)	Overpressure (psi gauge)	Impulse (psi-s)
0.0	308.61	0.0152
0.4	308.61	0.0152
0.4	308.61	0.0141
0.5	308.61	0.0131
0.5	308.61	0.0122
0.5	308.61	0.0113
0.6	308.61	0.0105
0.6	305.51	0.0097
0.7	247.89	0.0090
0.7	201.14	0.0084
0.8	163.21	0.0078
0.9	132.43	0.0072
0.9	107.45	0.0067
1.0	87.19	0.0062
1.1	70.75	0.0058
1.2	57.40	0.0054
1.2	46.58	0.0050
1.3	37.79	0.0046
1.5	30.67	0.0043
1.6	18.05	0.0040
1.7	16.47	0.0037
1.8	15.04	0.0034
2.0	13.73	0.0032
2.1	12.53	0.0030
17.4	1.00	0.0004

The downwind distance to 3.00 psi is 14.8 feet
The downwind distance to 1.00 psi is 17.4 feet
The downwind distance to 1.00 psi is 17.4 feet


Momentum Jet Explosion Overpressure - Baker-Strehlow-Tang
Battery Malfunction [B-1vert]
Side-on Overpressure (psig)
10 3
10 2
10 1
10 0
10 -1
10 -1
10 0
10 1
10 2
Distance from Explosion Center (feet)

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1toxicCO
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   43 = CO        Carbon Monoxide
Concentration endpoint 1                      1200.0 ppm
Concentration endpoint 2                       500.0 ppm
Concentration endpoint 3                       350.0 ppm

Dispersion coefficient averaging time              1 min

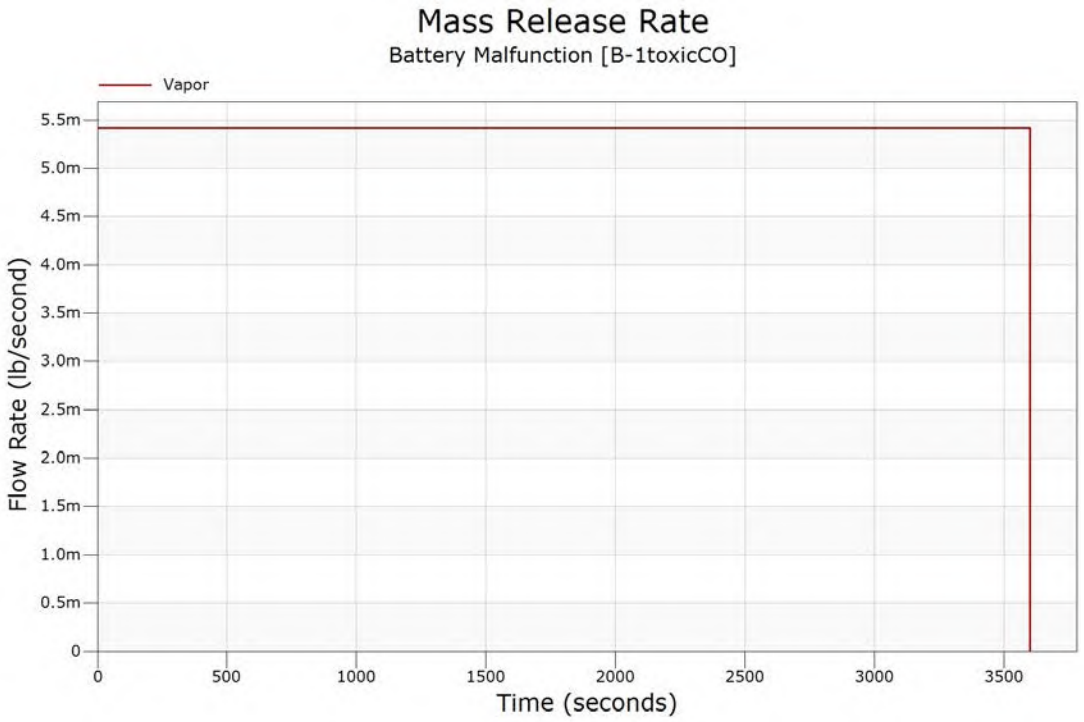

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1toxicCO]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

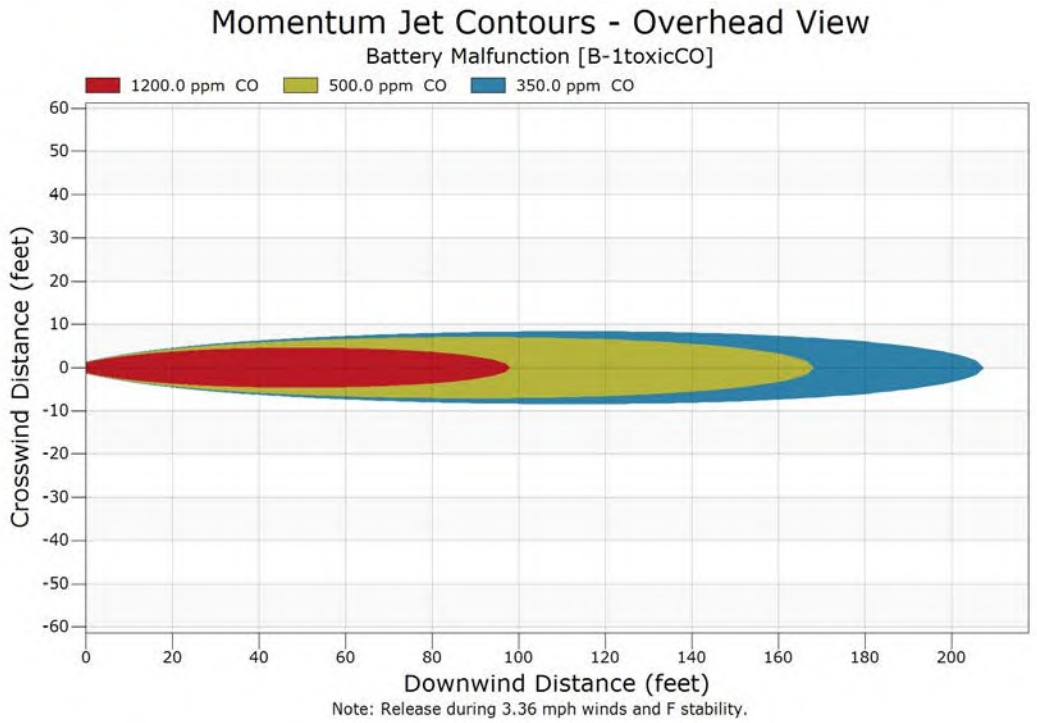
concentration limits

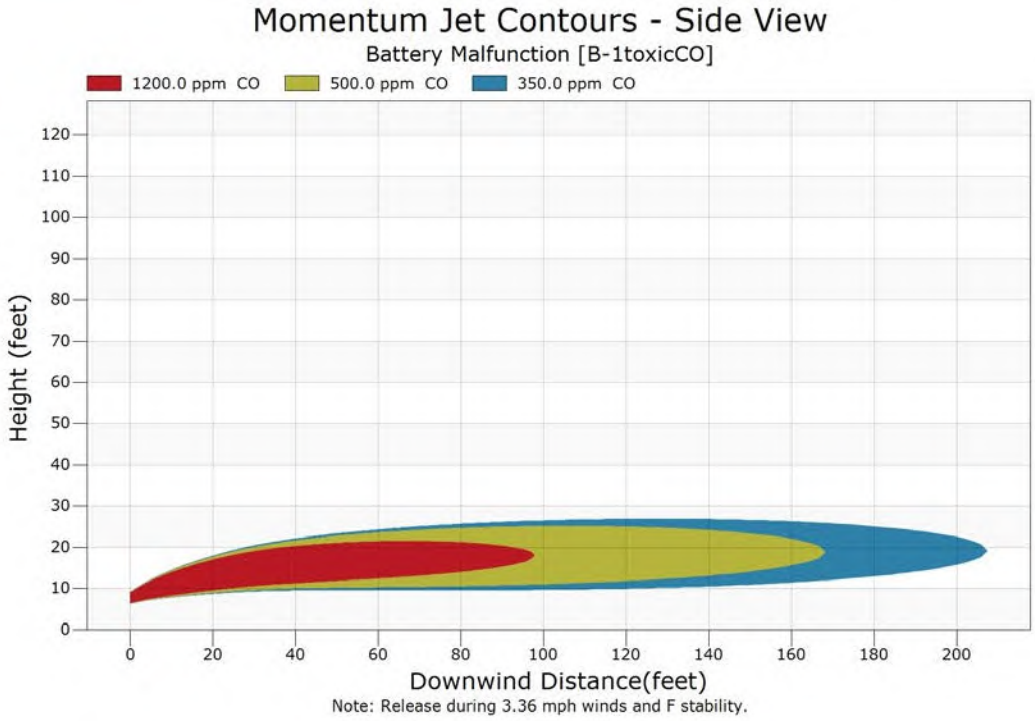
Endpoint 1 (highest) = 1200.0 ppm
Endpoint 2 (middle) = 500.0 ppm
Endpoint 3 (lowest) = 350.0 ppm

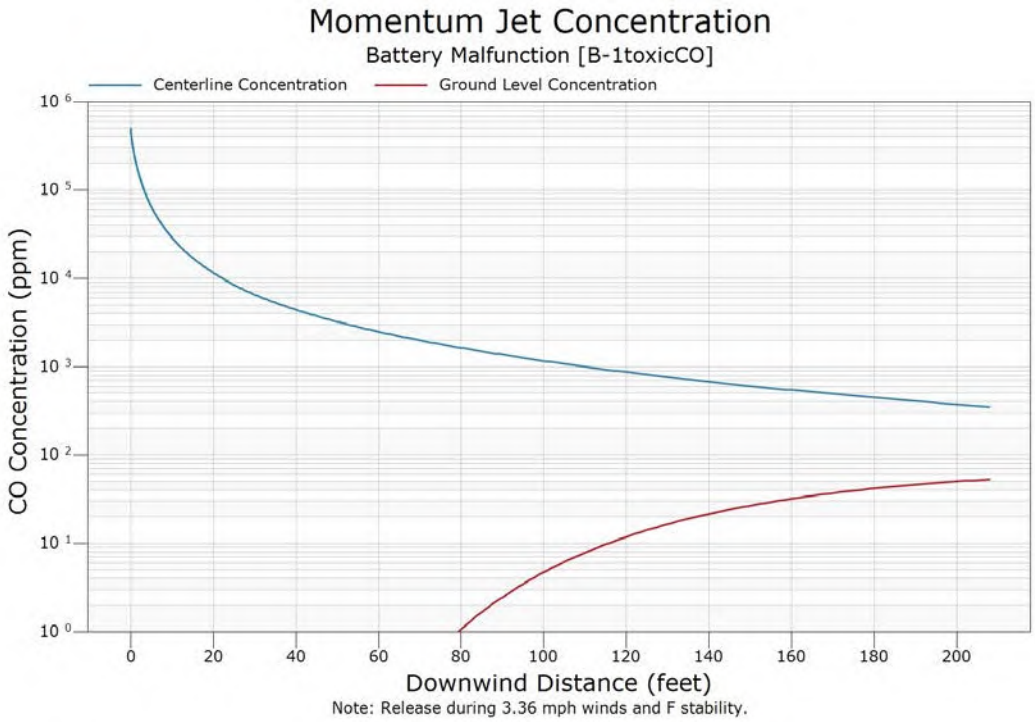
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	506656.000	0.000	1.5	1.5	1.4	7.7
5	65106.411	0.000	2.4	2.3	2.1	9.5
10	29013.440	0.000	3.2	3.1	2.8	11.0
15	17136.398	0.000	4.0	3.8	3.3	12.2
20	11570.560	0.000	4.6	4.3	3.7	13.2
25	8465.761	0.000	5.1	4.8	4.0	14.1
30	6565.454	0.000	5.6	5.2	4.2	14.8
35	5306.888	0.000	6.0	5.6	4.4	15.3
40	4415.335	0.001	6.3	5.9	4.5	15.8
45	3750.826	0.003	6.6	6.1	4.6	16.1
50	3233.824	0.011	6.9	6.3	4.6	16.4
55	2827.669	0.032	7.2	6.5	4.6	16.7
60	2494.633	0.082	7.4	6.7	4.5	16.9
65	2220.465	0.180	7.6	6.8	4.4	17.1
70	1993.080	0.355	7.8	6.9	4.2	17.3
75	1799.711	0.634	7.9	7.0	3.9	17.5
80	1633.699	1.057	8.1	7.1	3.6	17.6
85	1490.549	1.654	8.2	7.1	3.2	17.7
90	1365.964	2.451	8.3	7.1	2.6	17.9
95	1257.383	3.453	8.4	7.1	1.6	18.0
100	1160.509	4.690	8.4	7.1	0.0	18.1
105	1075.839	6.176	8.5	7.0	0.0	18.2
110	999.565	7.833	8.5	6.9	0.0	18.2
115	931.613	9.744	8.5	6.8	0.0	18.3
120	870.839	11.843	8.5	6.6	0.0	18.4
125	815.435	14.091	8.4	6.4	0.0	18.5
130	765.409	16.478	8.4	6.2	0.0	18.5
135	720.037	18.981	8.3	5.9	0.0	18.6
140	678.445	21.527	8.2	5.5	0.0	18.6
145	640.295	24.170	8.0	5.1	0.0	18.7
150	605.601	26.782	7.9	4.6	0.0	18.8
155	573.409	29.416	7.7	4.0	0.0	18.8
160	543.789	32.027	7.4	3.2	0.0	18.8
165	516.536	34.575	7.2	2.1	0.0	18.9
170	491.286	37.030	6.9	0.0	0.0	18.9

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
175	467.721	39.463	6.5	0.0	0.0	19.0
180	445.900	41.741	6.1	0.0	0.0	19.0
185	425.650	43.985	5.6	0.0	0.0	19.0
190	406.732	46.067	5.0	0.0	0.0	19.1
195	388.967	48.042	4.3	0.0	0.0	19.1
200	372.400	49.886	3.4	0.0	0.0	19.1
205	356.921	51.654	1.9	0.0	0.0	19.2

	Endpoint (ppm, CO)	Downwind Distance (feet)	Approximate Time (seconds)
1	1200.0	97.9	26
2	500.0	168.2	43
3	350.0	207.3	53




Momentum Jet Contours - Side View
Battery Malfunction [B-1toxicCO]
1200.0 ppm CO
500.0 ppm CO
350.0 ppm CO
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1toxicCO]
Centerline Concentration
Ground Level Concentration
CO Concentration (ppm)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1toxicHCL
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   26 = HCl       Hydrogen Chloride
Concentration endpoint 1                       150.0 ppm
Concentration endpoint 2                        50.0 ppm
Concentration endpoint 3                        20.0 ppm

Dispersion coefficient averaging time              1 min

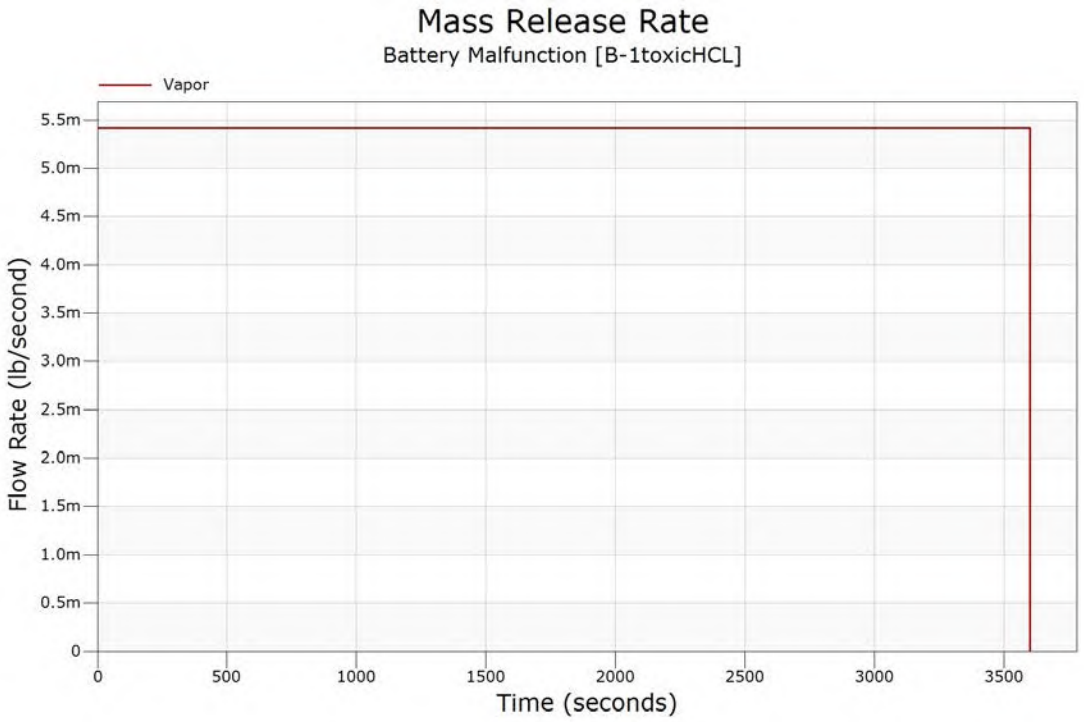

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1toxicHCL]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

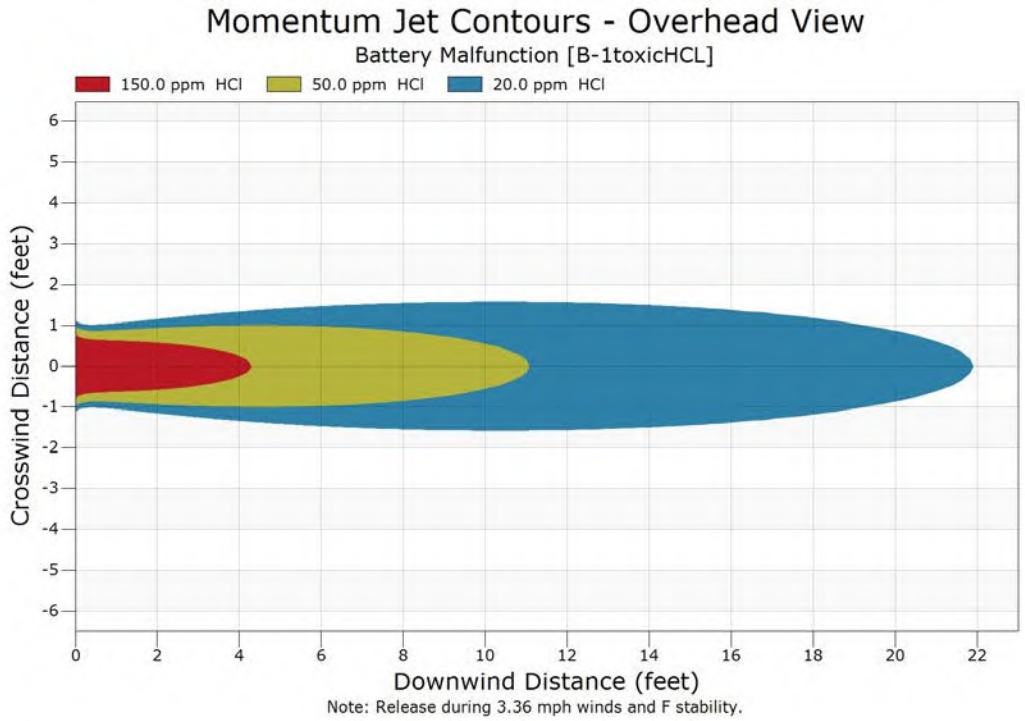
concentration limits

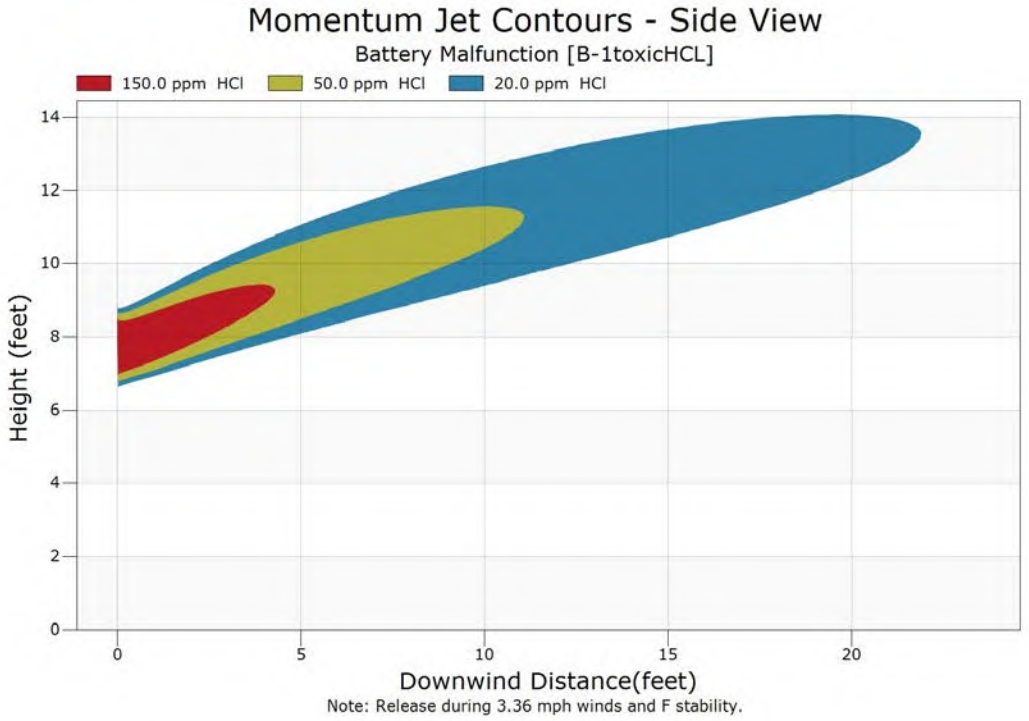
Endpoint 1 (highest) = 150.0 ppm
Endpoint 2 (middle) = 50.0 ppm
Endpoint 3 (lowest) = 20.0 ppm

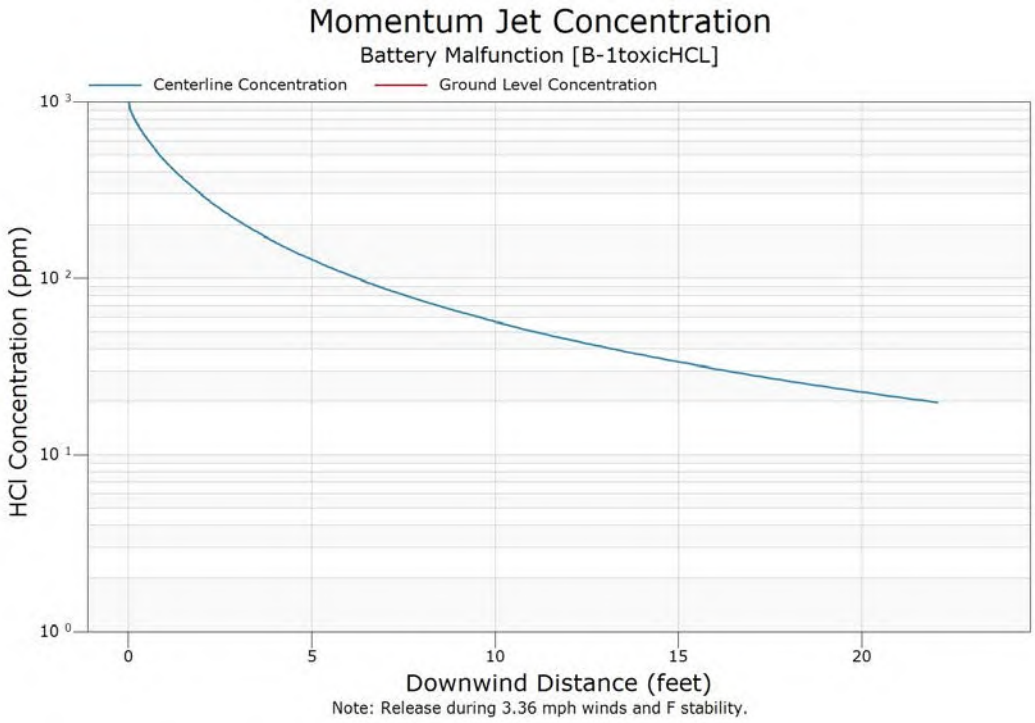
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	993.440	0.000	1.1	1.0	0.8	7.7
0.5	621.845	0.000	1.0	0.9	0.6	7.8
1.0	463.613	0.000	1.1	0.9	0.6	8.0
1.5	365.263	0.000	1.1	0.9	0.6	8.2
2.0	297.645	0.000	1.2	0.9	0.6	8.4
2.5	248.636	0.000	1.2	1.0	0.5	8.6
3.0	211.849	0.000	1.3	1.0	0.5	8.8
3.5	183.402	0.000	1.3	1.0	0.4	9.0
4.0	160.968	0.000	1.3	1.0	0.2	9.2
4.5	142.785	0.000	1.4	1.0	0.0	9.4
5.0	127.689	0.000	1.4	1.0	0.0	9.5
5.5	115.155	0.000	1.4	1.0	0.0	9.7
6.0	104.505	0.000	1.5	1.0	0.0	9.9
6.5	95.455	0.000	1.5	1.0	0.0	10.0
7.0	87.613	0.000	1.5	0.9	0.0	10.2
7.5	80.775	0.000	1.5	0.9	0.0	10.3
8.0	74.826	0.000	1.5	0.9	0.0	10.5
8.5	69.556	0.000	1.6	0.8	0.0	10.6
9.0	64.861	0.000	1.6	0.7	0.0	10.8
9.5	60.659	0.000	1.6	0.7	0.0	10.9
10.0	56.895	0.000	1.6	0.6	0.0	11.0
10.5	53.483	0.000	1.6	0.4	0.0	11.2
11.0	50.431	0.000	1.6	0.1	0.0	11.3
11.5	47.640	0.000	1.6	0.0	0.0	11.4
12.0	45.096	0.000	1.6	0.0	0.0	11.5
12.5	42.769	0.000	1.5	0.0	0.0	11.6
13.0	40.635	0.000	1.5	0.0	0.0	11.8
13.5	38.662	0.000	1.5	0.0	0.0	11.9
14.0	36.840	0.000	1.5	0.0	0.0	12.0
14.5	35.158	0.000	1.5	0.0	0.0	12.1
15.0	33.601	0.000	1.4	0.0	0.0	12.2
15.5	32.157	0.000	1.4	0.0	0.0	12.3
16.0	30.802	0.000	1.4	0.0	0.0	12.4
16.5	29.551	0.000	1.3	0.0	0.0	12.5
17.0	28.370	0.000	1.3	0.0	0.0	12.6

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
17.5	27.270	0.000	1.2	0.0	0.0	12.7
18.0	26.237	0.000	1.2	0.0	0.0	12.8
18.5	25.270	0.000	1.1	0.0	0.0	12.9
19.0	24.359	0.000	1.0	0.0	0.0	13.0
19.5	23.503	0.000	1.0	0.0	0.0	13.1
20.0	22.694	0.000	0.9	0.0	0.0	13.2
20.5	21.927	0.000	0.8	0.0	0.0	13.3
21.0	21.203	0.000	0.6	0.0	0.0	13.4
21.5	20.517	0.000	0.4	0.0	0.0	13.5
22.0	19.868	0.000	0.0	0.0	0.0	13.6

	Endpoint (ppm, HCl)	Downwind Distance (feet)	Approximate Time (seconds)
1	150.0	4.3	2
2	50.0	11.1	4
3	20.0	21.9	7




Momentum Jet Contours - Side View
Battery Malfunction [B-1toxicHCL]
150.0 ppm HCl
50.0 ppm HCl
20.0 ppm HCl
Height (feet)
0
2
4
6
8
10
12
14
0
5
10
15
20
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1toxicHCL]
Centerline Concentration
Ground Level Concentration
HCl Concentration (ppm)
10 3
10 2
10 1
10 0
0
5
10
15
20
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1toxicHCN
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component  103 = HCN       Hydrogen Cyanide
Concentration endpoint 1                        50.0 ppm
Concentration endpoint 2                        25.0 ppm
Concentration endpoint 3                        10.0 ppm

Dispersion coefficient averaging time              1 min

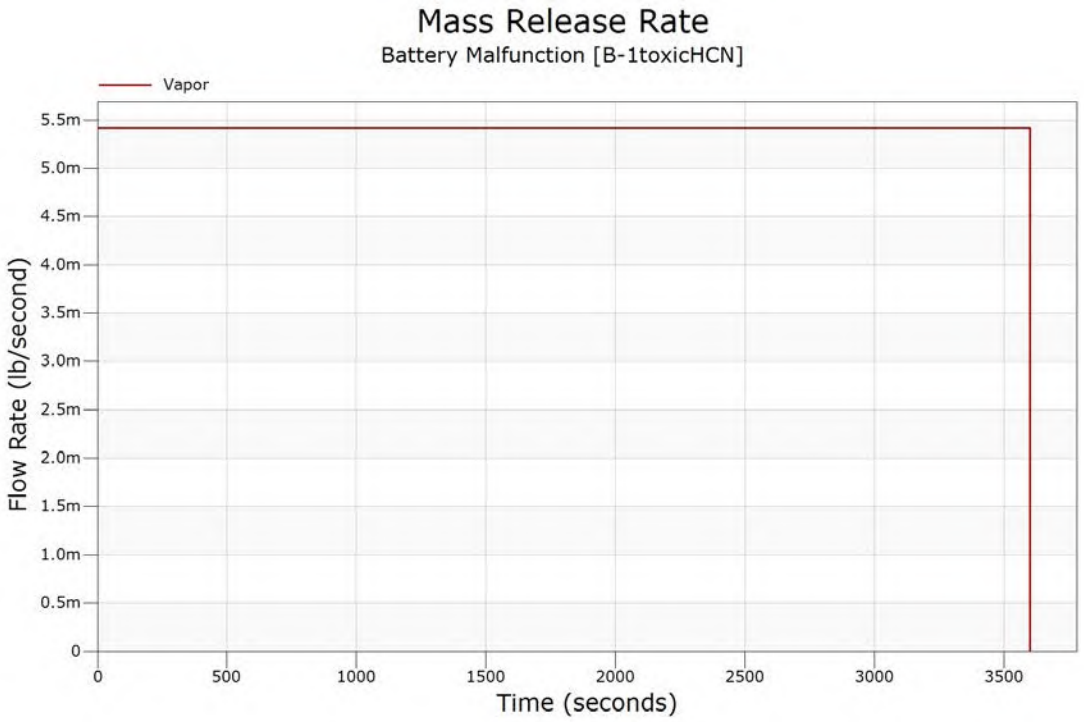

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1toxicHCN]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

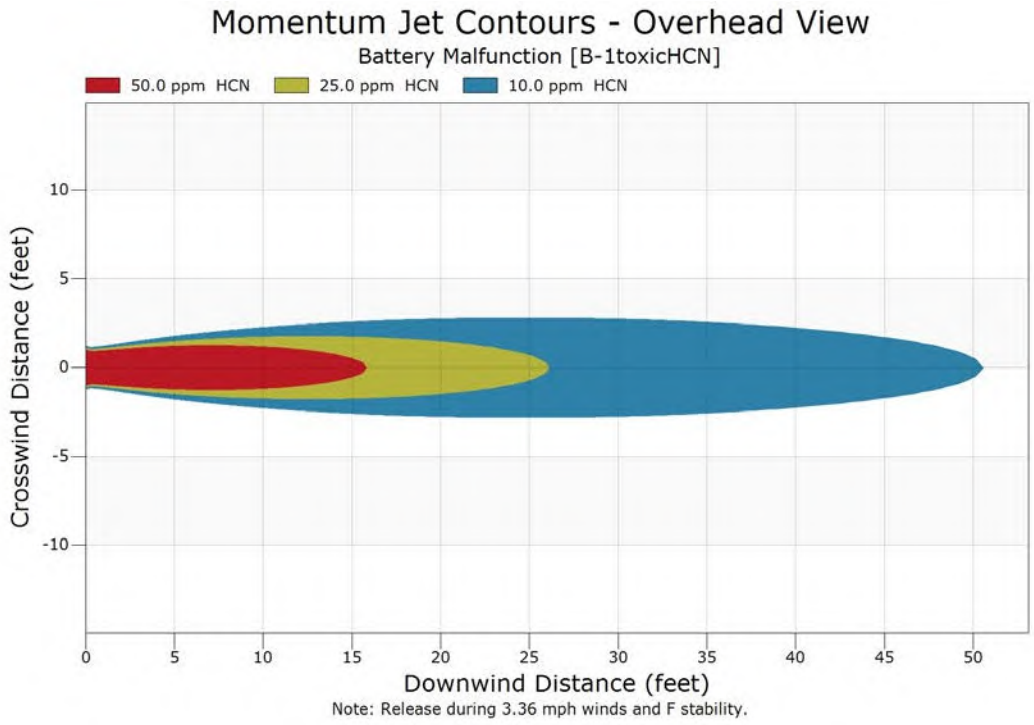
concentration limits

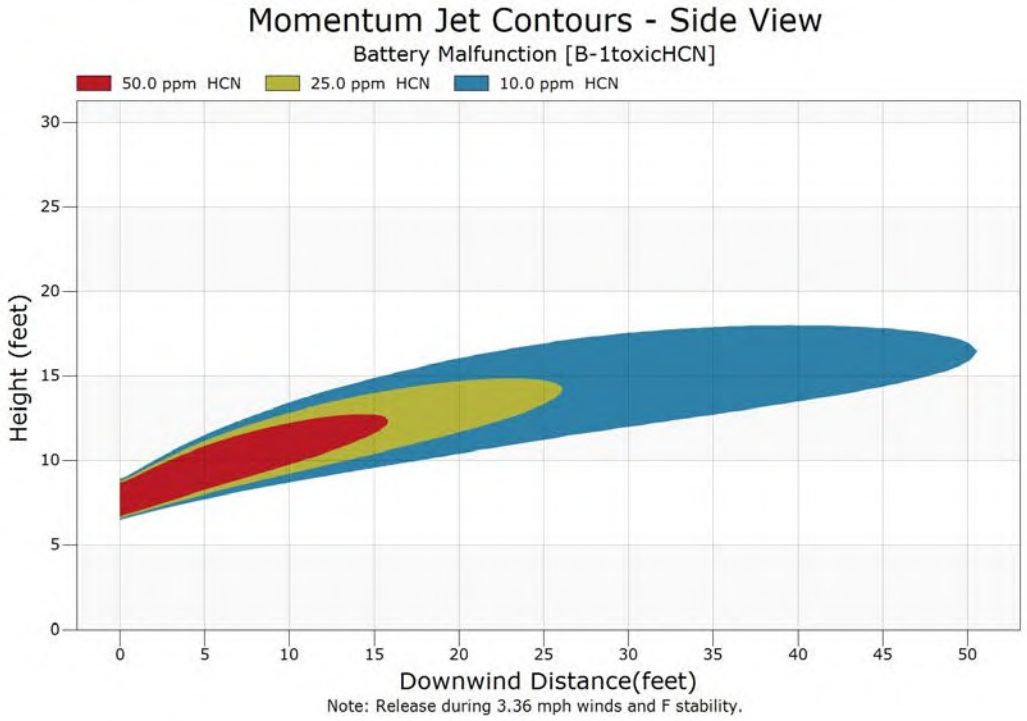
Endpoint 1 (highest) = 50.0 ppm
Endpoint 2 (middle) = 25.0 ppm
Endpoint 3 (lowest) = 10.0 ppm

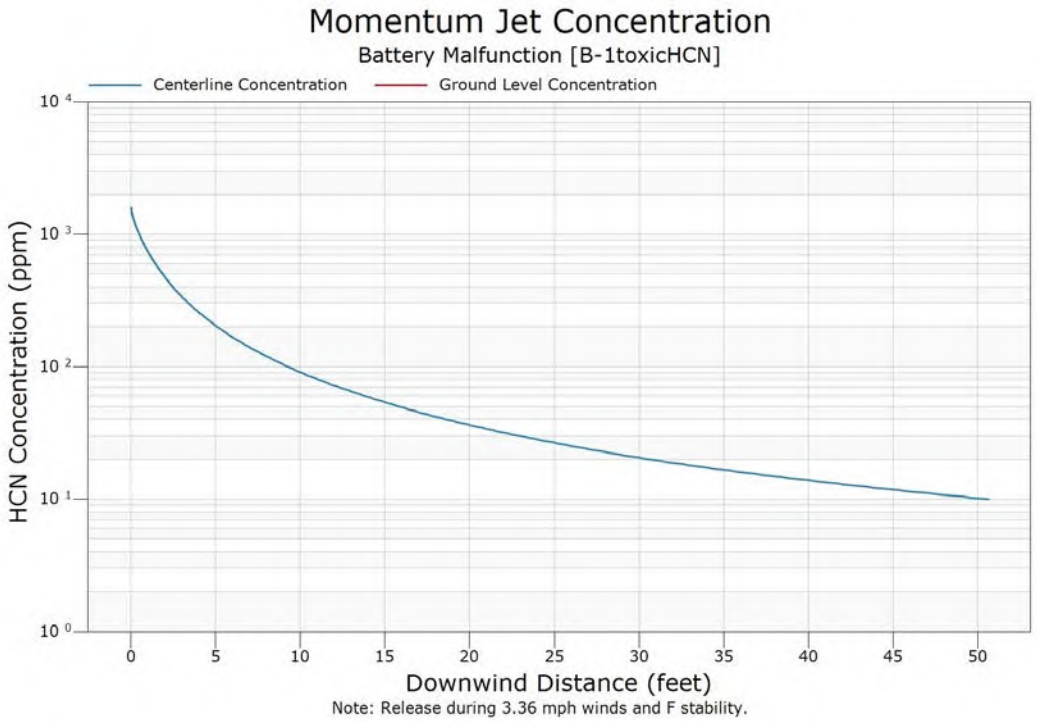
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1589.510	0.000	1.3	1.1	1.0	7.7
1	741.728	0.000	1.2	1.1	1.0	8.0
2	476.104	0.000	1.4	1.2	1.1	8.4
3	338.895	0.000	1.5	1.3	1.1	8.8
4	257.414	0.000	1.7	1.4	1.2	9.2
5	204.233	0.000	1.8	1.5	1.2	9.5
6	167.235	0.000	1.9	1.6	1.3	9.9
7	140.125	0.000	2.0	1.6	1.3	10.2
8	119.705	0.000	2.1	1.7	1.3	10.5
9	103.761	0.000	2.2	1.7	1.2	10.8
10	91.038	0.000	2.3	1.8	1.2	11.0
11	80.687	0.000	2.4	1.8	1.1	11.3
12	72.142	0.000	2.4	1.8	1.0	11.5
13	64.994	0.000	2.5	1.8	0.9	11.8
14	58.937	0.000	2.6	1.8	0.8	12.0
15	53.768	0.000	2.6	1.8	0.5	12.2
16	49.293	0.000	2.6	1.7	0.0	12.4
17	45.389	0.000	2.7	1.7	0.0	12.6
18	41.981	0.000	2.7	1.6	0.0	12.8
19	38.972	0.000	2.7	1.6	0.0	13.0
20	36.303	0.000	2.8	1.5	0.0	13.2
21	33.932	0.000	2.8	1.4	0.0	13.4
22	31.791	0.000	2.8	1.3	0.0	13.6
23	29.874	0.000	2.8	1.1	0.0	13.8
24	28.133	0.000	2.8	1.0	0.0	13.9
25	26.554	0.000	2.8	0.7	0.0	14.1
26	25.126	0.000	2.8	0.2	0.0	14.3
27	23.842	0.000	2.8	0.0	0.0	14.4
28	22.663	0.000	2.8	0.0	0.0	14.5
29	21.586	0.000	2.8	0.0	0.0	14.7
30	20.594	0.000	2.8	0.0	0.0	14.8
31	19.679	0.000	2.7	0.0	0.0	14.9
32	18.830	0.000	2.7	0.0	0.0	15.0
33	18.033	0.000	2.7	0.0	0.0	15.1
34	17.328	0.000	2.6	0.0	0.0	15.2

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
35	16.635	0.000	2.6	0.0	0.0	15.3
36	16.007	0.000	2.5	0.0	0.0	15.4
37	15.419	0.000	2.5	0.0	0.0	15.5
38	14.866	0.000	2.4	0.0	0.0	15.6
39	14.343	0.000	2.3	0.0	0.0	15.7
40	13.853	0.000	2.3	0.0	0.0	15.8
41	13.383	0.000	2.2	0.0	0.0	15.9
42	12.933	0.000	2.1	0.0	0.0	15.9
43	12.530	0.000	2.0	0.0	0.0	16.0
44	12.136	0.000	1.9	0.0	0.0	16.1
45	11.764	0.000	1.7	0.0	0.0	16.1
46	11.405	0.000	1.6	0.0	0.0	16.2
47	11.070	0.000	1.4	0.0	0.0	16.3
48	10.750	0.000	1.2	0.0	0.0	16.3
49	10.445	0.000	1.0	0.0	0.0	16.4
50	10.152	0.000	0.6	0.0	0.0	16.4

	Endpoint (ppm, HCN)	Downwind Distance (feet)	Approximate Time (seconds)
1	50.0	15.8	5
2	25.0	26.1	8
3	10.0	50.6	14




Momentum Jet Contours - Side View
Battery Malfunction [B-1toxicHCN]
50.0 ppm HCN
25.0 ppm HCN
10.0 ppm HCN
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1toxicHCN]
Centerline Concentration
Ground Level Concentration
HCN Concentration (ppm)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1toxicHF
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :    51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :    43 = CO        Carbon Monoxide             0.506656
Component  3        :     1 = CH4       Methane                     0.099344
Component  4        :     2 = C2H6      Ethane                      0.039738
Component  5        :     3 = C3H8      Propane                     0.089410
Component  6        :    50 = HF        Hydrogen Fluoride           0.000497
Component  7        :    26 = HCl       Hydrogen Chloride           0.000993
Component  8        :   103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :   281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   50 = HF        Hydrogen Fluoride
Concentration endpoint 1                        50.0 ppm
Concentration endpoint 2                        30.0 ppm
Concentration endpoint 3                        20.0 ppm

Dispersion coefficient averaging time              1 min

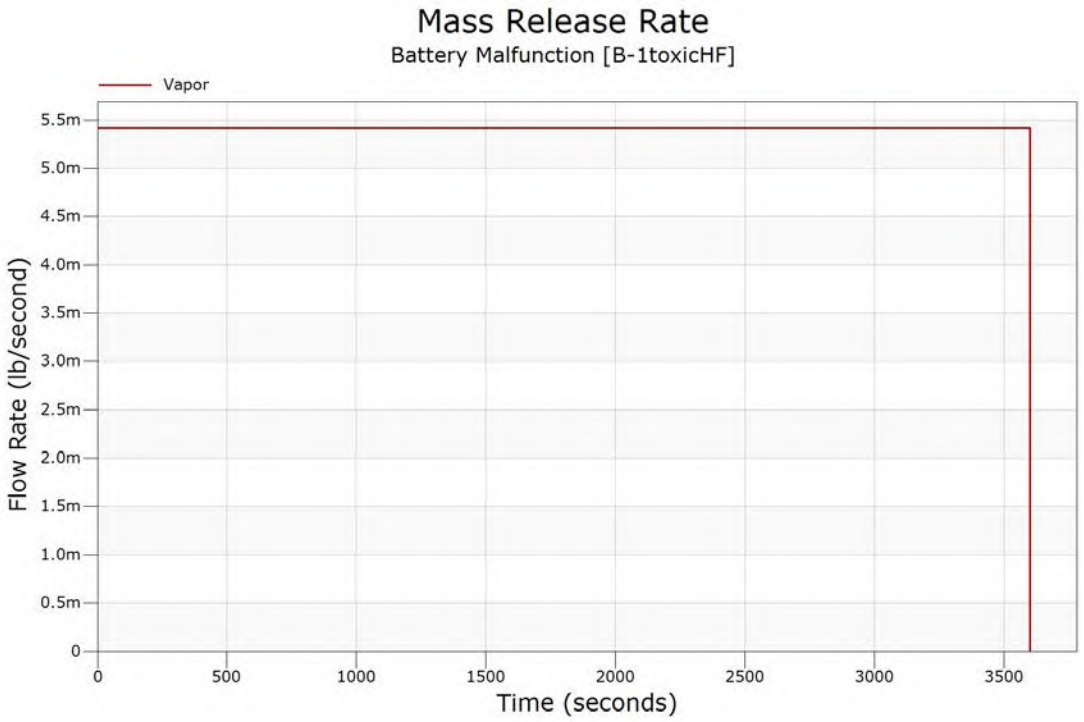

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1toxicHF]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

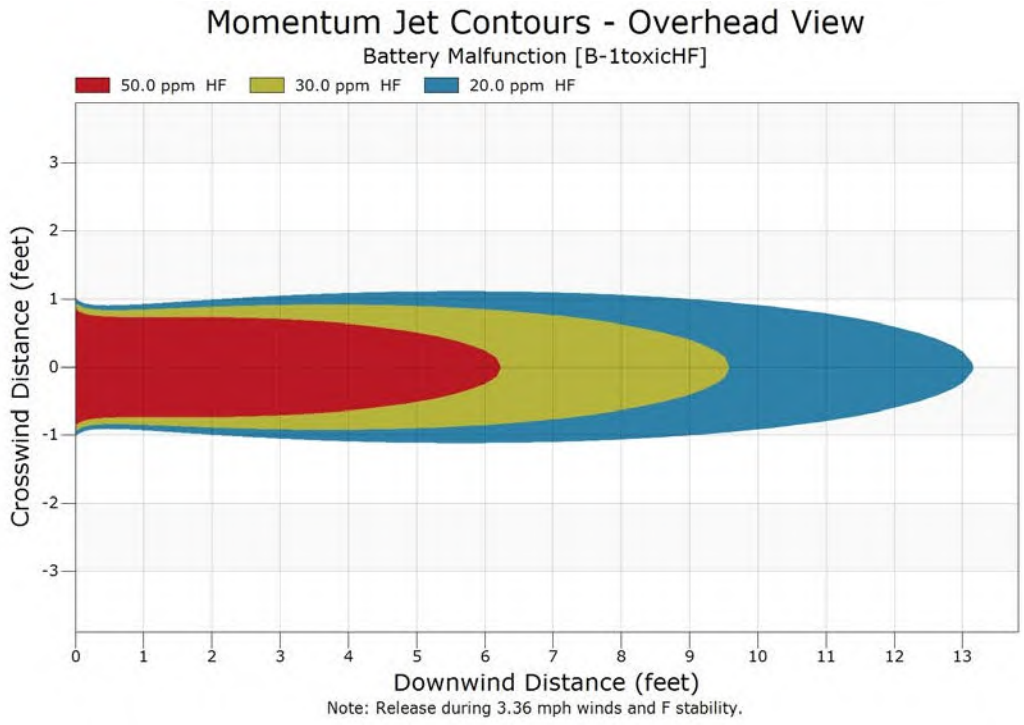
concentration limits

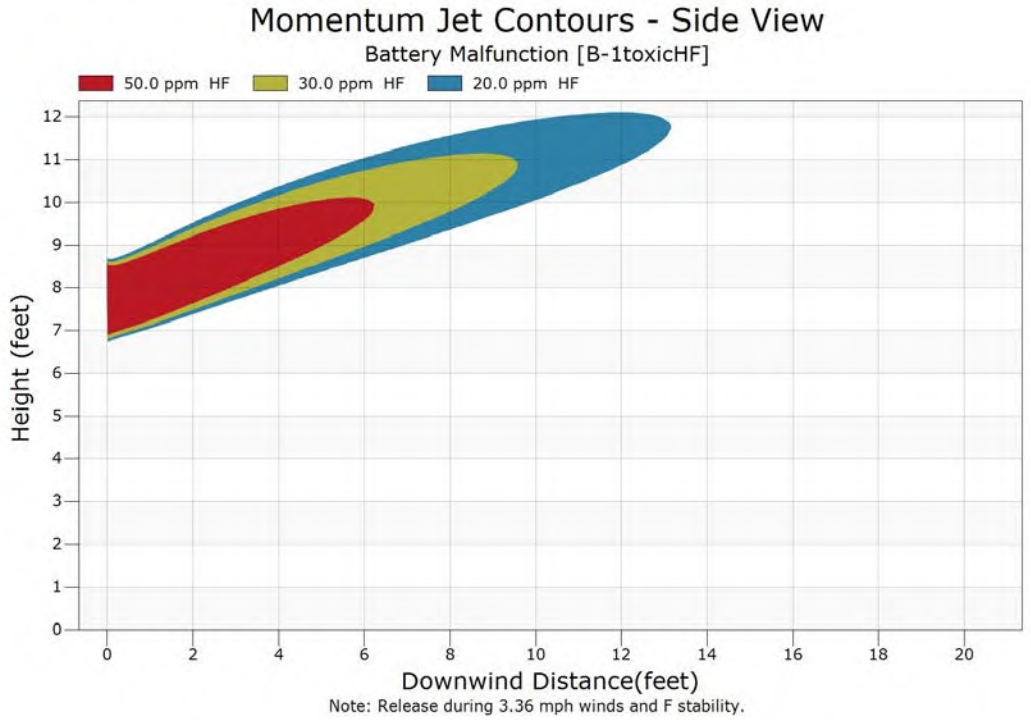
Endpoint 1 (highest) = 50.0 ppm
Endpoint 2 (middle) = 30.0 ppm
Endpoint 3 (lowest) = 20.0 ppm

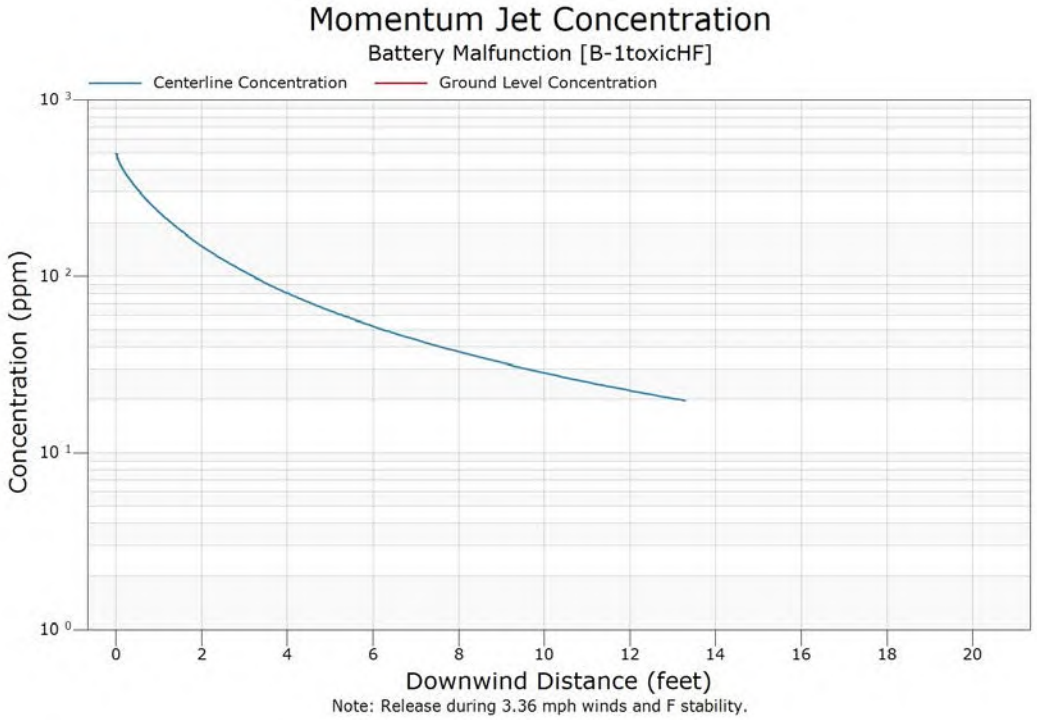
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	496.720	0.000	1.0	0.9	0.8	7.7
0.3	373.700	0.000	0.9	0.9	0.8	7.8
0.5	310.963	0.000	0.9	0.8	0.7	7.8
0.8	266.053	0.000	0.9	0.8	0.7	7.9
1.0	231.767	0.000	0.9	0.8	0.7	8.0
1.3	204.719	0.000	0.9	0.9	0.7	8.1
1.5	182.655	0.000	1.0	0.9	0.7	8.2
1.7	164.296	0.000	1.0	0.9	0.7	8.3
2.0	148.804	0.000	1.0	0.9	0.7	8.4
2.3	135.628	0.000	1.0	0.9	0.7	8.5
2.5	124.338	0.000	1.0	0.9	0.7	8.6
2.8	114.533	0.000	1.0	0.9	0.7	8.7
3.0	105.978	0.000	1.1	0.9	0.7	8.8
3.3	98.436	0.000	1.1	0.9	0.7	8.9
3.5	91.769	0.000	1.1	0.9	0.7	9.0
3.7	85.794	0.000	1.1	0.9	0.7	9.1
4.0	80.454	0.000	1.1	0.9	0.6	9.2
4.3	75.649	0.000	1.1	0.9	0.6	9.3
4.5	71.377	0.000	1.1	0.9	0.6	9.4
4.8	67.438	0.000	1.1	0.9	0.5	9.5
5.0	63.822	0.000	1.1	0.9	0.5	9.5
5.3	60.573	0.000	1.1	0.9	0.5	9.6
5.5	57.576	0.000	1.1	0.9	0.4	9.7
5.8	54.832	0.000	1.1	0.9	0.3	9.8
6.0	52.270	0.000	1.1	0.8	0.2	9.9
6.3	49.894	0.000	1.1	0.8	0.0	10.0
6.5	47.728	0.000	1.1	0.8	0.0	10.0
6.8	45.699	0.000	1.1	0.8	0.0	10.1
7.0	43.806	0.000	1.1	0.8	0.0	10.2
7.3	42.050	0.000	1.1	0.7	0.0	10.3
7.5	40.391	0.000	1.1	0.7	0.0	10.3
7.8	38.846	0.000	1.1	0.7	0.0	10.4
8.0	37.411	0.000	1.1	0.6	0.0	10.5
8.3	36.053	0.000	1.1	0.6	0.0	10.6
8.5	34.778	0.000	1.0	0.5	0.0	10.6

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
8.8	33.559	0.000	1.0	0.5	0.0	10.7
9.0	32.429	0.000	1.0	0.4	0.0	10.8
9.3	31.346	0.000	1.0	0.3	0.0	10.8
9.5	30.328	0.000	1.0	0.2	0.0	10.9
9.8	29.365	0.000	0.9	0.0	0.0	11.0
10.0	28.453	0.000	0.9	0.0	0.0	11.0
10.3	27.571	0.000	0.9	0.0	0.0	11.1
10.5	26.744	0.000	0.9	0.0	0.0	11.2
10.8	25.959	0.000	0.8	0.0	0.0	11.2
11.0	25.208	0.000	0.8	0.0	0.0	11.3
11.3	24.494	0.000	0.7	0.0	0.0	11.3
11.5	23.816	0.000	0.7	0.0	0.0	11.4
11.8	23.166	0.000	0.7	0.0	0.0	11.5
12.0	22.543	0.000	0.6	0.0	0.0	11.5
12.3	21.955	0.000	0.5	0.0	0.0	11.6
12.5	21.387	0.000	0.5	0.0	0.0	11.6
12.8	20.833	0.000	0.4	0.0	0.0	11.7
13.0	20.311	0.000	0.2	0.0	0.0	11.8
13.2	19.810	0.000	0.0	0.0	0.0	11.8

	Endpoint (ppm, HF)	Downwind Distance (feet)	Approximate Time (seconds)
1	50.0	6.2	2
2	30.0	9.6	3
3	20.0	13.2	4




Momentum Jet Contours - Side View
Battery Malfunction [B-1toxicHF]
50.0 ppm HF
30.0 ppm HF
20.0 ppm HF
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1toxicHF]
Centerline Concentration
Ground Level Concentration
Concentration (ppm)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

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Case Type           : Vapor Dispersion
Case Name           : B-1toxicTol
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate               << trace amount >> lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component  281 = C7H8      Toluene
Concentration endpoint 1                      1000.0 ppm
Concentration endpoint 2                       500.0 ppm
Concentration endpoint 3                       300.0 ppm

Dispersion coefficient averaging time              1 min


  NOTES:
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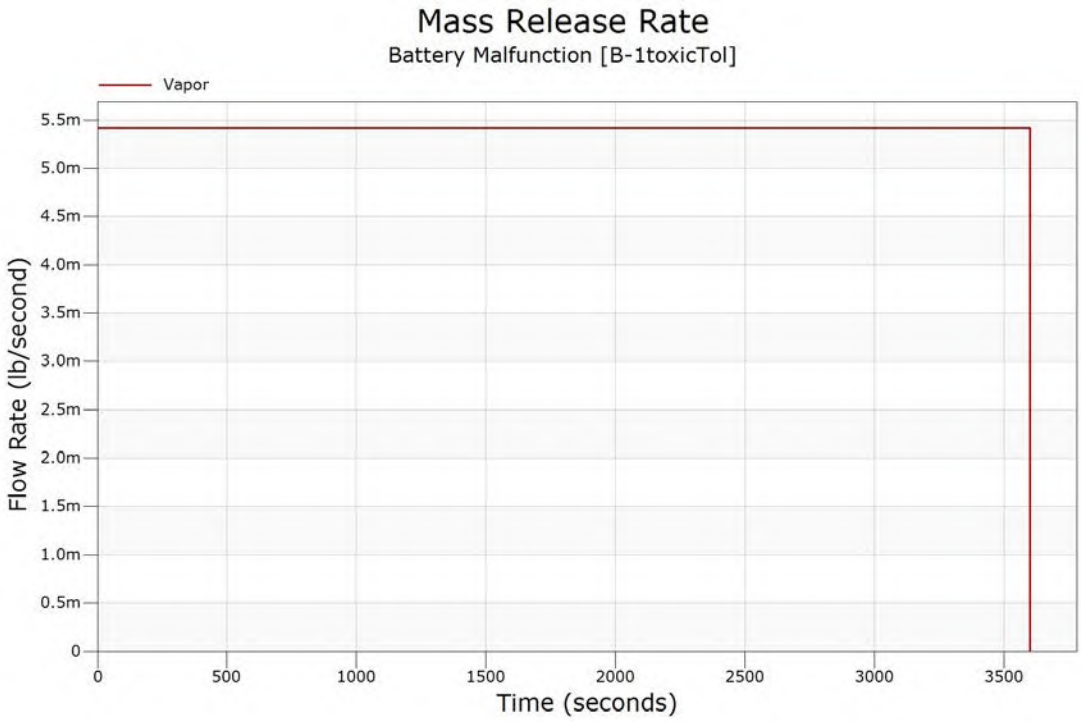
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.1000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.3000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.5000000	.5417999E-02	0.000000	0.000000	.5417999E-02
0.7000000	.5417999E-02	0.000000	0.000000	.5417999E-02
1.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
3.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
5.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
7.000000	.5417999E-02	0.000000	0.000000	.5417999E-02
10.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
20.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
30.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
40.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
50.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
60.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
70.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
85.00000	.5417999E-02	0.000000	0.000000	.5417999E-02
100.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
200.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
300.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
400.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
500.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
600.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
700.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
850.0000	.5417999E-02	0.000000	0.000000	.5417999E-02
1000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
2000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3000.000	.5417999E-02	0.000000	0.000000	.5417999E-02
3600.000	.5417999E-02	0.000000	0.000000	.5417999E-02
Totals (lb)	19.50480	0.000000	0.000000	19.50480

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [B-1toxicTol]
Vapor
Flow Rate (lb/second)
5.5m
5.0m
4.5m
4.0m
3.5m
3.0m
2.5m
2.0m
1.5m
1.0m
0.5m
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

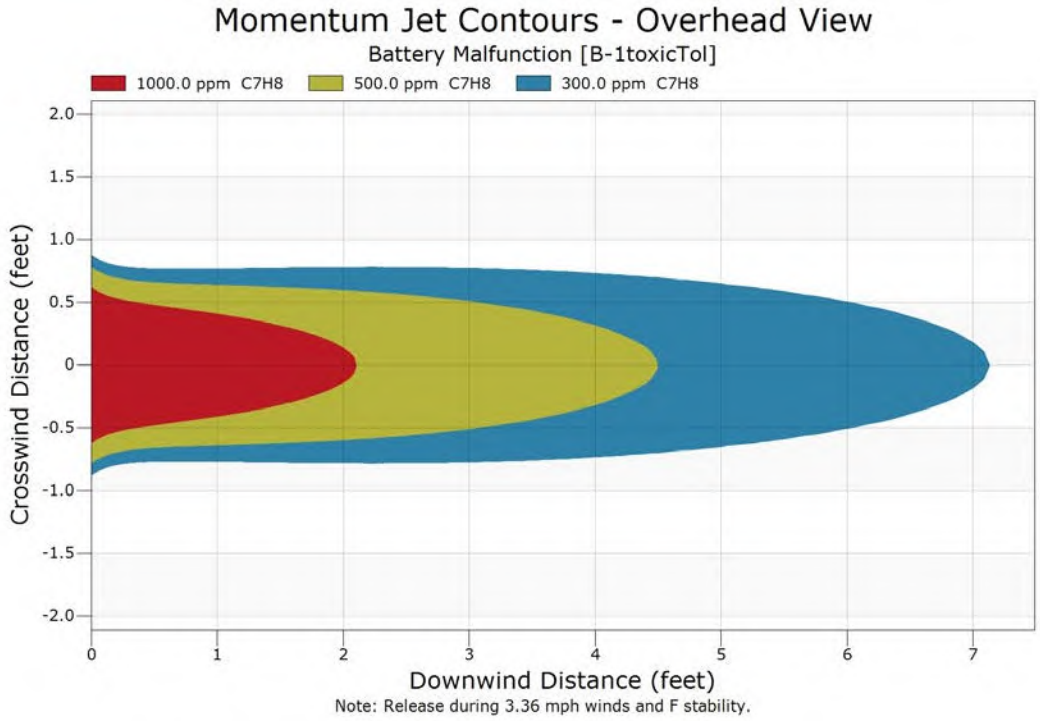
concentration limits

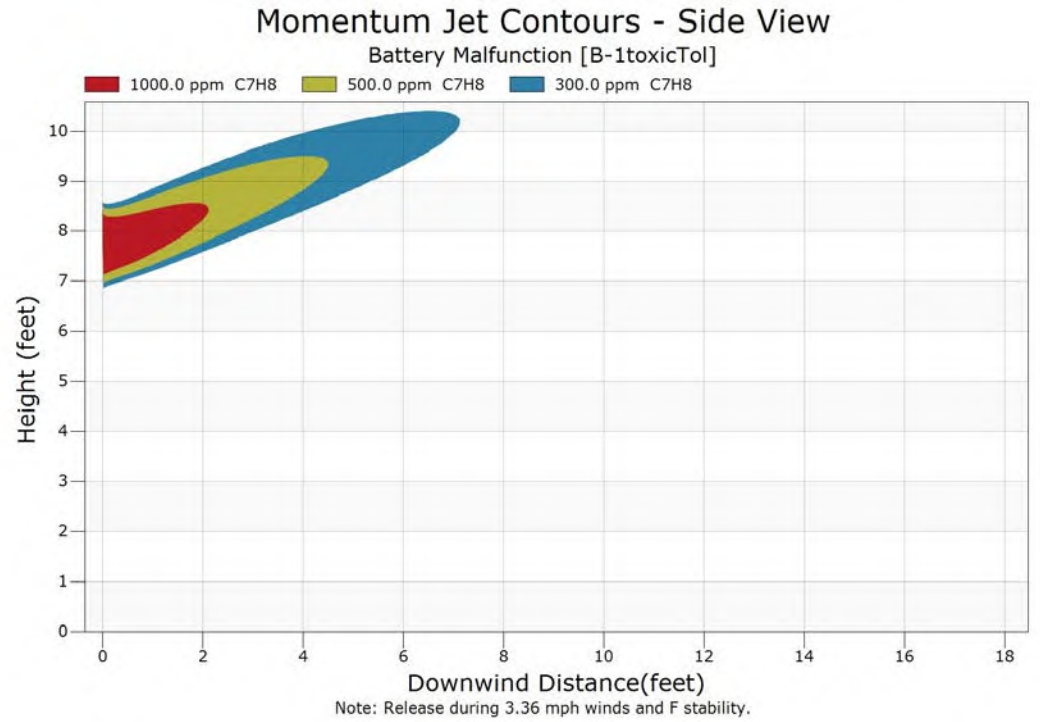
Endpoint 1 (highest) = 1000.0 ppm
Endpoint 2 (middle) = 500.0 ppm
Endpoint 3 (lowest) = 300.0 ppm

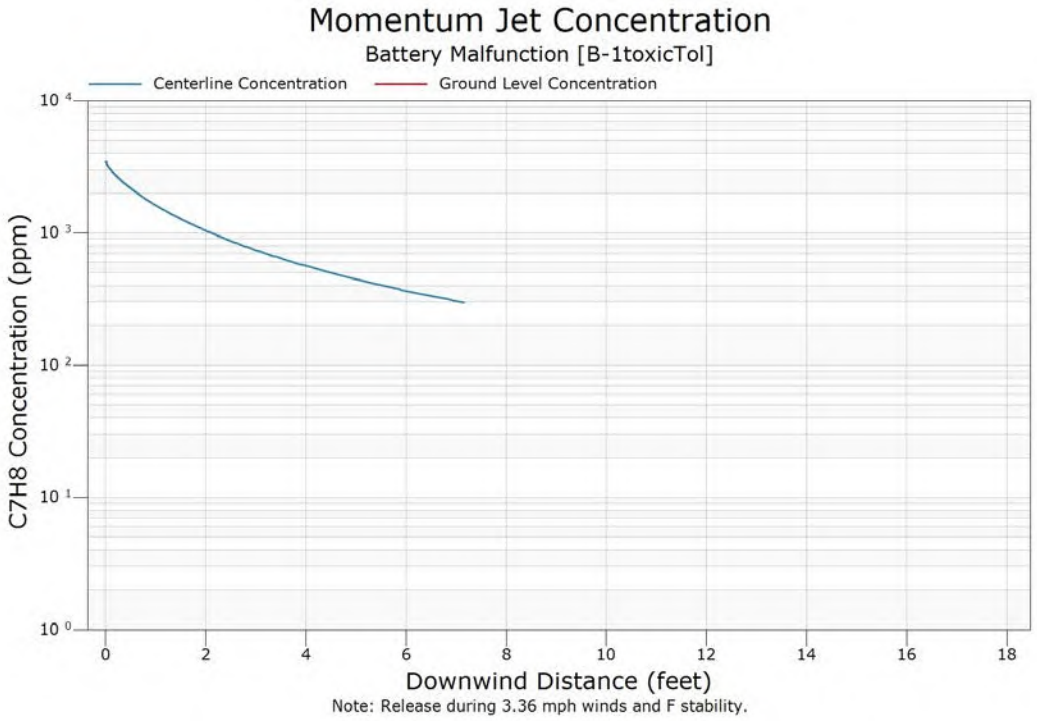
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	3477.050	0.000	0.9	0.8	0.6	7.7
0.1	3015.230	0.000	0.8	0.7	0.6	7.8
0.2	2729.769	0.000	0.8	0.7	0.5	7.8
0.3	2512.129	0.000	0.8	0.7	0.5	7.8
0.4	2332.043	0.000	0.8	0.7	0.5	7.8
0.5	2176.619	0.000	0.8	0.7	0.5	7.8
0.6	2040.429	0.000	0.8	0.7	0.5	7.9
0.7	1918.495	0.000	0.8	0.7	0.5	7.9
0.8	1809.839	0.000	0.8	0.6	0.4	7.9
0.9	1711.794	0.000	0.8	0.6	0.4	8.0
1.0	1622.524	0.000	0.8	0.6	0.4	8.0
1.1	1541.512	0.000	0.8	0.6	0.4	8.1
1.2	1467.498	0.000	0.8	0.6	0.4	8.1
1.3	1399.708	0.000	0.8	0.6	0.4	8.1
1.4	1336.492	0.000	0.8	0.6	0.3	8.2
1.5	1278.414	0.000	0.8	0.6	0.3	8.2
1.6	1224.085	0.000	0.8	0.6	0.3	8.3
1.7	1173.435	0.000	0.8	0.6	0.3	8.3
1.8	1126.535	0.000	0.8	0.6	0.2	8.3
1.9	1082.949	0.000	0.8	0.6	0.2	8.4
2.0	1041.380	0.000	0.8	0.6	0.1	8.4
2.1	1002.701	0.000	0.8	0.6	0.0	8.5
2.2	966.963	0.000	0.8	0.6	0.0	8.5
2.3	932.729	0.000	0.8	0.6	0.0	8.6
2.4	900.822	0.000	0.8	0.6	0.0	8.6
2.5	870.300	0.000	0.8	0.6	0.0	8.6
2.6	841.794	0.000	0.8	0.6	0.0	8.7
2.7	814.553	0.000	0.8	0.5	0.0	8.7
2.8	789.036	0.000	0.8	0.5	0.0	8.8
2.9	764.642	0.000	0.8	0.5	0.0	8.8
3.0	741.845	0.000	0.8	0.5	0.0	8.8
3.1	719.853	0.000	0.8	0.5	0.0	8.9
3.2	698.929	0.000	0.8	0.5	0.0	8.9
3.3	678.915	0.000	0.8	0.5	0.0	8.9
3.4	660.538	0.000	0.8	0.5	0.0	9.0

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
3.5	642.389	0.000	0.8	0.4	0.0	9.0
3.6	624.965	0.000	0.8	0.4	0.0	9.1
3.7	608.469	0.000	0.7	0.4	0.0	9.1
3.8	593.037	0.000	0.7	0.4	0.0	9.1
3.9	578.088	0.000	0.7	0.3	0.0	9.2
4.0	563.215	0.000	0.7	0.3	0.0	9.2
4.1	549.579	0.000	0.7	0.3	0.0	9.2
4.2	536.063	0.000	0.7	0.2	0.0	9.3
4.3	523.219	0.000	0.7	0.2	0.0	9.3
4.4	511.343	0.000	0.7	0.1	0.0	9.3
4.5	499.623	0.000	0.7	0.0	0.0	9.4
4.6	487.913	0.000	0.7	0.0	0.0	9.4
4.7	477.108	0.000	0.7	0.0	0.0	9.4
4.8	466.726	0.000	0.7	0.0	0.0	9.5
4.9	456.589	0.000	0.7	0.0	0.0	9.5
5.0	446.739	0.000	0.7	0.0	0.0	9.5
5.1	437.647	0.000	0.6	0.0	0.0	9.6
5.2	428.410	0.000	0.6	0.0	0.0	9.6
5.3	419.640	0.000	0.6	0.0	0.0	9.7
5.4	411.176	0.000	0.6	0.0	0.0	9.7
5.5	403.025	0.000	0.6	0.0	0.0	9.7
5.6	395.034	0.000	0.6	0.0	0.0	9.7
5.7	387.446	0.000	0.6	0.0	0.0	9.8
5.8	379.934	0.000	0.5	0.0	0.0	9.8
5.9	372.799	0.000	0.5	0.0	0.0	9.8
6.0	365.846	0.000	0.5	0.0	0.0	9.9
6.1	359.016	0.000	0.5	0.0	0.0	9.9
6.2	352.429	0.000	0.5	0.0	0.0	9.9
6.3	346.271	0.000	0.4	0.0	0.0	10.0
6.4	340.141	0.000	0.4	0.0	0.0	10.0
6.5	334.114	0.000	0.4	0.0	0.0	10.0
6.6	328.282	0.000	0.4	0.0	0.0	10.1
6.7	322.642	0.000	0.3	0.0	0.0	10.1
6.8	317.177	0.000	0.3	0.0	0.0	10.1
6.9	311.778	0.000	0.2	0.0	0.0	10.2
7.0	306.646	0.000	0.2	0.0	0.0	10.2
7.1	301.608	0.000	0.1	0.0	0.0	10.2

	Endpoint (ppm, C7H8)	Downwind Distance (feet)	Approximate Time (seconds)
1	1000.0	2.1	1
2	500.0	4.5	2
3	300.0	7.1	3


Momentum Jet Contours - Overhead View
Battery Malfunction [B-1toxicTol]
1000.0 ppm C7H8
500.0 ppm C7H8
300.0 ppm C7H8
Crosswind Distance (feet)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction [B-1toxicTol]
1000.0 ppm C7H8
500.0 ppm C7H8
300.0 ppm C7H8
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [B-1toxicTol]
Centerline Concentration
Ground Level Concentration
C7H8 Concentration (ppm)
10 4
10 3
10 2
10 1
10 0
0
2
4
6
8
10
12
14
16
18
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1vertCombustionHighCase
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :    51 = H2        Hydrogen(equilibrium)       0.013905
Component  2        :    43 = CO        Carbon Monoxide             0.000099
Component  3        :    17 = CO2       Carbon Dioxide              0.000671
Component  4        :     1 = CH4       Methane                     0.000099
Component  5        :    89 = NO2       Nitrogen Dioxide            0.689369
Component  6        :    52 = H2O       Water                       0.295858
Component  7        :
Component  8        :
Component  9        :
Component 10        :

Temperature         :      1652.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity         1.0000 Btu/hr-ft-F
  Substrate density                         100 lb/cu.ft
  Substrate heat Capacity                  0.24 Btu/lb-F
  Substrate delay time                       60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

RELEASE MENU

Type of release:	Regulated, Continuous release	
Release duration	60	min
Regulated flow rate	632.70	lb/sec
Pipe inner diameter	106.00	inches
Equivalent release diameter	106.00	inches
Height of release point	7.8	feet
Angle of release from horizontal	90.0	degrees

NOTES:

IMPOUNDMENT MENU

Unconfined

NOTES:

VDVE MENU

Vapor generation and dispersion - Flammable calculation

Concentration endpoint 1	10.000000	mol%
Concentration endpoint 2	5.000000	mol%
Concentration endpoint 3	1.000000	mol%

Dispersion coefficient averaging time	1	min

NOTES:

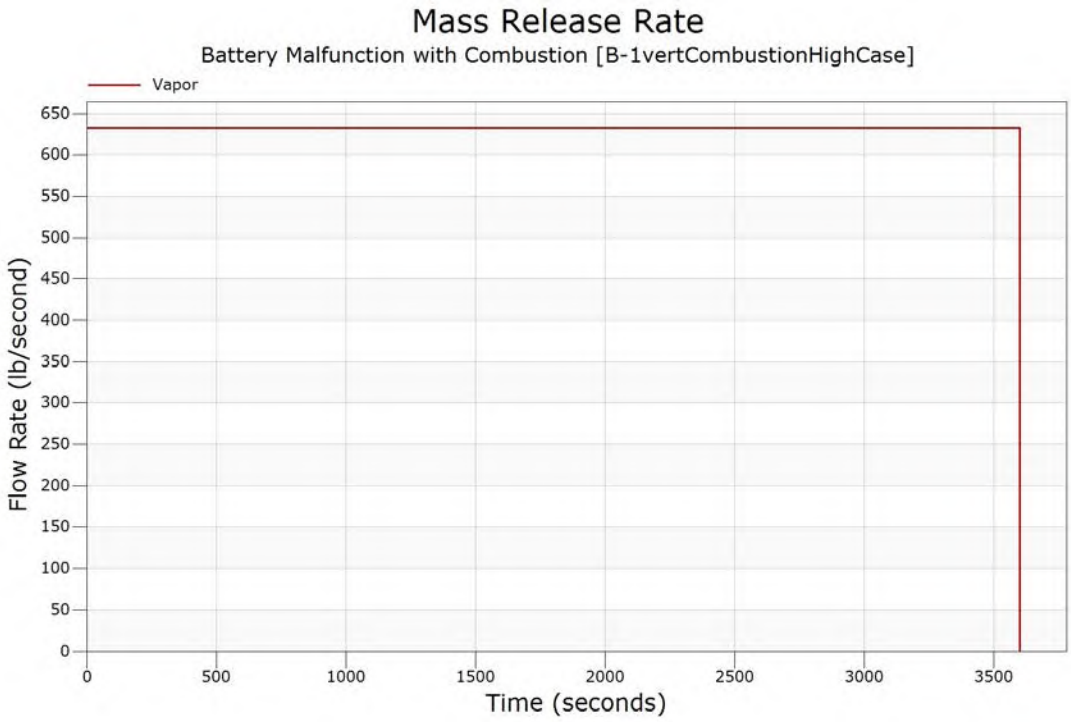
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	632.7001	0.000000	0.000000	632.7001
0.1000000	632.7001	0.000000	0.000000	632.7001
0.3000000	632.7001	0.000000	0.000000	632.7001
0.5000000	632.7001	0.000000	0.000000	632.7001
0.7000000	632.7001	0.000000	0.000000	632.7001
1.000000	632.7001	0.000000	0.000000	632.7001
3.000000	632.7001	0.000000	0.000000	632.7001
5.000000	632.7001	0.000000	0.000000	632.7001
7.000000	632.7001	0.000000	0.000000	632.7001
10.00000	632.7001	0.000000	0.000000	632.7001
20.00000	632.7001	0.000000	0.000000	632.7001
30.00000	632.7001	0.000000	0.000000	632.7001
40.00000	632.7001	0.000000	0.000000	632.7001
50.00000	632.7001	0.000000	0.000000	632.7001
60.00000	632.7001	0.000000	0.000000	632.7001
70.00000	632.7001	0.000000	0.000000	632.7001
85.00000	632.7001	0.000000	0.000000	632.7001
100.0000	632.7001	0.000000	0.000000	632.7001
200.0000	632.7001	0.000000	0.000000	632.7001
300.0000	632.7001	0.000000	0.000000	632.7001
400.0000	632.7001	0.000000	0.000000	632.7001
500.0000	632.7001	0.000000	0.000000	632.7001
600.0000	632.7001	0.000000	0.000000	632.7001
700.0000	632.7001	0.000000	0.000000	632.7001
850.0000	632.7001	0.000000	0.000000	632.7001
1000.000	632.7001	0.000000	0.000000	632.7001
2000.000	632.7001	0.000000	0.000000	632.7001
3000.000	632.7001	0.000000	0.000000	632.7001
3600.000	632.7001	0.000000	0.000000	632.7001
Totals (lb)	2277720.	0.000000	0.000000	2277720.

Flowrate for Jet Fire [immediate ignition] = 632.7001 lb/sec.
Jet Fire [delayed ignition] = 632.7001 lb/sec.

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction with Combustion [B-1vertCombustionHighCase]
Vapor
Flow Rate (lb/second)
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
17	Carbon Dioxide, CO2
1	Methane, CH4
89	Nitrogen Dioxide, NO2
52	Water, H2O

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.013905	0.013905	0.000000	0.000000	0.013905	0.000000
43	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
17	0.000671	0.000671	0.000000	0.000000	0.000671	0.000000
1	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
89	0.689369	0.689369	0.000000	0.000000	0.689369	0.000000
52	0.295858	0.295858	0.000000	0.000000	0.295858	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Flammable Limits (Mole %) of Fluid Streams

Limit	Feed Stream	Momentum Jet Stream	Liquid Pool Stream
LFL	100.00	100.00	
UFL	100.00	100.00	
LBV		0.00 m/s	

Momentum Jet Dispersion

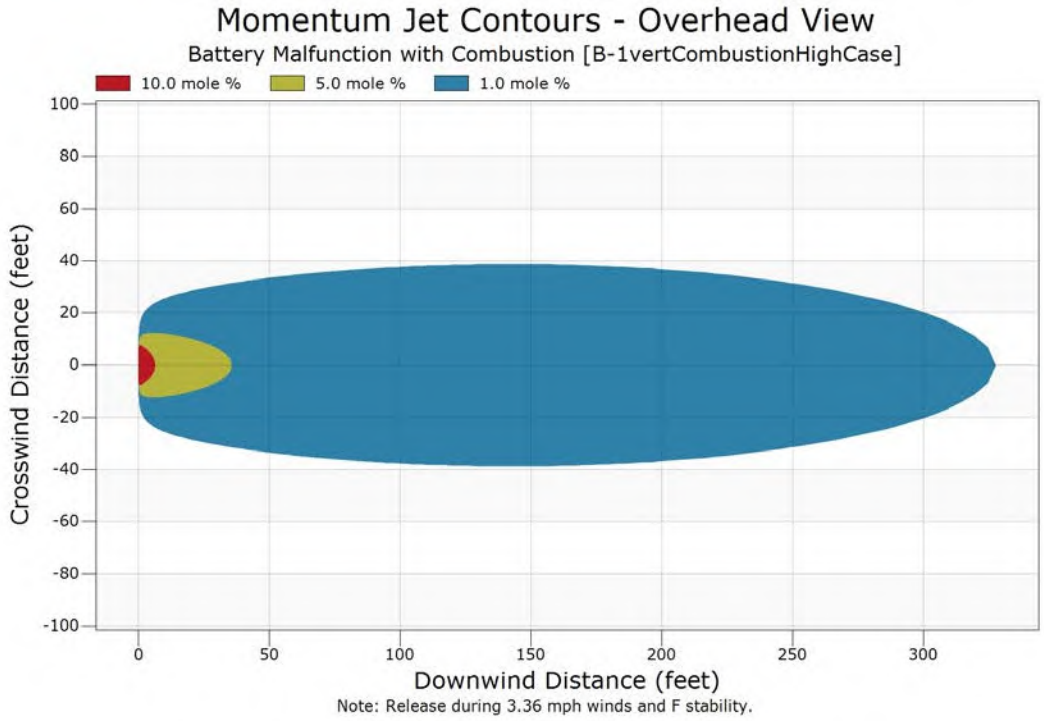
concentration limits

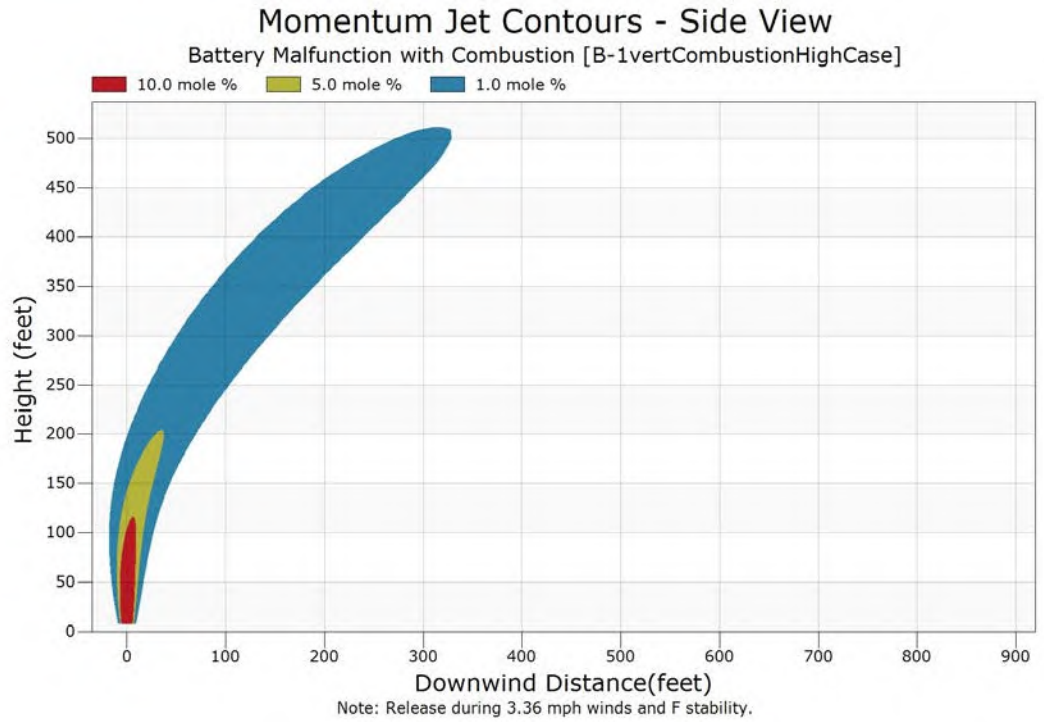
Endpoint 1 (highest) = 0.100000 mole fraction
Endpoint 2 (middle) = 0.050000 mole fraction
Endpoint 3 (lowest) = 0.010000 mole fraction

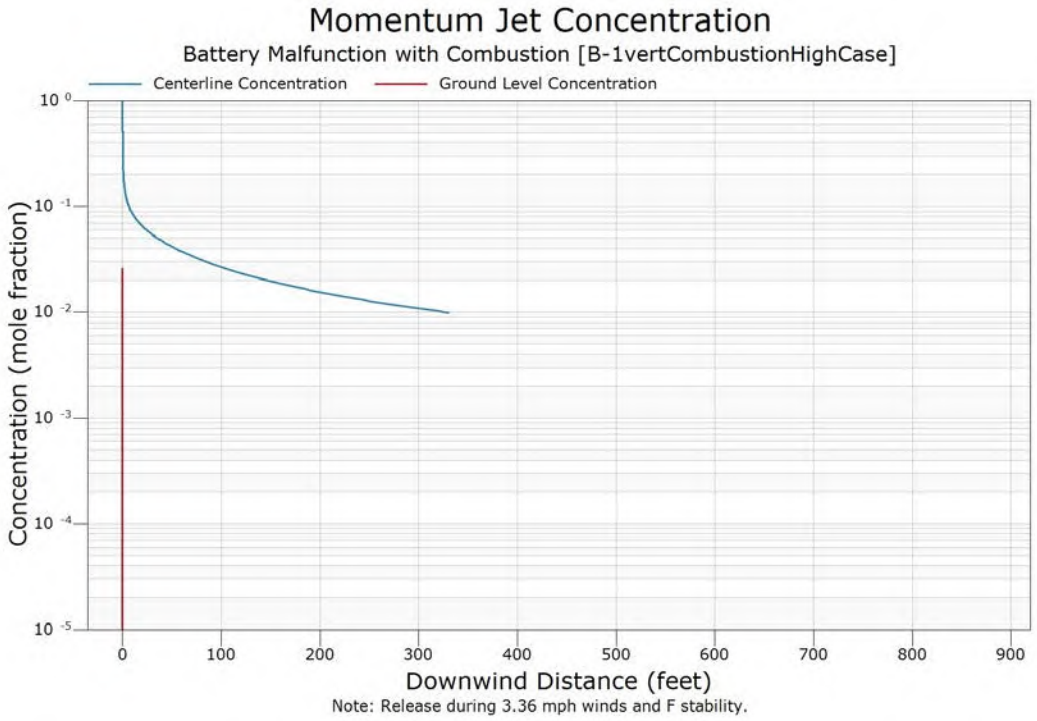
downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1.000000	0.000000	9.1	6.8	5.7	7.7
5	0.108710	0.000000	23.1	12.4	3.9	107.7
10	0.085169	0.000000	25.6	12.1	0.0	133.8
15	0.073108	0.000000	27.3	11.3	0.0	152.2
20	0.065083	0.000000	28.6	10.2	0.0	167.2
25	0.059069	0.000000	29.6	8.6	0.0	180.3
30	0.054358	0.000000	30.6	6.5	0.0	192.1
35	0.050401	0.000000	31.4	2.0	0.0	202.9
40	0.047118	0.000000	32.2	0.0	0.0	213.1
45	0.044223	0.000000	32.9	0.0	0.0	222.7
50	0.041727	0.000000	33.5	0.0	0.0	231.8
55	0.039541	0.000000	34.1	0.0	0.0	240.5
60	0.037543	0.000000	34.6	0.0	0.0	248.8
65	0.035748	0.000000	35.1	0.0	0.0	256.8
70	0.034139	0.000000	35.6	0.0	0.0	264.6
75	0.032667	0.000000	36.0	0.0	0.0	272.1
80	0.031298	0.000000	36.4	0.0	0.0	279.4
85	0.030051	0.000000	36.8	0.0	0.0	286.5
90	0.028910	0.000000	37.1	0.0	0.0	293.4
95	0.027854	0.000000	37.4	0.0	0.0	300.1
100	0.026848	0.000000	37.7	0.0	0.0	306.6
105	0.025906	0.000000	37.9	0.0	0.0	313.0
110	0.025053	0.000000	38.1	0.0	0.0	319.2
115	0.024246	0.000000	38.3	0.0	0.0	325.3
120	0.023496	0.000000	38.4	0.0	0.0	331.2
125	0.022773	0.000000	38.5	0.0	0.0	337.2
130	0.022094	0.000000	38.6	0.0	0.0	342.9
135	0.021460	0.000000	38.7	0.0	0.0	348.4
140	0.020853	0.000000	38.7	0.0	0.0	354.0
145	0.020304	0.000000	38.7	0.0	0.0	359.4
150	0.019764	0.000000	38.7	0.0	0.0	364.6
155	0.019248	0.000000	38.6	0.0	0.0	369.9
160	0.018755	0.000000	38.6	0.0	0.0	375.0
165	0.018278	0.000000	38.4	0.0	0.0	380.1
170	0.017838	0.000000	38.3	0.0	0.0	385.0

downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
175	0.017399	0.000000	38.1	0.0	0.0	389.8
180	0.016997	0.000000	37.9	0.0	0.0	394.5
185	0.016608	0.000000	37.7	0.0	0.0	399.3
190	0.016236	0.000000	37.4	0.0	0.0	403.8
195	0.015891	0.000000	37.2	0.0	0.0	408.4
200	0.015536	0.000000	36.8	0.0	0.0	412.8
205	0.015216	0.000000	36.4	0.0	0.0	417.3
210	0.014899	0.000000	36.0	0.0	0.0	421.7
215	0.014598	0.000000	35.6	0.0	0.0	425.8
220	0.014316	0.000000	35.2	0.0	0.0	430.2
225	0.014027	0.000000	34.6	0.0	0.0	434.2
230	0.013764	0.000000	34.1	0.0	0.0	438.4
235	0.013507	0.000000	33.5	0.0	0.0	442.3
240	0.013255	0.000000	32.9	0.0	0.0	446.2
245	0.013014	0.000000	32.2	0.0	0.0	450.2
250	0.012783	0.000000	31.5	0.0	0.0	454.1
255	0.012562	0.000000	30.7	0.0	0.0	457.9
260	0.012345	0.000000	29.9	0.0	0.0	461.5
265	0.012131	0.000000	29.0	0.0	0.0	465.2
270	0.011926	0.000000	28.0	0.0	0.0	468.9
275	0.011730	0.000000	27.0	0.0	0.0	472.5
280	0.011543	0.000000	25.9	0.0	0.0	476.0
285	0.011362	0.000000	24.7	0.0	0.0	479.5
290	0.011180	0.000000	23.3	0.0	0.0	483.0
295	0.011004	0.000000	21.8	0.0	0.0	486.3
300	0.010836	0.000000	20.2	0.0	0.0	489.7
305	0.010674	0.000000	18.4	0.0	0.0	493.0
310	0.010518	0.000000	16.3	0.0	0.0	496.3
315	0.010362	0.000000	13.9	0.0	0.0	499.5
320	0.010219	0.000000	10.9	0.0	0.0	502.6
325	0.010073	0.000000	6.1	0.0	0.0	505.7
330	0.009933	0.000000	0.0	0.0	0.0	508.8

	Endpoint (mole frac., mixture)	Downwind Distance (feet)	Approximate Time (seconds)
1	0.100000	6.4	1
2	0.050000	35.6	1
3	0.010000	327.6	9


Momentum Jet Contours - Overhead View
Battery Malfunction with Combustion [B-1vertCombustionHighCase]
10.0 mole %
5.0 mole %
1.0 mole %
Crosswind Distance (feet)
100
80
60
40
20
0
-20
-40
-60
-80
-100
0
50
100
150
200
250
300
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction with Combustion [B-1vertCombustionHighCase]
10.0 mole %
5.0 mole %
1.0 mole %
Height (feet)
500
450
400
350
300
250
200
150
100
50
0
0
100
200
300
400
500
600
700
800
900
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction with Combustion [B-1vertCombustionHighCase]
Centerline Concentration
Ground Level Concentration
Concentration (mole fraction)
10 0
10 -1
10 -2
10 -3
10 -4
10 -5
0
100
200
300
400
500
600
700
800
900
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1vertCombustionHighCaseWind
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :    51 = H2        Hydrogen(equilibrium)       0.013905
Component  2        :    43 = CO        Carbon Monoxide             0.000099
Component  3        :    17 = CO2       Carbon Dioxide              0.000671
Component  4        :     1 = CH4       Methane                     0.000099
Component  5        :    89 = NO2       Nitrogen Dioxide            0.689369
Component  6        :    52 = H2O       Water                       0.295858
Component  7        :
Component  8        :
Component  9        :
Component 10        :

Temperature         :      1652.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    10.00 mph
Wind speed measurement height                  32.8 feet
Stability class <A-F>                             D
Relative humidity                                70 %
Air temperature                                77.0 °F
Spill surface temperature                      77.0 °F

Substrate name                            Soil
  Substrate thermal conductivity           1.0000 Btu/hr-ft-F
  Substrate density                           100 lb/cu.ft
  Substrate heat Capacity                    0.24 Btu/lb-F
  Substrate delay time                         60 sec
Surrounding terrain                       Long grass or crops > 15 cm (6 in)

  NOTES:
```

RELEASE MENU

Type of release:	Regulated, Continuous release	
Release duration	60	min
Regulated flow rate	632.70	lb/sec
Pipe inner diameter	106.00	inches
Equivalent release diameter	106.00	inches
Height of release point	7.8	feet
Angle of release from horizontal	90.0	degrees

NOTES:

IMPOUNDMENT MENU

Unconfined

NOTES:

VDVE MENU

Vapor generation and dispersion - Flammable calculation

Concentration endpoint 1	10.000000	mol%
Concentration endpoint 2	5.000000	mol%
Concentration endpoint 3	1.000000	mol%

Dispersion coefficient averaging time	1	min

NOTES:

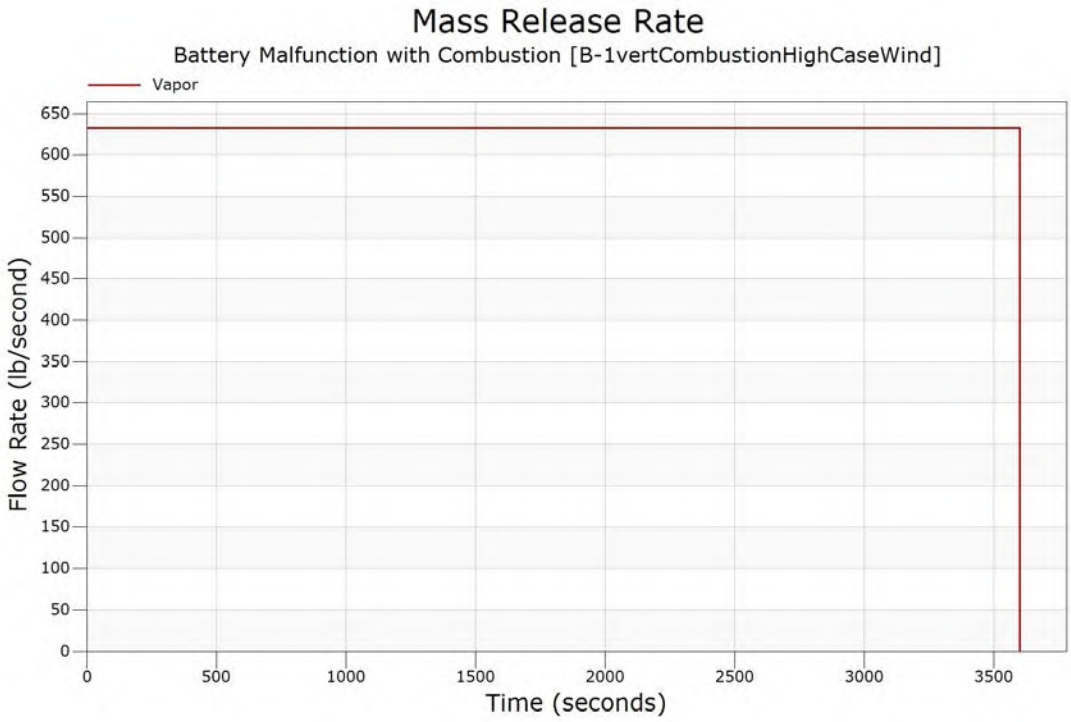
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	632.7001	0.000000	0.000000	632.7001
0.1000000	632.7001	0.000000	0.000000	632.7001
0.3000000	632.7001	0.000000	0.000000	632.7001
0.5000000	632.7001	0.000000	0.000000	632.7001
0.7000000	632.7001	0.000000	0.000000	632.7001
1.000000	632.7001	0.000000	0.000000	632.7001
3.000000	632.7001	0.000000	0.000000	632.7001
5.000000	632.7001	0.000000	0.000000	632.7001
7.000000	632.7001	0.000000	0.000000	632.7001
10.00000	632.7001	0.000000	0.000000	632.7001
20.00000	632.7001	0.000000	0.000000	632.7001
30.00000	632.7001	0.000000	0.000000	632.7001
40.00000	632.7001	0.000000	0.000000	632.7001
50.00000	632.7001	0.000000	0.000000	632.7001
60.00000	632.7001	0.000000	0.000000	632.7001
70.00000	632.7001	0.000000	0.000000	632.7001
85.00000	632.7001	0.000000	0.000000	632.7001
100.0000	632.7001	0.000000	0.000000	632.7001
200.0000	632.7001	0.000000	0.000000	632.7001
300.0000	632.7001	0.000000	0.000000	632.7001
400.0000	632.7001	0.000000	0.000000	632.7001
500.0000	632.7001	0.000000	0.000000	632.7001
600.0000	632.7001	0.000000	0.000000	632.7001
700.0000	632.7001	0.000000	0.000000	632.7001
850.0000	632.7001	0.000000	0.000000	632.7001
1000.000	632.7001	0.000000	0.000000	632.7001
2000.000	632.7001	0.000000	0.000000	632.7001
3000.000	632.7001	0.000000	0.000000	632.7001
3600.000	632.7001	0.000000	0.000000	632.7001
Totals (lb)	2277720.	0.000000	0.000000	2277720.

Flowrate for Jet Fire [immediate ignition] = 632.7001 lb/sec.
Jet Fire [delayed ignition] = 632.7001 lb/sec.

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction with Combustion [B-1vertCombustionHighCaseWind]
Vapor
Flow Rate (lb/second)
650
600
550
500
450
400
350
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
17	Carbon Dioxide, CO2
1	Methane, CH4
89	Nitrogen Dioxide, NO2
52	Water, H2O

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.013905	0.013905	0.000000	0.000000	0.013905	0.000000
43	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
17	0.000671	0.000671	0.000000	0.000000	0.000671	0.000000
1	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
89	0.689369	0.689369	0.000000	0.000000	0.689369	0.000000
52	0.295858	0.295858	0.000000	0.000000	0.295858	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Flammable Limits (Mole %) of Fluid Streams

Limit	Feed Stream	Momentum Jet Stream	Liquid Pool Stream
LFL	100.00	100.00	
UFL	100.00	100.00	
LBV		0.00 m/s	

Momentum Jet Dispersion

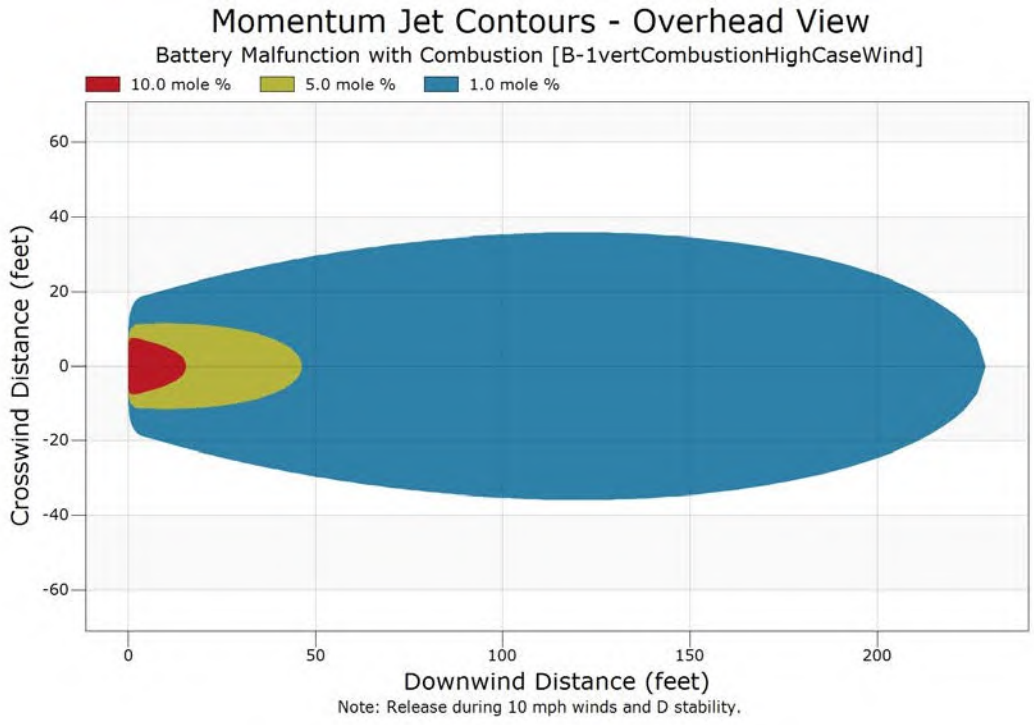
concentration limits

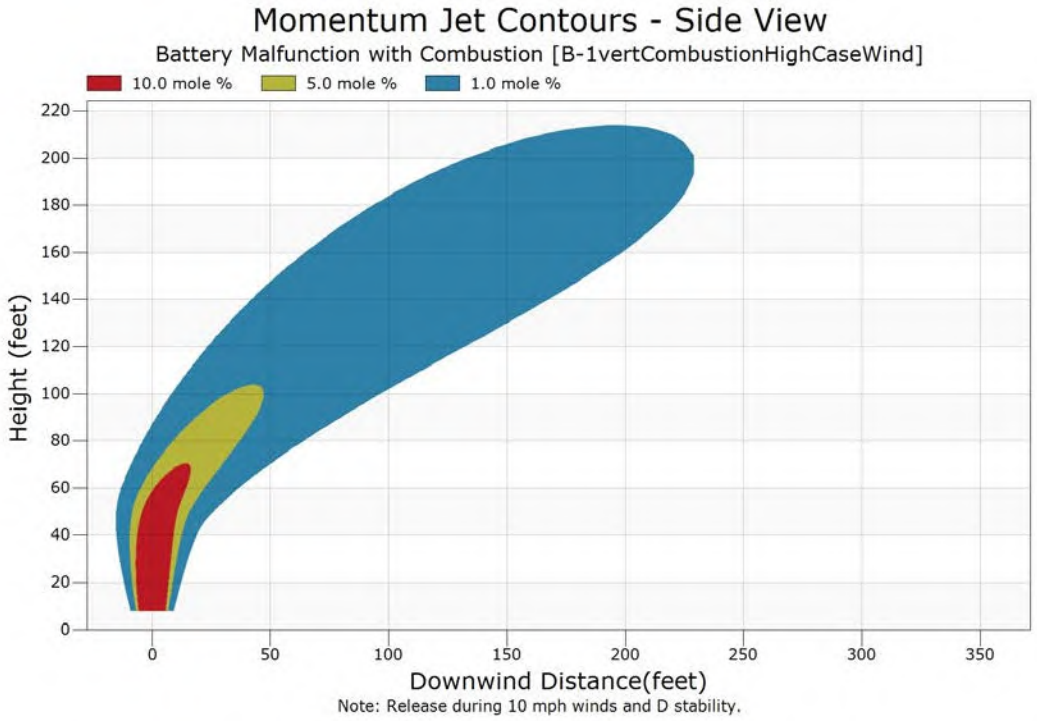
Endpoint 1 (highest) = 0.100000 mole fraction
Endpoint 2 (middle) = 0.050000 mole fraction
Endpoint 3 (lowest) = 0.010000 mole fraction

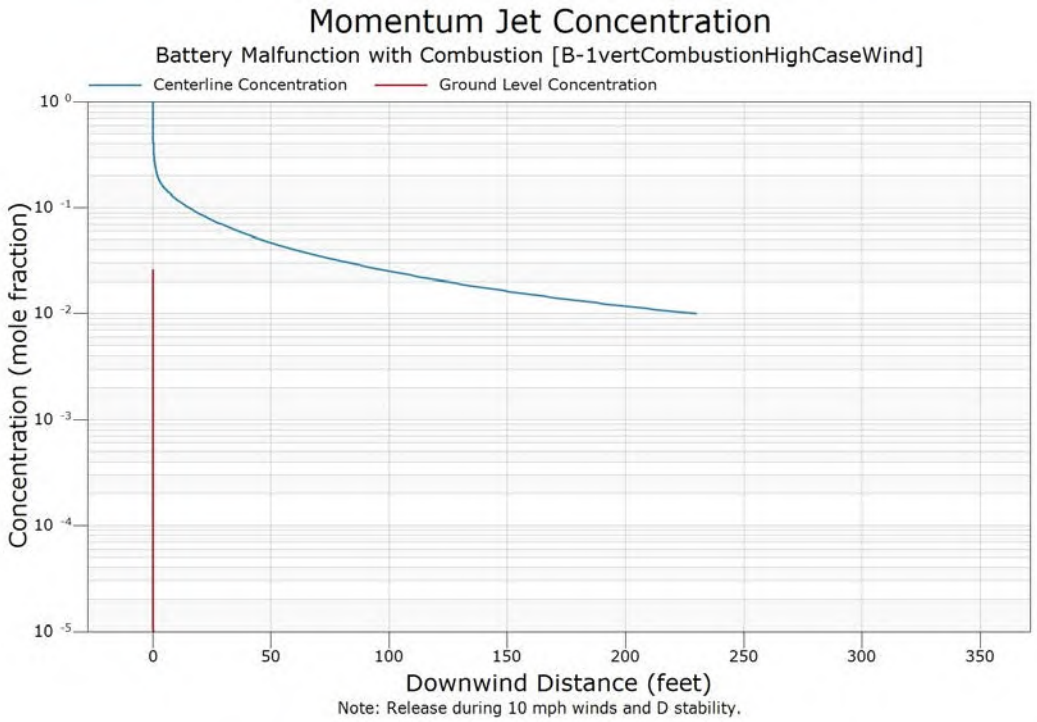
downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1.000000	0.000000	9.1	6.8	5.7	7.7
5	0.152590	0.000000	19.1	11.5	6.8	54.1
10	0.121143	0.000000	20.5	11.5	5.1	62.7
15	0.101440	0.000000	21.9	11.4	1.5	69.6
20	0.087403	0.000000	23.2	11.2	0.0	75.9
25	0.076783	0.000000	24.5	10.6	0.0	81.6
30	0.068379	0.000000	25.6	9.8	0.0	87.0
35	0.061574	0.000000	26.7	8.6	0.0	92.1
40	0.055932	0.000000	27.7	6.7	0.0	96.9
45	0.051150	0.000000	28.7	3.2	0.0	101.5
50	0.047075	0.000000	29.6	0.0	0.0	105.9
55	0.043538	0.000000	30.4	0.0	0.0	110.1
60	0.040462	0.000000	31.2	0.0	0.0	114.2
65	0.037733	0.000000	31.9	0.0	0.0	118.2
70	0.035339	0.000000	32.6	0.0	0.0	122.0
75	0.033181	0.000000	33.2	0.0	0.0	125.6
80	0.031229	0.000000	33.7	0.0	0.0	129.2
85	0.029484	0.000000	34.2	0.0	0.0	132.7
90	0.027906	0.000000	34.6	0.0	0.0	136.0
95	0.026454	0.000000	34.9	0.0	0.0	139.2
100	0.025132	0.000000	35.2	0.0	0.0	142.4
105	0.023923	0.000000	35.5	0.0	0.0	145.5
110	0.022815	0.000000	35.6	0.0	0.0	148.5
115	0.021784	0.000000	35.7	0.0	0.0	151.3
120	0.020834	0.000000	35.8	0.0	0.0	154.2
125	0.019963	0.000000	35.8	0.0	0.0	156.9
130	0.019140	0.000000	35.7	0.0	0.0	159.6
135	0.018367	0.000000	35.5	0.0	0.0	162.2
140	0.017648	0.000000	35.2	0.0	0.0	164.7
145	0.016977	0.000000	34.9	0.0	0.0	167.2
150	0.016349	0.000000	34.5	0.0	0.0	169.6
155	0.015761	0.000000	34.0	0.0	0.0	172.0
160	0.015205	0.000000	33.4	0.0	0.0	174.3
165	0.014685	0.000000	32.8	0.0	0.0	176.5
170	0.014193	0.000000	32.0	0.0	0.0	178.7

downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
175	0.013729	0.000001	31.1	0.0	0.0	180.8
180	0.013291	0.000001	30.1	0.0	0.0	182.9
185	0.012873	0.000001	29.0	0.0	0.0	184.9
190	0.012480	0.000001	27.7	0.0	0.0	186.9
195	0.012105	0.000001	26.2	0.0	0.0	188.9
200	0.011749	0.000001	24.6	0.0	0.0	190.8
205	0.011412	0.000001	22.7	0.0	0.0	192.6
210	0.011091	0.000001	20.4	0.0	0.0	194.4
215	0.010783	0.000002	17.8	0.0	0.0	196.2
220	0.010490	0.000002	14.4	0.0	0.0	198.0
225	0.010210	0.000002	9.5	0.0	0.0	199.6

	Endpoint (mole frac., mixture)	Downwind Distance (feet)	Approximate Time (seconds)
1	0.100000	15.4	0
2	0.050000	46.3	1
3	0.010000	228.9	4




Momentum Jet Contours - Side View
Battery Malfunction with Combustion [B-1vertCombustionHighCaseWind]
10.0 mole %
5.0 mole %
1.0 mole %
Height (feet)
Downwind Distance(feet)
Note: Release during 10 mph winds and D stability.


Momentum Jet Concentration
Battery Malfunction with Combustion [B-1vertCombustionHighCaseWind]
Centerline Concentration
Ground Level Concentration
Concentration (mole fraction)
Downwind Distance (feet)
Note: Release during 10 mph winds and D stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : B-1vertCombustionLowCase
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :    51 = H2        Hydrogen(equilibrium)       0.013905
Component  2        :    43 = CO        Carbon Monoxide             0.000099
Component  3        :    17 = CO2       Carbon Dioxide              0.000671
Component  4        :     1 = CH4       Methane                     0.000099
Component  5        :    89 = NO2       Nitrogen Dioxide            0.689369
Component  6        :    52 = H2O       Water                       0.295858
Component  7        :
Component  8        :
Component  9        :
Component 10        :

Temperature         :      1652.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    10.00 mph
Wind speed measurement height                  32.8 feet
Stability class <A-F>                             D
Relative humidity                                70 %
Air temperature                                77.0 °F
Spill surface temperature                      77.0 °F

Substrate name                            Soil
  Substrate thermal conductivity           1.0000 Btu/hr-ft-F
  Substrate density                           100 lb/cu.ft
  Substrate heat Capacity                    0.24 Btu/lb-F
  Substrate delay time                         60 sec
Surrounding terrain                       Long grass or crops > 15 cm (6 in)

  NOTES:
```

RELEASE MENU

Type of release:	Regulated, Continuous release	
Release duration	60	min
Regulated flow rate	63.93	lb/sec
Pipe inner diameter	106.00	inches
Equivalent release diameter	106.00	inches
Height of release point	7.8	feet
Angle of release from horizontal	90.0	degrees

NOTES:

IMPOUNDMENT MENU

Unconfined

NOTES:

VDVE MENU

Vapor generation and dispersion - Flammable calculation

Concentration endpoint 1	10.000000	mol%
Concentration endpoint 2	5.000000	mol%
Concentration endpoint 3	1.000000	mol%

Dispersion coefficient averaging time	1	min

NOTES:

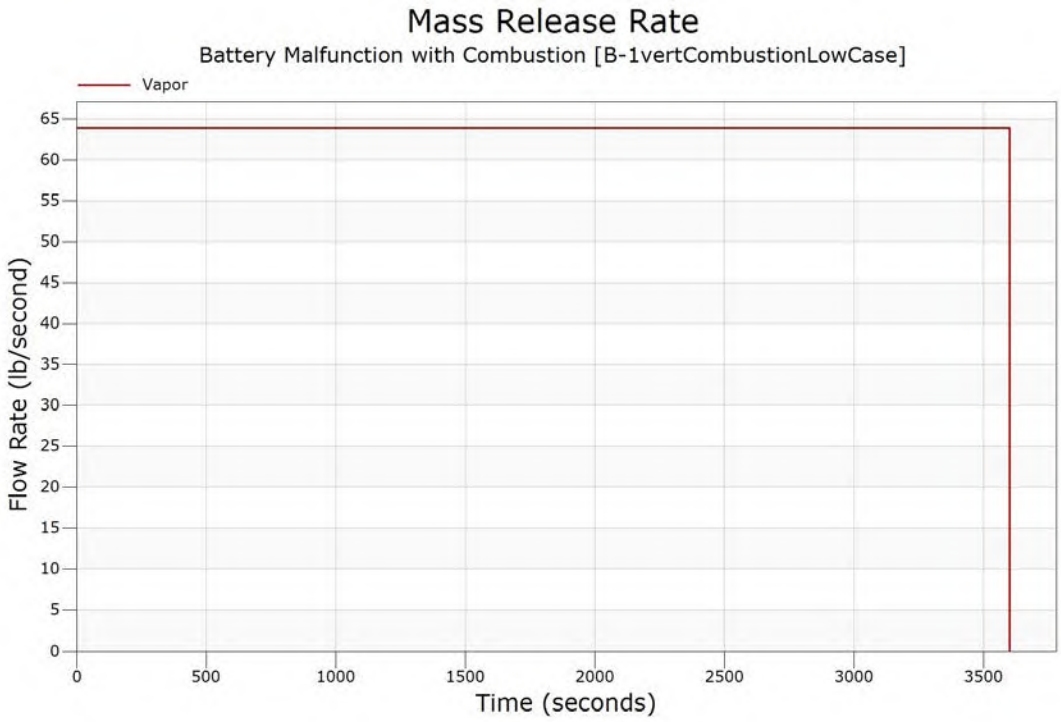
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	63.93000	0.000000	0.000000	63.93000
0.1000000	63.93000	0.000000	0.000000	63.93000
0.3000000	63.93000	0.000000	0.000000	63.93000
0.5000000	63.93000	0.000000	0.000000	63.93000
0.7000000	63.93000	0.000000	0.000000	63.93000
1.000000	63.93000	0.000000	0.000000	63.93000
3.000000	63.93000	0.000000	0.000000	63.93000
5.000000	63.93000	0.000000	0.000000	63.93000
7.000000	63.93000	0.000000	0.000000	63.93000
10.00000	63.93000	0.000000	0.000000	63.93000
20.00000	63.93000	0.000000	0.000000	63.93000
30.00000	63.93000	0.000000	0.000000	63.93000
40.00000	63.93000	0.000000	0.000000	63.93000
50.00000	63.93000	0.000000	0.000000	63.93000
60.00000	63.93000	0.000000	0.000000	63.93000
70.00000	63.93000	0.000000	0.000000	63.93000
85.00000	63.93000	0.000000	0.000000	63.93000
100.0000	63.93000	0.000000	0.000000	63.93000
200.0000	63.93000	0.000000	0.000000	63.93000
300.0000	63.93000	0.000000	0.000000	63.93000
400.0000	63.93000	0.000000	0.000000	63.93000
500.0000	63.93000	0.000000	0.000000	63.93000
600.0000	63.93000	0.000000	0.000000	63.93000
700.0000	63.93000	0.000000	0.000000	63.93000
850.0000	63.93000	0.000000	0.000000	63.93000
1000.000	63.93000	0.000000	0.000000	63.93000
2000.000	63.93000	0.000000	0.000000	63.93000
3000.000	63.93000	0.000000	0.000000	63.93000
3600.000	63.93000	0.000000	0.000000	63.93000
Totals (lb)	230148.0	0.000000	0.000000	230148.0

Flowrate for Jet Fire [immediate ignition] = 63.93000 lb/sec.
Jet Fire [delayed ignition] = 63.93000 lb/sec.

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction with Combustion [B-1vertCombustionLowCase]
Vapor
Flow Rate (lb/second)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
17	Carbon Dioxide, CO2
1	Methane, CH4
89	Nitrogen Dioxide, NO2
52	Water, H2O

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.013905	0.013905	0.000000	0.000000	0.013905	0.000000
43	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
17	0.000671	0.000671	0.000000	0.000000	0.000671	0.000000
1	0.000099	0.000099	0.000000	0.000000	0.000099	0.000000
89	0.689369	0.689369	0.000000	0.000000	0.689369	0.000000
52	0.295858	0.295858	0.000000	0.000000	0.295858	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Flammable Limits (Mole %) of Fluid Streams

Limit	Feed Stream	Momentum Jet Stream	Liquid Pool Stream
LFL	100.00	100.00	
UFL	100.00	100.00	
LBV		0.00 m/s	

Momentum Jet Dispersion

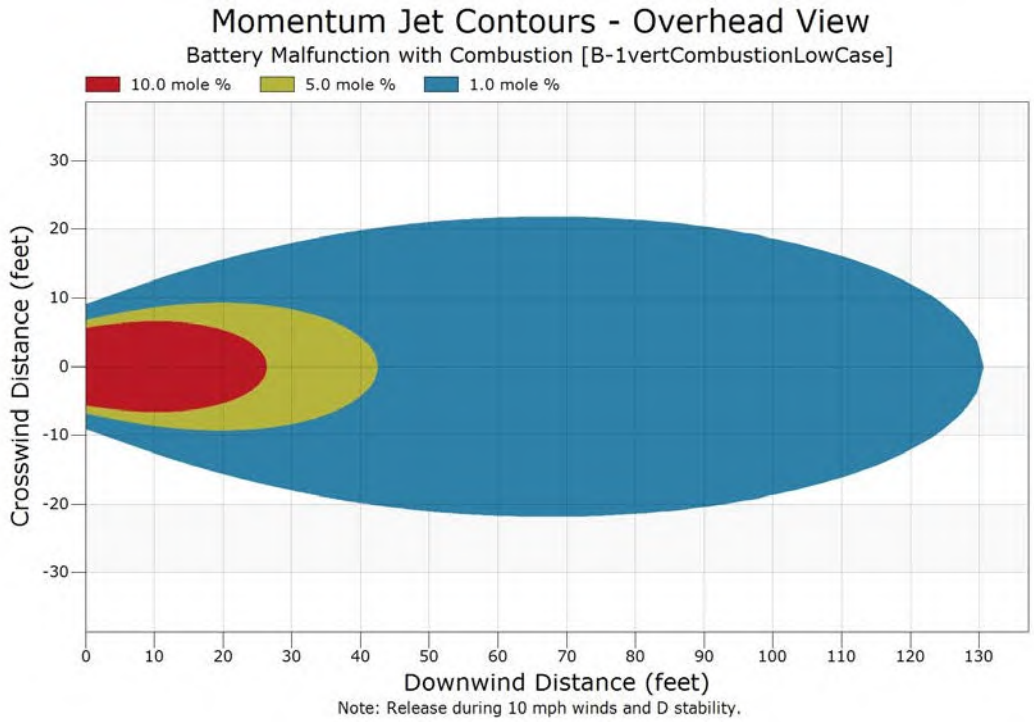
concentration limits

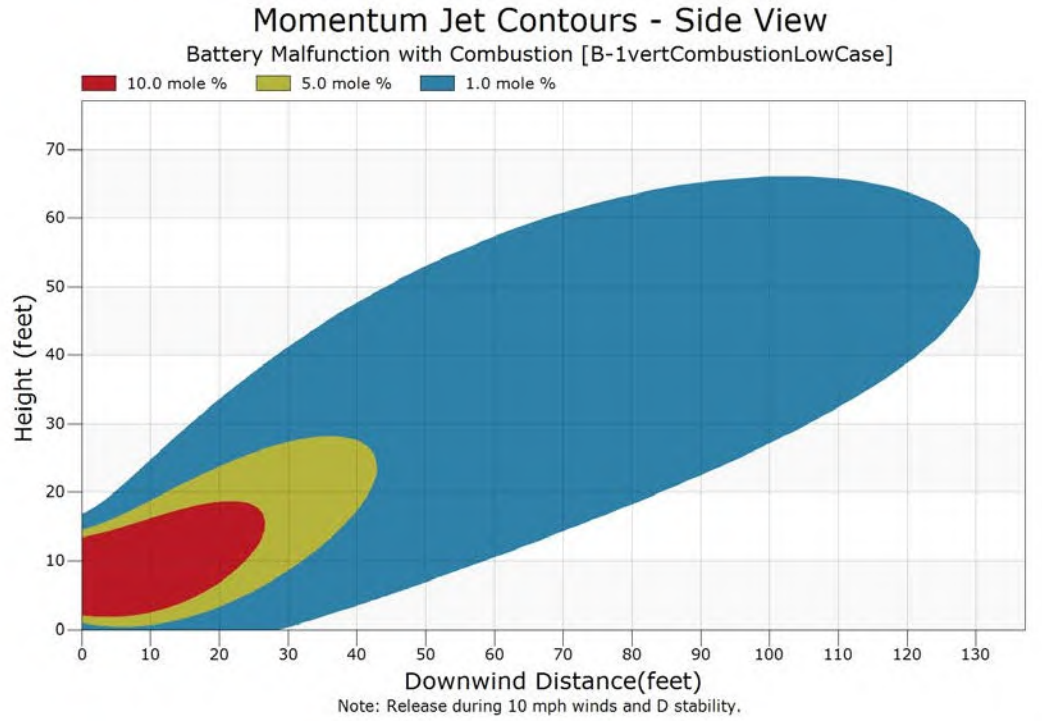
Endpoint 1 (highest) = 0.100000 mole fraction
Endpoint 2 (middle) = 0.050000 mole fraction
Endpoint 3 (lowest) = 0.010000 mole fraction

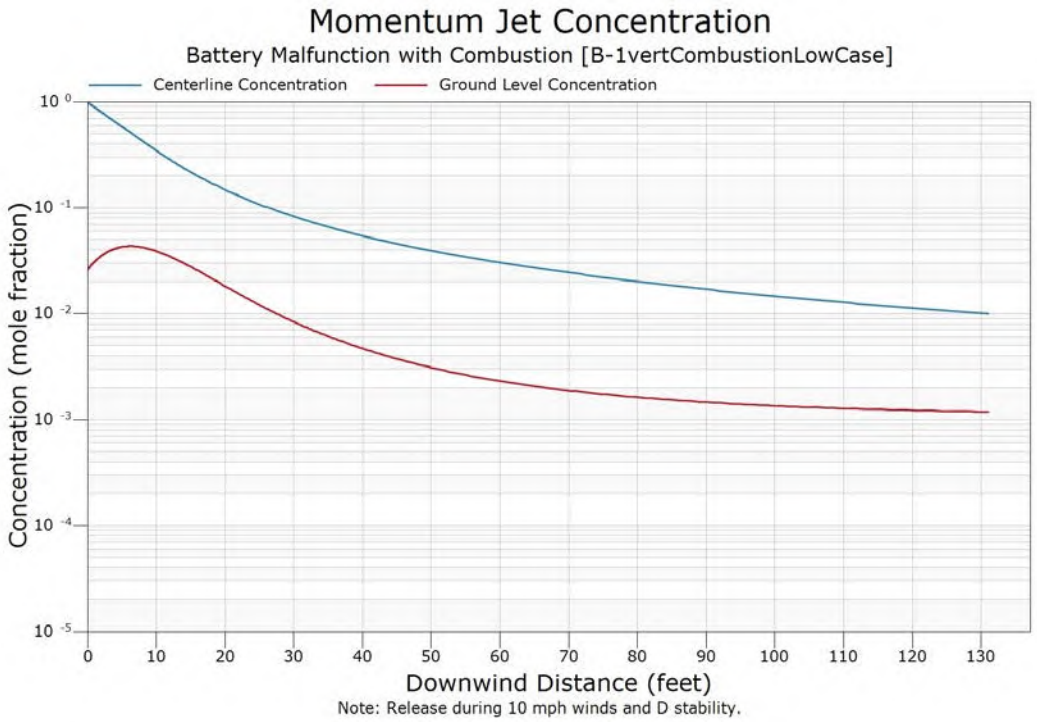
downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1.000000	0.000000	9.1	6.8	5.7	7.7
3	0.760889	0.037002	10.0	7.3	6.0	7.8
5	0.584698	0.042718	10.9	7.8	6.3	8.1
7	0.449199	0.042792	11.8	8.3	6.5	8.6
10	0.346711	0.039003	12.6	8.6	6.6	9.3
13	0.272026	0.033436	13.4	8.9	6.5	10.2
15	0.217595	0.027760	14.2	9.1	6.4	11.2
18	0.177672	0.022592	15.0	9.3	6.0	12.3
20	0.147962	0.018284	15.7	9.3	5.4	13.5
23	0.125401	0.014818	16.3	9.2	4.4	14.8
25	0.107950	0.012120	16.9	9.1	2.7	16.2
28	0.094095	0.010003	17.5	8.8	0.0	17.5
30	0.082968	0.008380	18.0	8.4	0.0	18.9
33	0.073884	0.007133	18.6	7.8	0.0	20.2
35	0.066365	0.006133	19.0	7.0	0.0	21.6
38	0.060083	0.005342	19.4	5.9	0.0	22.9
40	0.054650	0.004694	19.8	4.3	0.0	24.2
43	0.050077	0.004174	20.2	0.2	0.0	25.5
45	0.046089	0.003746	20.5	0.0	0.0	26.8
48	0.042647	0.003396	20.8	0.0	0.0	28.0
50	0.039616	0.003102	21.1	0.0	0.0	29.2
53	0.036935	0.002855	21.3	0.0	0.0	30.4
55	0.034524	0.002645	21.5	0.0	0.0	31.5
58	0.032393	0.002470	21.6	0.0	0.0	32.7
60	0.030473	0.002313	21.7	0.0	0.0	33.8
62	0.028735	0.002181	21.8	0.0	0.0	34.8
65	0.027167	0.002071	21.8	0.0	0.0	35.8
68	0.025744	0.001973	21.9	0.0	0.0	36.8
70	0.024441	0.001882	21.8	0.0	0.0	37.8
73	0.023231	0.001806	21.8	0.0	0.0	38.8
75	0.022144	0.001737	21.7	0.0	0.0	39.7
78	0.021136	0.001679	21.6	0.0	0.0	40.6
80	0.020196	0.001626	21.4	0.0	0.0	41.5
83	0.019320	0.001576	21.2	0.0	0.0	42.3
85	0.018508	0.001533	21.0	0.0	0.0	43.2

downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
88	0.017752	0.001497	20.7	0.0	0.0	44.0
90	0.017047	0.001460	20.4	0.0	0.0	44.8
93	0.016392	0.001426	20.1	0.0	0.0	45.6
95	0.015773	0.001401	19.7	0.0	0.0	46.3
98	0.015202	0.001375	19.2	0.0	0.0	47.0
100	0.014659	0.001350	18.7	0.0	0.0	47.7
103	0.014147	0.001328	18.2	0.0	0.0	48.4
105	0.013671	0.001311	17.6	0.0	0.0	49.1
108	0.013221	0.001293	16.9	0.0	0.0	49.8
110	0.012795	0.001277	16.1	0.0	0.0	50.4
112	0.012387	0.001262	15.3	0.0	0.0	51.0
115	0.012003	0.001249	14.4	0.0	0.0	51.6
118	0.011638	0.001237	13.3	0.0	0.0	52.2
120	0.011291	0.001226	12.1	0.0	0.0	52.8
123	0.010963	0.001217	10.7	0.0	0.0	53.3
125	0.010647	0.001207	8.9	0.0	0.0	53.9
128	0.010349	0.001199	6.7	0.0	0.0	54.4
130	0.010066	0.001191	2.4	0.0	0.0	55.0

	Endpoint (mole frac., mixture)	Downwind Distance (feet)	Approximate Time (seconds)
1	0.100000	26.4	1
2	0.050000	42.5	2
3	0.010000	130.6	6




Momentum Jet Contours - Side View
Battery Malfunction with Combustion [B-1vertCombustionLowCase]
10.0 mole %
5.0 mole %
1.0 mole %
Height (feet)
Downwind Distance(feet)
Note: Release during 10 mph winds and D stability.


Momentum Jet Concentration
Battery Malfunction with Combustion [B-1vertCombustionLowCase]
Centerline Concentration
Ground Level Concentration
Concentration (mole fraction)
Downwind Distance (feet)
Note: Release during 10 mph winds and D stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1vert
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO        Carbon Monoxide             0.506656
Component  3        :      1 = CH4       Methane                     0.099344
Component  4        :      2 = C2H6      Ethane                      0.039738
Component  5        :      3 = C3H8      Propane                     0.089410
Component  6        :     50 = HF        Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl       Hydrogen Chloride           0.000993
Component  8        :    103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

RELEASE MENU
Type of release: Regulated, Continuous release

Release duration	60 min
Regulated flow rate	0.26 lb/sec
Pipe inner diameter	12.00 inches
Equivalent release diameter	12.00 inches
Height of release point	7.8 feet
Angle of release from horizontal	90.0 degrees

NOTES:

IMPOUNDMENT MENU
Unconfined

NOTES:

VDVE MENU
Vapor generation, dispersion and cloud explosion - Flammable calculation

Concentration endpoint 1	LFL mol%
Concentration endpoint 2	1/2 LFL mol%
Concentration endpoint 3	1/2 LFL mol%

Dispersion coefficient averaging time	1 min

Baker-Strehlow-Tang parameters

Fuel reactivity	High
Obstacle density	High
Flame expansion	3-D

Overpressure values

Overpressure endpoint 1	3.00 psi
Overpressure endpoint 2	1.00 psi
Overpressure endpoint 3	1.00 psi

NOTES:

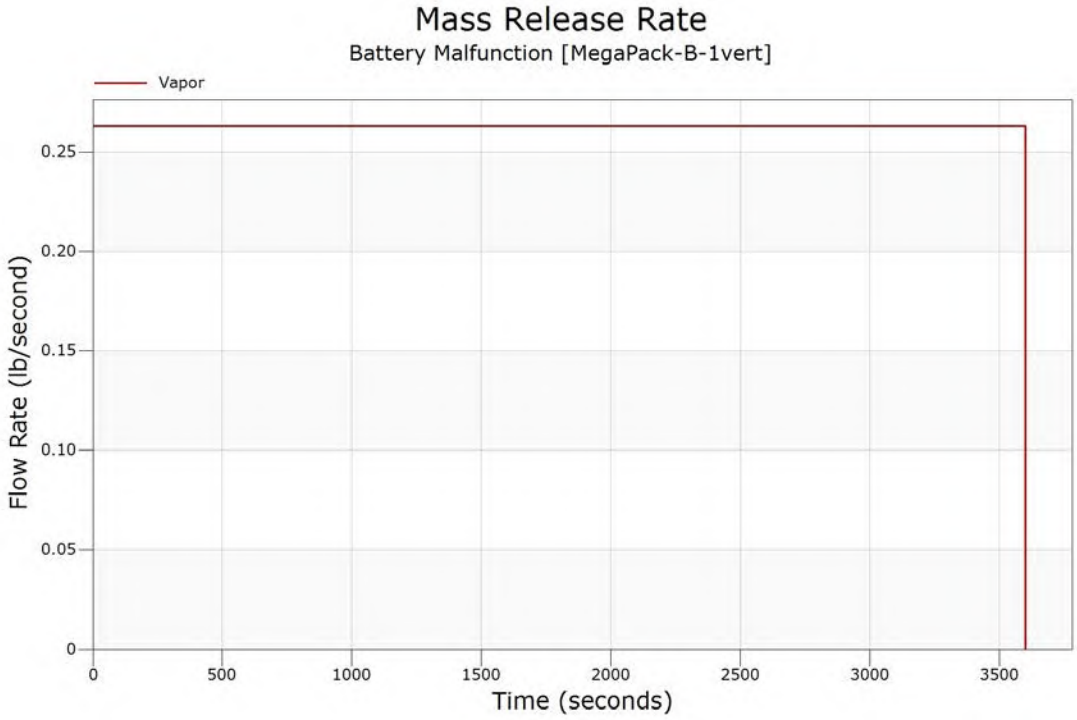
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Flowrate for Jet Fire [immediate ignition] = 0.2631001 lb/sec.
Jet Fire [delayed ignition] = 0.2631001 lb/sec.

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1vert]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Flammable Limits (Mole %) of Fluid Streams

Limit	Feed Stream	Momentum Jet Stream	Liquid Pool Stream
LFL	5.43	5.43	
UFL	33.27	33.27	
LBV		0.39 m/s	

Momentum Jet Dispersion

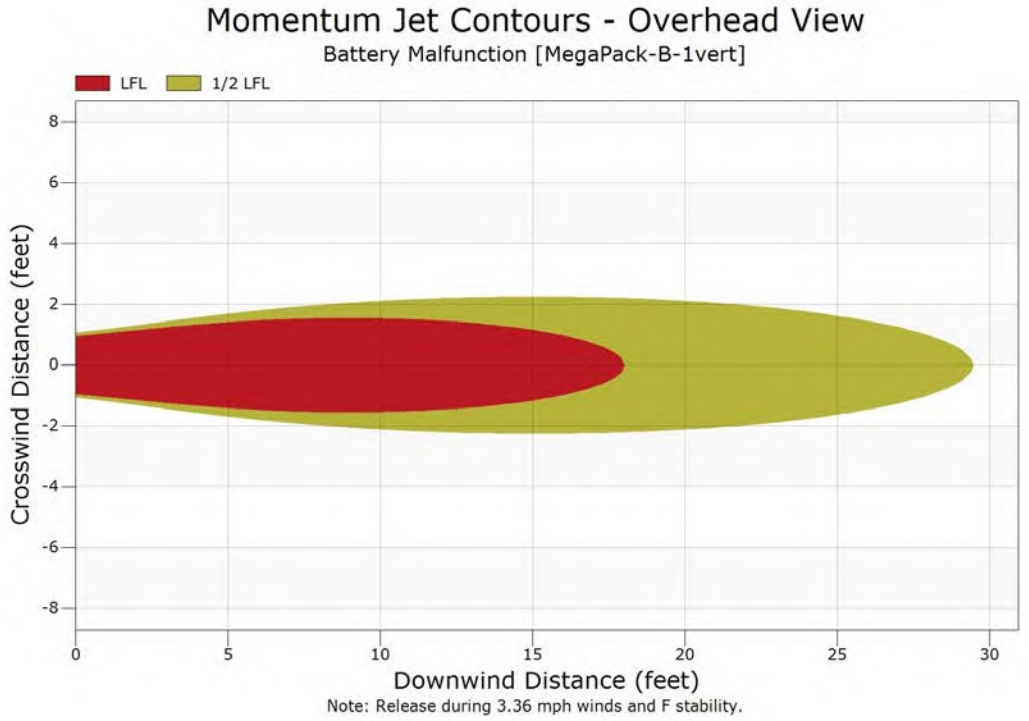
concentration limits

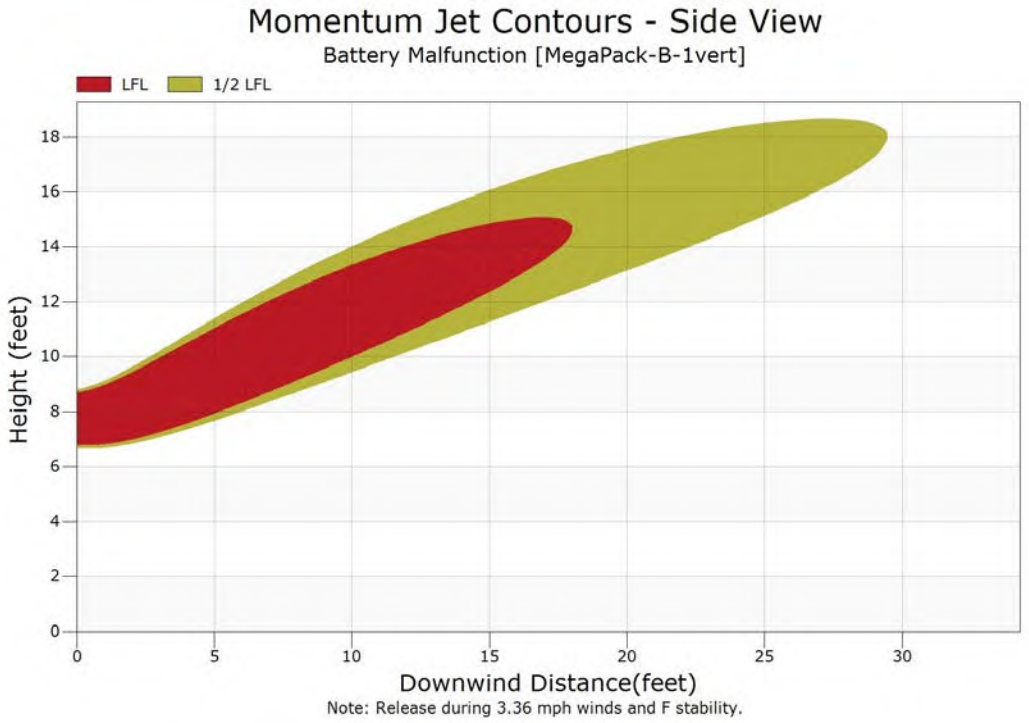
Endpoint 1 (highest) = 0.054276 mole fraction
Endpoint 2 (middle) = 0.027138 mole fraction
Endpoint 3 (lowest) = 0.027138 mole fraction

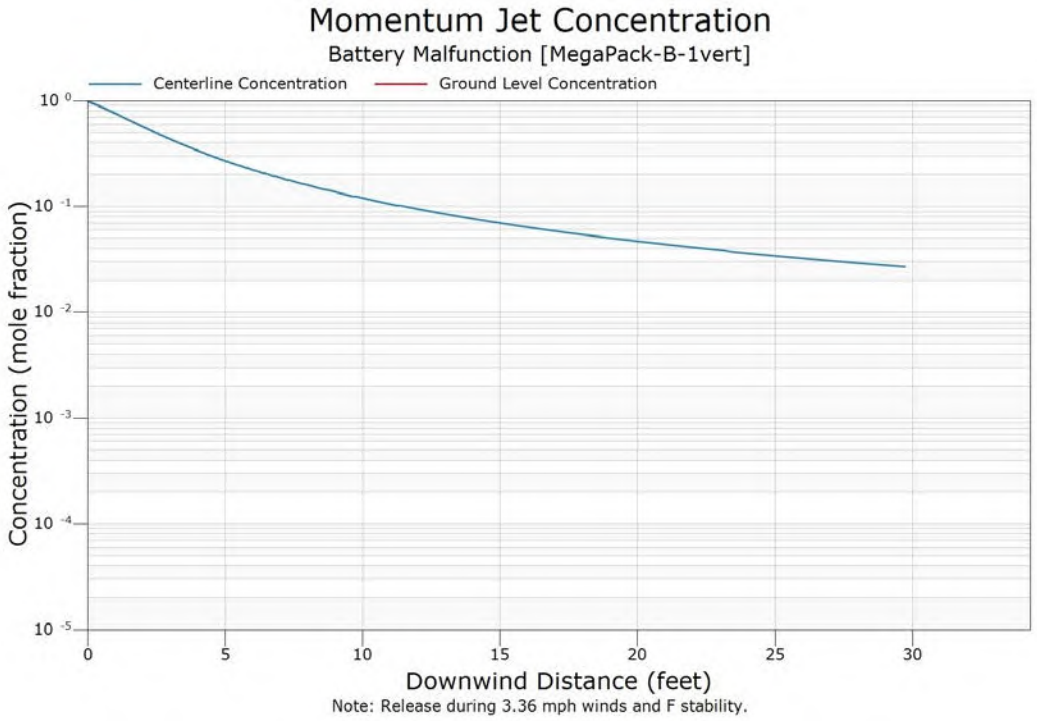
downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1.000000	0.000000	1.1	1.1	1.0	7.7
0.5	0.873278	0.000000	1.1	1.1	1.0	7.8
1.0	0.760914	0.000000	1.2	1.2	1.1	7.9
1.5	0.658185	0.000000	1.2	1.2	1.1	8.0
2.0	0.569624	0.000000	1.3	1.3	1.2	8.2
2.5	0.494998	0.000000	1.4	1.4	1.2	8.3
3.0	0.432882	0.000000	1.4	1.4	1.2	8.6
3.5	0.381287	0.000000	1.5	1.5	1.3	8.8
4.0	0.338129	0.000000	1.6	1.6	1.3	9.0
4.5	0.301985	0.000000	1.6	1.6	1.4	9.2
5.0	0.271111	0.000000	1.7	1.7	1.4	9.4
5.5	0.245067	0.000000	1.7	1.7	1.4	9.7
6.0	0.222817	0.000000	1.8	1.8	1.5	9.9
6.5	0.203370	0.000000	1.8	1.8	1.5	10.1
7.0	0.186506	0.000000	1.9	1.9	1.5	10.4
7.5	0.171836	0.000000	1.9	1.9	1.5	10.6
8.0	0.158859	0.000000	2.0	2.0	1.5	10.8
8.5	0.147408	0.000000	2.0	2.0	1.5	11.0
9.0	0.137303	0.000000	2.1	2.1	1.6	11.3
9.5	0.128144	0.000000	2.1	2.1	1.5	11.5
10.0	0.119931	0.000000	2.1	2.1	1.5	11.7
10.5	0.112618	0.000000	2.1	2.1	1.5	11.9
11.0	0.106009	0.000000	2.2	2.2	1.5	12.1
11.5	0.100040	0.000000	2.2	2.2	1.5	12.3
12.0	0.094536	0.000000	2.2	2.2	1.5	12.5
12.5	0.089555	0.000000	2.2	2.2	1.4	12.7
13.0	0.084913	0.000000	2.2	2.2	1.4	12.9
13.5	0.080692	0.000000	2.2	2.2	1.4	13.1
14.0	0.076797	0.000000	2.2	2.2	1.3	13.3
14.5	0.073224	0.000000	2.3	2.3	1.2	13.5
15.0	0.069927	0.000000	2.3	2.3	1.2	13.7
15.5	0.066836	0.000000	2.3	2.3	1.1	13.9
16.0	0.063996	0.000000	2.2	2.2	1.0	14.0
16.5	0.061321	0.000000	2.2	2.2	0.9	14.2
17.0	0.058840	0.000000	2.2	2.2	0.7	14.4

downwind distance (ft)	centerline conc. (mole frac.)	ground conc. (mole frac.)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
17.5	0.056515	0.000000	2.2	2.2	0.5	14.6
18.0	0.054350	0.000000	2.2	2.2	0.0	14.7
18.5	0.052310	0.000000	2.2	2.2	0.0	14.9
19.0	0.050398	0.000000	2.2	2.2	0.0	15.1
19.5	0.048603	0.000000	2.1	2.1	0.0	15.2
20.0	0.046907	0.000000	2.1	2.1	0.0	15.4
20.5	0.045316	0.000000	2.1	2.1	0.0	15.6
21.0	0.043808	0.000000	2.1	2.1	0.0	15.7
21.5	0.042381	0.000000	2.0	2.0	0.0	15.9
22.0	0.041037	0.000000	2.0	2.0	0.0	16.0
22.5	0.039764	0.000000	1.9	1.9	0.0	16.2
23.0	0.038550	0.000000	1.9	1.9	0.0	16.3
23.5	0.037394	0.000000	1.8	1.8	0.0	16.5
24.0	0.036301	0.000000	1.8	1.8	0.0	16.6
24.5	0.035261	0.000000	1.7	1.7	0.0	16.8
25.0	0.034266	0.000000	1.6	1.6	0.0	16.9
25.5	0.033321	0.000000	1.6	1.6	0.0	17.0
26.0	0.032419	0.000000	1.5	1.5	0.0	17.2
26.5	0.031552	0.000000	1.4	1.4	0.0	17.3
27.0	0.030725	0.000000	1.3	1.3	0.0	17.4
27.5	0.029937	0.000000	1.1	1.1	0.0	17.6
28.0	0.029182	0.000000	1.0	1.0	0.0	17.7
28.5	0.028457	0.000000	0.8	0.8	0.0	17.8
29.0	0.027762	0.000000	0.6	0.6	0.0	18.0
29.5	0.027095	0.000000	0.0	0.0	0.0	18.1

	Endpoint (mole frac., mixture)	Downwind Distance (feet)	Approximate Time (seconds)
1	0.054276 (LFL)	18.0	4
2	0.027138 (1/2 LFL)	29.5	6
3	0.027138 (1/2 LFL)	29.5	6


Momentum Jet Contours - Overhead View
Battery Malfunction [MegaPack-B-1vert]
LFL
1/2 LFL
Crosswind Distance (feet)
8
6
4
2
0
-2
-4
-6
-8
0
5
10
15
20
25
30
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1vert]
LFL
1/2 LFL
Height (feet)
18
16
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1vert]
Centerline Concentration
Ground Level Concentration
Concentration (mole fraction)
10 0
10 -1
10 -2
10 -3
10 -4
10 -5
0
5
10
15
20
25
30
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

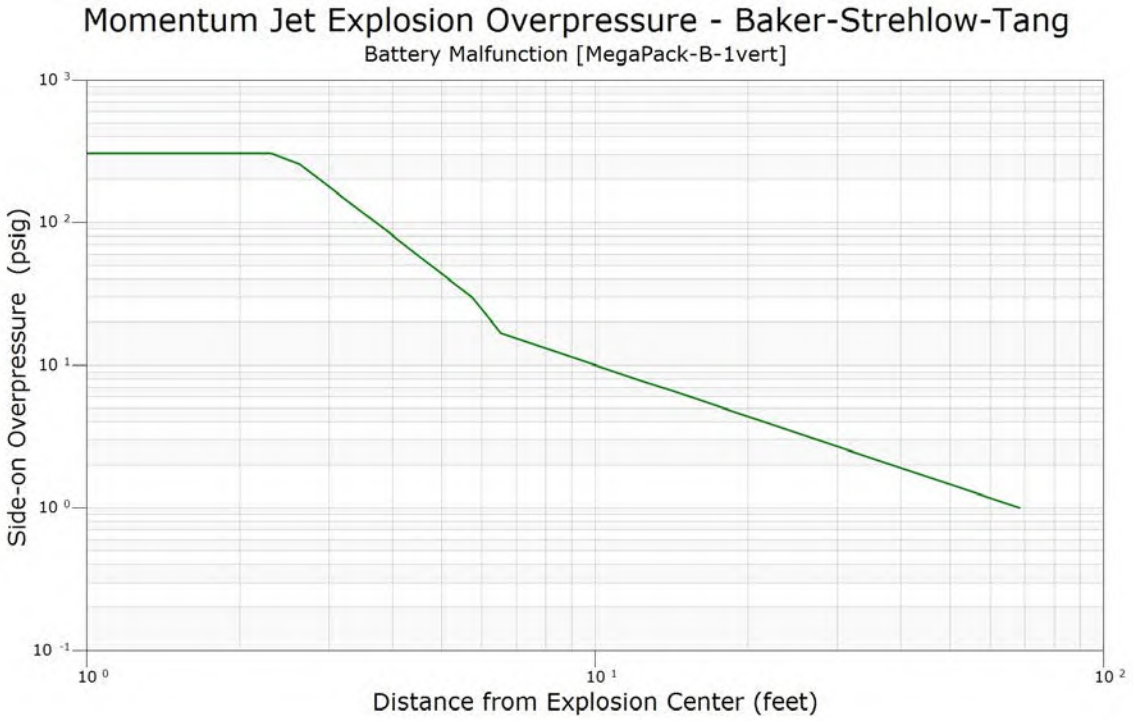
Momentum Jet Explosion

Fuel Reactivity: High Obstacle Density: High
Flame Expansion: 3-D Flame Speed: 5.20

Mass of released material involved in explosion: 0.980046 lbs.

Distance from Center of Flammable Cloud (feet)	Overpressure (psi gauge)	Impulse (psi-s)
0.0	308.61	0.0596
1.6	308.61	0.0596
1.8	308.61	0.0525
2.0	308.61	0.0462
2.3	308.61	0.0407
2.6	256.33	0.0358
3.0	179.31	0.0315
3.4	125.43	0.0278
3.9	87.74	0.0244
4.4	61.37	0.0215
5.0	42.93	0.0189
5.7	30.03	0.0167
6.5	16.76	0.0147
7.4	14.34	0.0129
8.5	12.27	0.0114
9.6	10.50	0.0100
11.0	8.98	0.0088
12.5	7.69	0.0078
14.2	6.58	0.0068
16.2	5.63	0.0060
18.5	4.81	0.0053
21.0	4.12	0.0047
23.9	3.52	0.0041
27.3	3.02	0.0036
68.4	1.00	0.0015

The downwind distance to 3.00 psi is 27.6 feet
The downwind distance to 1.00 psi is 68.4 feet
The downwind distance to 1.00 psi is 68.4 feet


Momentum Jet Explosion Overpressure - Baker-Strehlow-Tang
Battery Malfunction [MegaPack-B-1vert]
Side-on Overpressure (psig)
10 3
10 2
10 1
10 0
10 -1
10 0
10 1
10 2
Distance from Explosion Center (feet)

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicCO
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO        Carbon Monoxide             0.506656
Component  3        :      1 = CH4       Methane                     0.099344
Component  4        :      2 = C2H6      Ethane                      0.039738
Component  5        :      3 = C3H8      Propane                     0.089410
Component  6        :     50 = HF        Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl       Hydrogen Chloride           0.000993
Component  8        :    103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate                             0.26 lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   43 = CO        Carbon Monoxide
Concentration endpoint 1                      1200.0 ppm
Concentration endpoint 2                       500.0 ppm
Concentration endpoint 3                       350.0 ppm

Dispersion coefficient averaging time              1 min


  NOTES:
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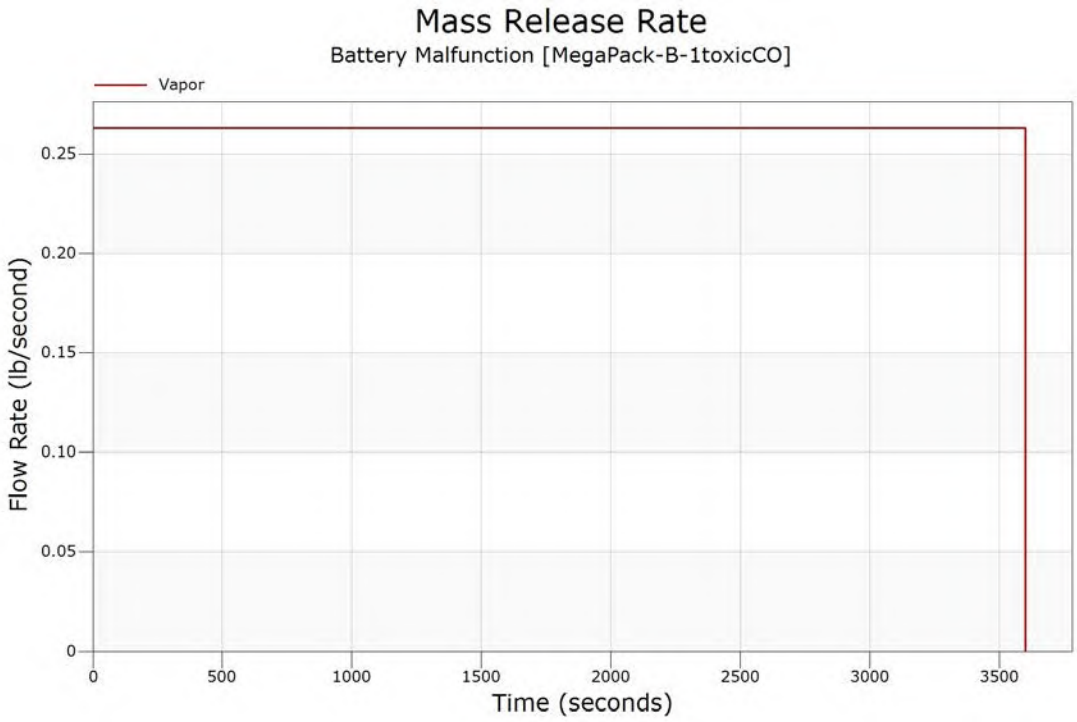
Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicCO]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

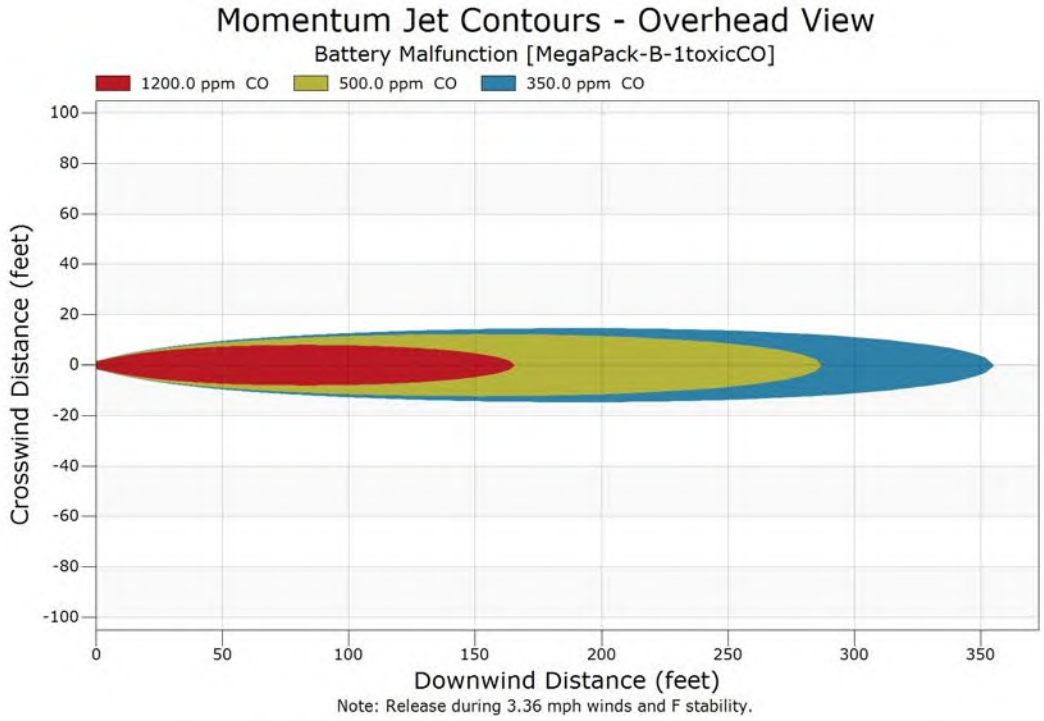
concentration limits

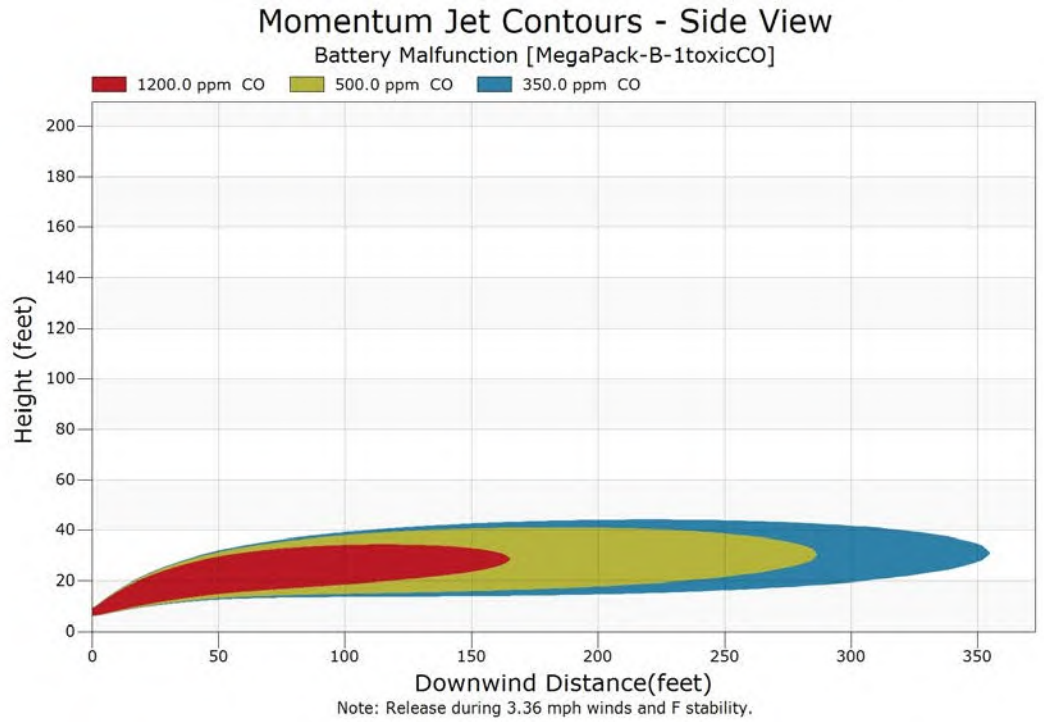
Endpoint 1 (highest) = 1200.0 ppm
Endpoint 2 (middle) = 500.0 ppm
Endpoint 3 (lowest) = 350.0 ppm

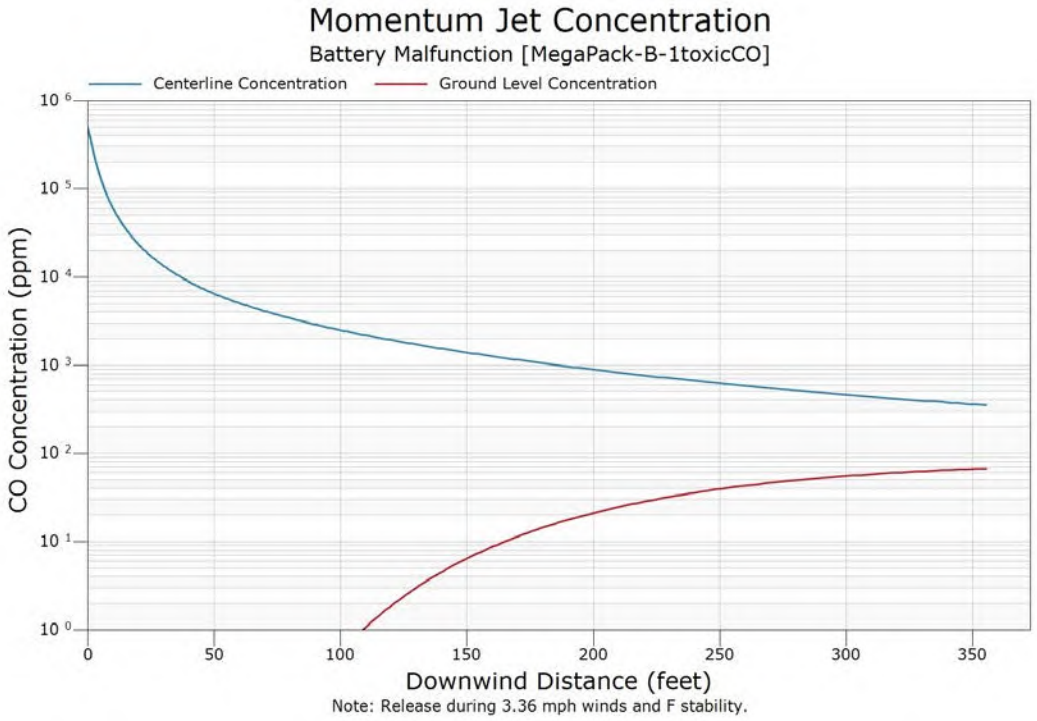
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	506656.000	0.000	1.5	1.5	1.4	7.7
5	137308.239	0.000	2.7	2.6	2.4	9.4
10	60760.707	0.000	3.9	3.8	3.4	11.7
15	35426.246	0.000	5.0	4.8	4.3	13.7
20	23767.614	0.000	5.9	5.6	5.0	15.4
25	17354.285	0.000	6.7	6.4	5.5	16.9
30	13393.549	0.000	7.4	7.0	6.0	18.2
35	10752.091	0.000	8.0	7.6	6.4	19.4
40	8883.918	0.000	8.6	8.1	6.8	20.5
45	7527.030	0.000	9.1	8.6	7.1	21.4
50	6502.521	0.001	9.6	9.0	7.3	22.2
55	5705.038	0.003	10.1	9.4	7.5	22.9
60	5061.222	0.007	10.5	9.7	7.7	23.5
65	4539.876	0.015	10.8	10.0	7.8	24.0
70	4101.976	0.030	11.2	10.3	7.9	24.5
75	3732.426	0.056	11.5	10.6	8.0	24.9
80	3415.790	0.097	11.8	10.8	8.0	25.3
85	3141.463	0.159	12.1	11.0	8.0	25.6
90	2900.717	0.251	12.3	11.2	8.0	25.9
95	2690.091	0.377	12.6	11.4	7.9	26.2
100	2503.831	0.550	12.8	11.6	7.8	26.5
105	2335.373	0.777	13.0	11.7	7.7	26.7
110	2185.421	1.065	13.2	11.9	7.6	27.0
115	2051.339	1.425	13.4	12.0	7.4	27.2
120	1928.338	1.863	13.6	12.1	7.2	27.4
125	1817.921	2.391	13.7	12.2	6.9	27.6
130	1717.183	3.004	13.9	12.2	6.6	27.7
135	1624.107	3.709	14.0	12.3	6.2	27.9
140	1539.503	4.517	14.1	12.3	5.8	28.1
145	1461.542	5.422	14.3	12.4	5.3	28.2
150	1388.766	6.436	14.4	12.4	4.7	28.4
155	1322.264	7.537	14.4	12.4	3.9	28.5
160	1260.656	8.743	14.5	12.3	2.8	28.6
165	1202.743	10.022	14.6	12.3	0.4	28.7
170	1149.250	11.391	14.6	12.3	0.0	28.9

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
175	1099.196	12.861	14.7	12.2	0.0	29.0
180	1052.833	14.390	14.7	12.1	0.0	29.1
185	1009.354	15.993	14.7	12.0	0.0	29.2
190	968.234	17.630	14.8	11.9	0.0	29.3
195	929.536	19.351	14.7	11.8	0.0	29.4
200	893.531	21.099	14.7	11.6	0.0	29.5
205	859.962	22.873	14.7	11.4	0.0	29.5
210	827.760	24.691	14.7	11.2	0.0	29.6
215	797.424	26.555	14.6	11.0	0.0	29.7
220	768.706	28.375	14.5	10.8	0.0	29.8
225	741.671	30.258	14.5	10.5	0.0	29.9
230	716.240	32.100	14.4	10.2	0.0	29.9
235	691.938	33.957	14.3	9.8	0.0	30.0
240	668.740	35.753	14.1	9.5	0.0	30.1
245	646.902	37.582	14.0	9.1	0.0	30.1
250	626.068	39.359	13.8	8.6	0.0	30.2
255	606.163	41.166	13.7	8.1	0.0	30.2
260	587.378	42.907	13.5	7.5	0.0	30.3
265	569.391	44.625	13.3	6.9	0.0	30.4
270	552.127	46.263	13.0	6.1	0.0	30.4
275	535.687	47.863	12.8	5.1	0.0	30.5
280	520.086	49.428	12.5	3.9	0.0	30.5
285	505.067	50.954	12.2	1.9	0.0	30.6
290	490.795	52.449	11.9	0.0	0.0	30.6
295	477.157	53.856	11.6	0.0	0.0	30.7
300	463.979	55.263	11.2	0.0	0.0	30.7
305	451.363	56.580	10.8	0.0	0.0	30.7
310	439.221	57.845	10.3	0.0	0.0	30.8
315	427.515	59.028	9.8	0.0	0.0	30.8
320	416.370	60.216	9.2	0.0	0.0	30.9
325	405.660	61.324	8.6	0.0	0.0	30.9
330	395.244	62.359	7.9	0.0	0.0	31.0
335	385.486	63.443	7.2	0.0	0.0	31.0
340	376.038	64.334	6.2	0.0	0.0	31.0
345	366.627	65.296	5.1	0.0	0.0	31.1
350	358.094	66.106	3.6	0.0	0.0	31.1
355	349.842	66.948	0.0	0.0	0.0	31.1

	Endpoint (ppm, CO)	Downwind Distance (feet)	Approximate Time (seconds)
1	1200.0	165.2	36
2	500.0	286.7	61
3	350.0	354.9	75


Momentum Jet Contours - Overhead View
Battery Malfunction [MegaPack-B-1toxicCO]
1200.0 ppm CO
500.0 ppm CO
350.0 ppm CO
Crosswind Distance (feet)
100
80
60
40
20
0
-20
-40
-60
-80
-100
0
50
100
150
200
250
300
350
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicCO]
1200.0 ppm CO
500.0 ppm CO
350.0 ppm CO
Height (feet)
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
250
300
350
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicCO]
Centerline Concentration
Ground Level Concentration
CO Concentration (ppm)
10 6
10 5
10 4
10 3
10 2
10 1
10 0
0
50
100
150
200
250
300
350
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicCOHighWind
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO        Carbon Monoxide             0.506656
Component  3        :      1 = CH4       Methane                     0.099344
Component  4        :      2 = C2H6      Ethane                      0.039738
Component  5        :      3 = C3H8      Propane                     0.089410
Component  6        :     50 = HF        Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl       Hydrogen Chloride           0.000993
Component  8        :    103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    10.00 mph
Wind speed measurement height                  32.8 feet
Stability class <A-F>                             D
Relative humidity                                70 %
Air temperature                                77.0 °F
Spill surface temperature                      77.0 °F

Substrate name                           Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                      Long grass or crops > 15 cm (6 in)

  NOTES:
```

```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate                             0.26 lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   43 = CO        Carbon Monoxide
Concentration endpoint 1                      1200.0 ppm
Concentration endpoint 2                       500.0 ppm
Concentration endpoint 3                       350.0 ppm

Dispersion coefficient averaging time             1 min

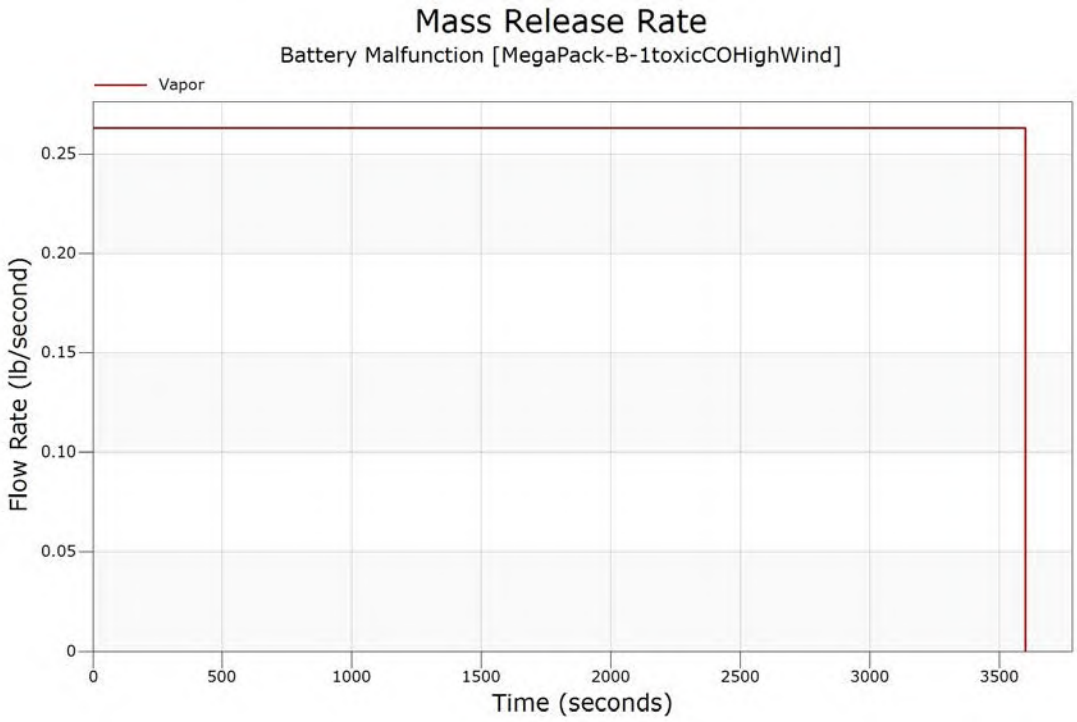

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicCOHighWind]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

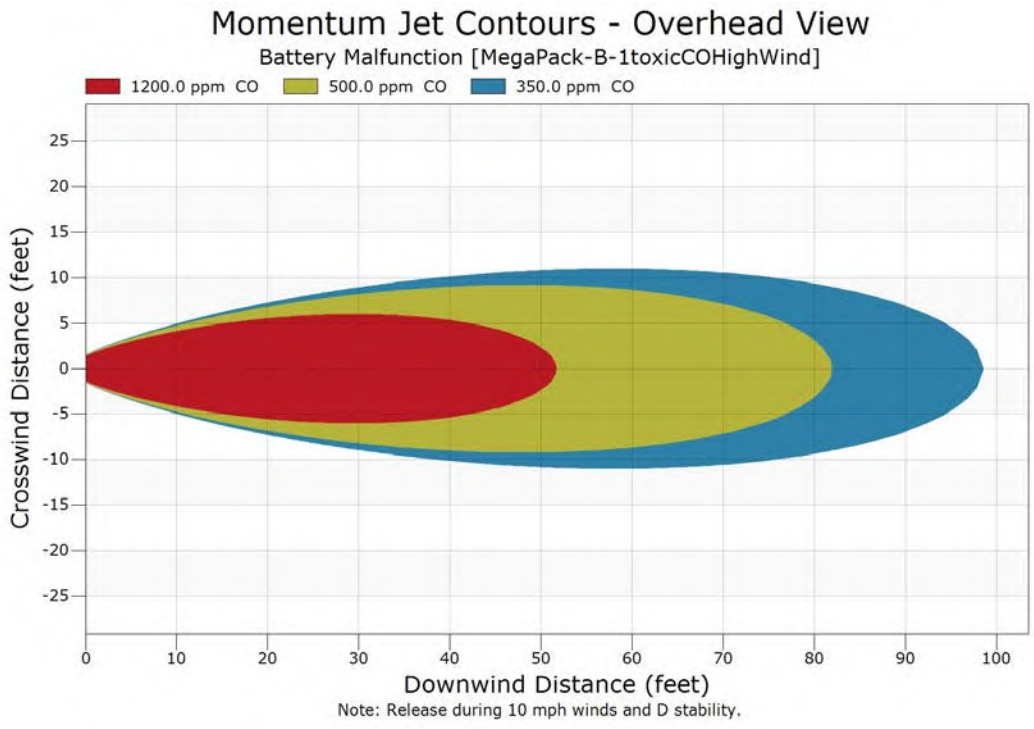
concentration limits

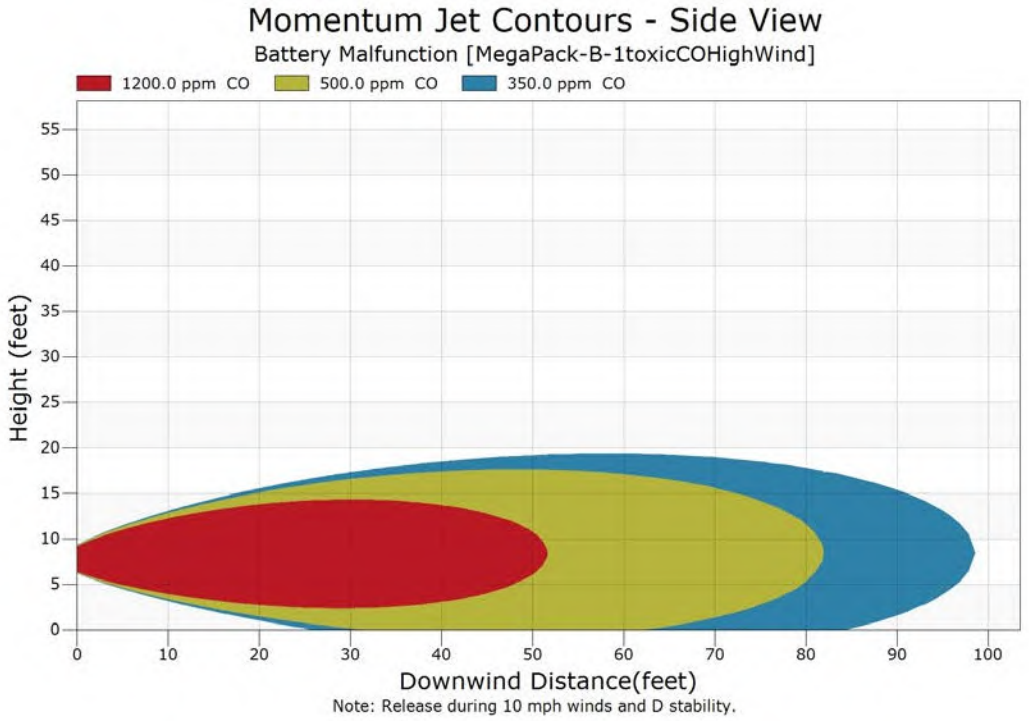
Endpoint 1 (highest) = 1200.0 ppm
Endpoint 2 (middle) = 500.0 ppm
Endpoint 3 (lowest) = 350.0 ppm

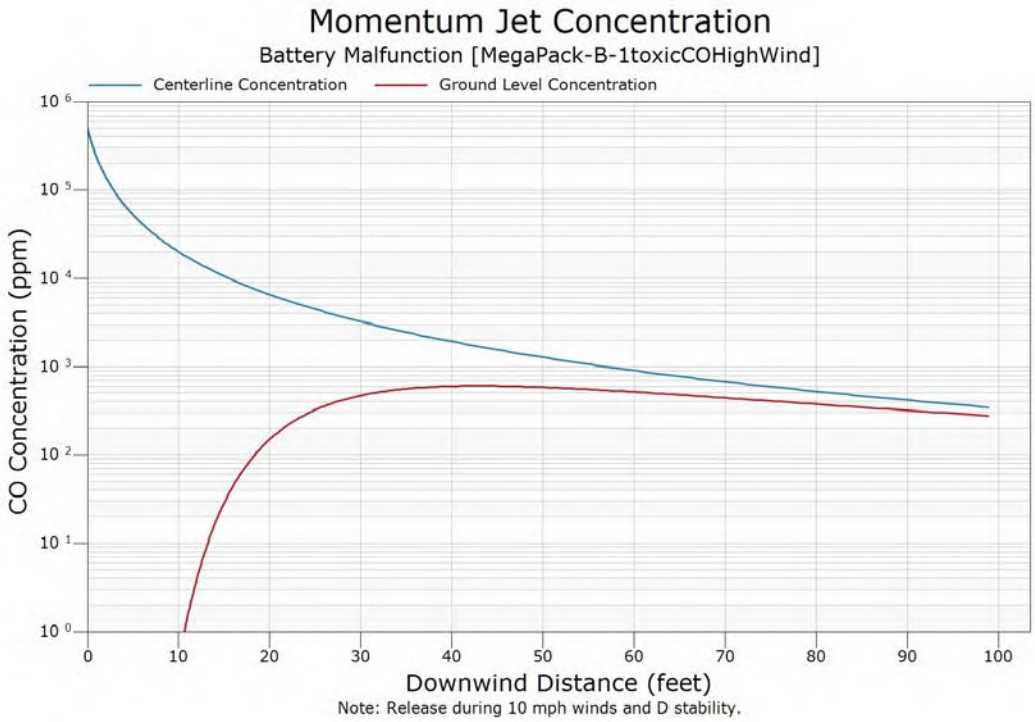
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	506656.000	0.000	1.5	1.5	1.4	7.7
2	140961.756	0.000	2.4	2.3	2.1	7.8
4	69008.638	0.000	3.1	3.0	2.8	7.9
6	41510.280	0.000	3.8	3.7	3.3	8.0
8	27865.466	0.014	4.4	4.2	3.7	8.0
10	20060.989	0.453	5.0	4.7	4.1	8.1
12	15156.137	3.986	5.5	5.2	4.5	8.1
14	11860.789	16.788	6.0	5.7	4.8	8.2
16	9546.501	45.156	6.4	6.1	5.1	8.2
18	7849.517	90.751	6.9	6.5	5.3	8.2
20	6570.735	151.095	7.3	6.8	5.5	8.3
22	5583.131	219.568	7.7	7.1	5.7	8.3
24	4803.644	290.691	8.0	7.5	5.8	8.3
26	4176.731	358.803	8.4	7.7	5.9	8.3
28	3665.496	418.964	8.7	8.0	6.0	8.3
30	3242.243	471.259	9.0	8.2	6.0	8.3
32	2889.907	513.876	9.2	8.4	6.0	8.4
34	2589.776	546.638	9.5	8.6	5.9	8.4
36	2333.599	571.617	9.7	8.8	5.8	8.4
38	2115.524	587.739	9.9	8.9	5.6	8.4
40	1925.758	598.242	10.1	9.0	5.3	8.4
42	1760.564	602.310	10.3	9.1	5.0	8.4
44	1618.114	603.067	10.5	9.2	4.6	8.4
46	1489.869	598.381	10.6	9.2	4.1	8.4
48	1375.022	591.053	10.7	9.2	3.4	8.4
50	1273.903	581.528	10.8	9.2	2.3	8.4
52	1185.461	570.748	10.9	9.2	0.0	8.4
54	1103.881	557.900	10.9	9.1	0.0	8.4
56	1030.383	544.146	11.0	9.0	0.0	8.4
58	965.687	530.495	11.0	8.8	0.0	8.4
60	905.761	515.810	11.0	8.7	0.0	8.4
62	851.389	501.032	10.9	8.5	0.0	8.4
64	801.423	486.272	10.9	8.2	0.0	8.4
66	755.773	471.405	10.8	7.9	0.0	8.5
68	714.344	456.982	10.7	7.6	0.0	8.5

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
70	675.926	442.717	10.5	7.1	0.0	8.5
72	639.965	428.351	10.4	6.6	0.0	8.5
74	607.813	414.958	10.2	6.1	0.0	8.5
76	577.581	401.709	9.9	5.3	0.0	8.5
78	549.456	388.750	9.7	4.4	0.0	8.5
80	523.365	376.293	9.4	3.1	0.0	8.5
82	499.088	364.283	9.0	0.0	0.0	8.5
84	476.308	352.465	8.6	0.0	0.0	8.5
86	455.269	341.343	8.1	0.0	0.0	8.5
88	435.370	330.431	7.5	0.0	0.0	8.5
90	416.948	320.120	6.9	0.0	0.0	8.5
92	399.359	309.910	6.1	0.0	0.0	8.5
94	383.295	300.482	5.2	0.0	0.0	8.5
96	367.974	291.198	3.9	0.0	0.0	8.5
98	353.591	282.340	1.6	0.0	0.0	8.5

	Endpoint (ppm, CO)	Downwind Distance (feet)	Approximate Time (seconds)
1	1200.0	51.7	5
2	500.0	81.9	8
3	350.0	98.5	10




Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicCOHighWind]
1200.0 ppm CO
500.0 ppm CO
350.0 ppm CO
Height (feet)
Downwind Distance(feet)
Note: Release during 10 mph winds and D stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicCOHighWind]
Centerline Concentration
Ground Level Concentration
CO Concentration (ppm)
Downwind Distance (feet)
Note: Release during 10 mph winds and D stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicHCL
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO        Carbon Monoxide             0.506656
Component  3        :      1 = CH4       Methane                     0.099344
Component  4        :      2 = C2H6      Ethane                      0.039738
Component  5        :      3 = C3H8      Propane                     0.089410
Component  6        :     50 = HF        Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl       Hydrogen Chloride           0.000993
Component  8        :    103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate                             0.26 lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   26 = HCl       Hydrogen Chloride
Concentration endpoint 1                       150.0 ppm
Concentration endpoint 2                        50.0 ppm
Concentration endpoint 3                        20.0 ppm

Dispersion coefficient averaging time              1 min

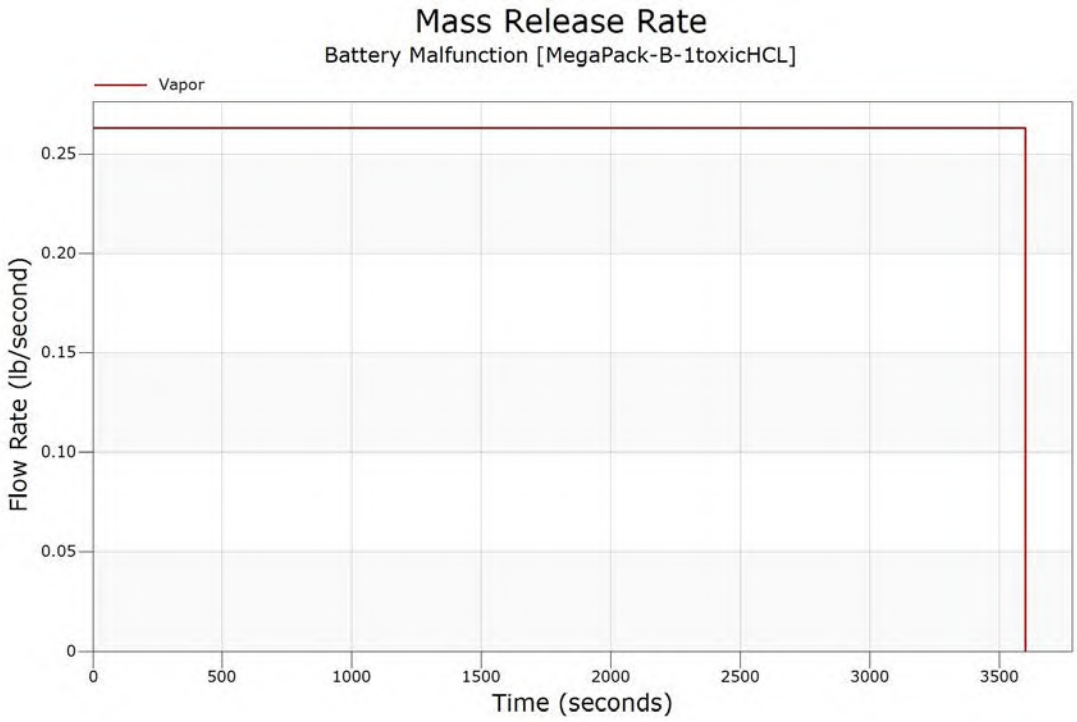

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicHCL]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

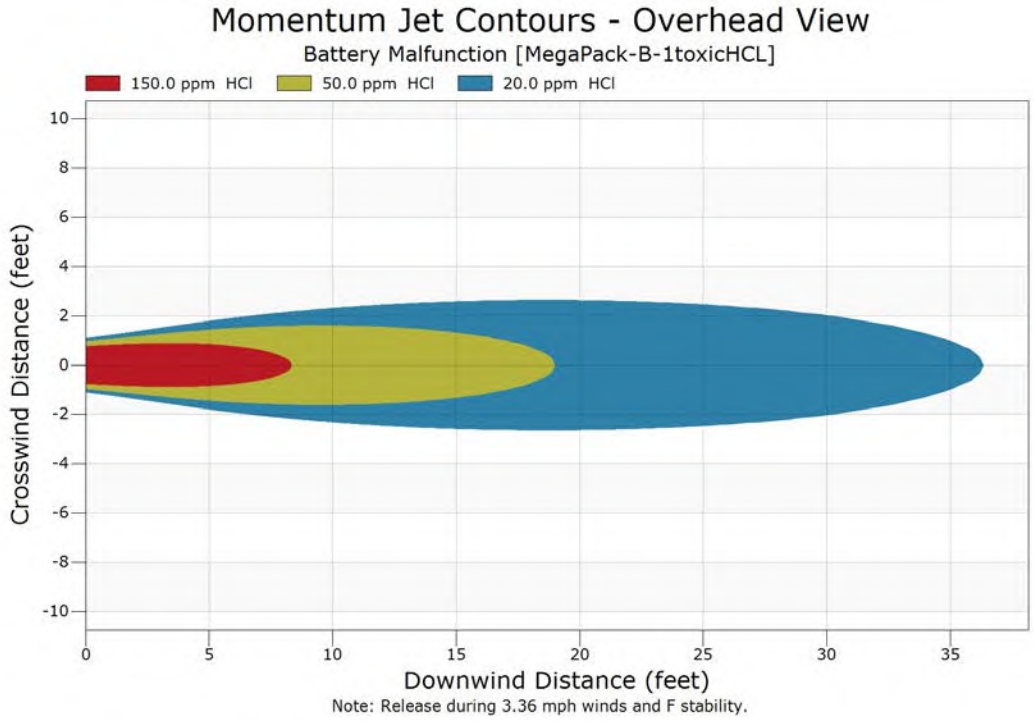
concentration limits

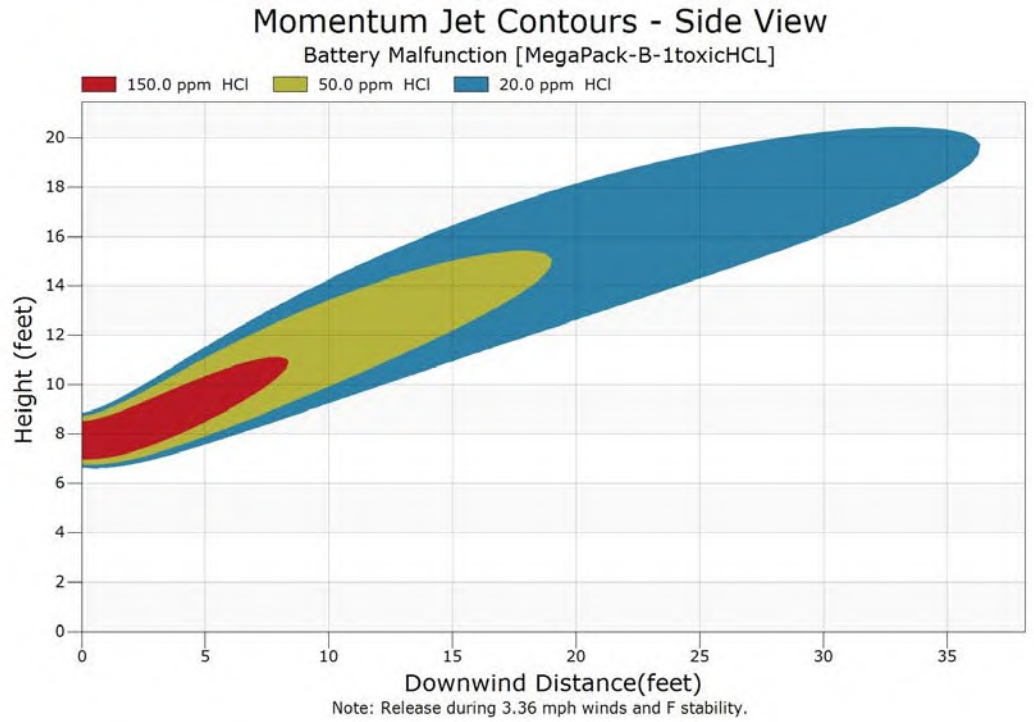
Endpoint 1 (highest) = 150.0 ppm
Endpoint 2 (middle) = 50.0 ppm
Endpoint 3 (lowest) = 20.0 ppm

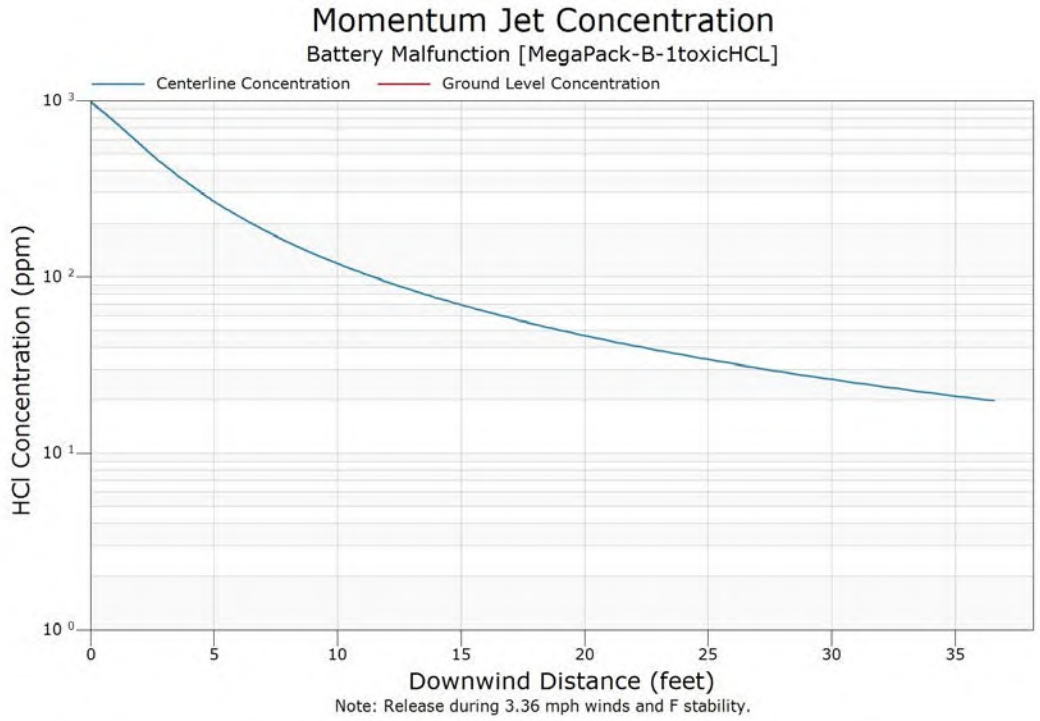
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	993.440	0.000	1.1	1.0	0.8	7.7
0.5	867.586	0.000	1.2	1.0	0.8	7.8
1.0	755.784	0.000	1.2	1.1	0.8	7.9
1.5	653.892	0.000	1.3	1.1	0.8	8.0
2.0	566.010	0.000	1.4	1.2	0.9	8.2
2.5	491.708	0.000	1.4	1.2	0.9	8.3
3.0	430.079	0.000	1.5	1.3	0.9	8.6
3.5	378.920	0.000	1.6	1.3	0.9	8.8
4.0	335.901	0.000	1.7	1.4	0.9	9.0
4.5	299.951	0.000	1.7	1.4	0.9	9.2
5.0	269.346	0.000	1.8	1.4	0.8	9.4
5.5	243.425	0.000	1.9	1.5	0.8	9.7
6.0	221.308	0.000	1.9	1.5	0.8	9.9
6.5	201.967	0.000	2.0	1.5	0.7	10.1
7.0	185.177	0.000	2.0	1.6	0.6	10.4
7.5	170.679	0.000	2.1	1.6	0.5	10.6
8.0	157.789	0.000	2.1	1.6	0.3	10.8
8.5	146.417	0.000	2.2	1.6	0.0	11.0
9.0	136.358	0.000	2.2	1.6	0.0	11.3
9.5	127.276	0.000	2.3	1.6	0.0	11.5
10.0	119.150	0.000	2.3	1.6	0.0	11.7
10.5	111.894	0.000	2.4	1.6	0.0	11.9
11.0	105.318	0.000	2.4	1.6	0.0	12.1
11.5	99.365	0.000	2.4	1.6	0.0	12.3
12.0	93.907	0.000	2.5	1.6	0.0	12.5
12.5	88.940	0.000	2.5	1.5	0.0	12.7
13.0	84.362	0.000	2.5	1.5	0.0	12.9
13.5	80.168	0.000	2.5	1.5	0.0	13.1
14.0	76.313	0.000	2.6	1.4	0.0	13.3
14.5	72.752	0.000	2.6	1.4	0.0	13.5
15.0	69.464	0.000	2.6	1.3	0.0	13.7
15.5	66.411	0.000	2.6	1.3	0.0	13.9
16.0	63.568	0.000	2.6	1.2	0.0	14.0
16.5	60.916	0.000	2.6	1.1	0.0	14.2
17.0	58.467	0.000	2.6	1.0	0.0	14.4

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
17.5	56.142	0.000	2.6	0.9	0.0	14.6
18.0	53.994	0.000	2.6	0.7	0.0	14.7
18.5	51.970	0.000	2.6	0.5	0.0	14.9
19.0	50.066	0.000	2.6	0.0	0.0	15.1
19.5	48.285	0.000	2.6	0.0	0.0	15.2
20.0	46.603	0.000	2.6	0.0	0.0	15.4
20.5	45.025	0.000	2.6	0.0	0.0	15.6
21.0	43.522	0.000	2.6	0.0	0.0	15.7
21.5	42.105	0.000	2.6	0.0	0.0	15.9
22.0	40.769	0.000	2.6	0.0	0.0	16.0
22.5	39.505	0.000	2.6	0.0	0.0	16.2
23.0	38.297	0.000	2.6	0.0	0.0	16.3
23.5	37.148	0.000	2.5	0.0	0.0	16.5
24.0	36.063	0.000	2.5	0.0	0.0	16.6
24.5	35.030	0.000	2.5	0.0	0.0	16.8
25.0	34.041	0.000	2.5	0.0	0.0	16.9
25.5	33.100	0.000	2.4	0.0	0.0	17.0
26.0	32.201	0.000	2.4	0.0	0.0	17.2
26.5	31.337	0.000	2.4	0.0	0.0	17.3
27.0	30.517	0.000	2.3	0.0	0.0	17.4
27.5	29.735	0.000	2.3	0.0	0.0	17.6
28.0	28.985	0.000	2.2	0.0	0.0	17.7
28.5	28.265	0.000	2.2	0.0	0.0	17.8
29.0	27.576	0.000	2.1	0.0	0.0	18.0
29.5	26.914	0.000	2.1	0.0	0.0	18.1
30.0	26.276	0.000	2.0	0.0	0.0	18.2
30.5	25.665	0.000	2.0	0.0	0.0	18.3
31.0	25.066	0.000	1.9	0.0	0.0	18.5
31.5	24.508	0.000	1.8	0.0	0.0	18.6
32.0	23.943	0.000	1.7	0.0	0.0	18.7
32.5	23.442	0.000	1.6	0.0	0.0	18.8
33.0	22.939	0.000	1.5	0.0	0.0	18.9
33.5	22.439	0.000	1.4	0.0	0.0	19.1
34.0	21.954	0.000	1.3	0.0	0.0	19.2
34.5	21.515	0.000	1.2	0.0	0.0	19.3
35.0	21.091	0.000	1.0	0.0	0.0	19.4
35.5	20.659	0.000	0.8	0.0	0.0	19.5
36.0	20.272	0.000	0.5	0.0	0.0	19.6
36.5	19.875	0.000	0.0	0.0	0.0	19.7

	Endpoint (ppm, HCl)	Downwind Distance (feet)	Approximate Time (seconds)
1	150.0	8.3	2
2	50.0	19.0	4
3	20.0	36.3	8


Momentum Jet Contours - Overhead View
Battery Malfunction [MegaPack-B-1toxicHCL]
150.0 ppm HCl
50.0 ppm HCl
20.0 ppm HCl
Crosswind Distance (feet)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicHCL]
150.0 ppm HCl
50.0 ppm HCl
20.0 ppm HCl
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicHCL]
Centerline Concentration
Ground Level Concentration
HCl Concentration (ppm)
10 3
10 2
10 1
10 0
0
5
10
15
20
25
30
35
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicHCN
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2        Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO        Carbon Monoxide             0.506656
Component  3        :      1 = CH4       Methane                     0.099344
Component  4        :      2 = C2H6      Ethane                      0.039738
Component  5        :      3 = C3H8      Propane                     0.089410
Component  6        :     50 = HF        Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl       Hydrogen Chloride           0.000993
Component  8        :    103 = HCN       Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8      Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

RELEASE MENU
Type of release: Regulated, Continuous release

Release duration	60	min
Regulated flow rate	0.26	lb/sec
Pipe inner diameter	12.00	inches
Equivalent release diameter	12.00	inches
Height of release point	7.8	feet
Angle of release from horizontal	90.0	degrees

NOTES:

IMPOUNDMENT MENU
Unconfined

NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component 103 = HCN Hydrogen Cyanide

Concentration endpoint 1	50.0	ppm
Concentration endpoint 2	25.0	ppm
Concentration endpoint 3	10.0	ppm

Dispersion coefficient averaging time 1 min

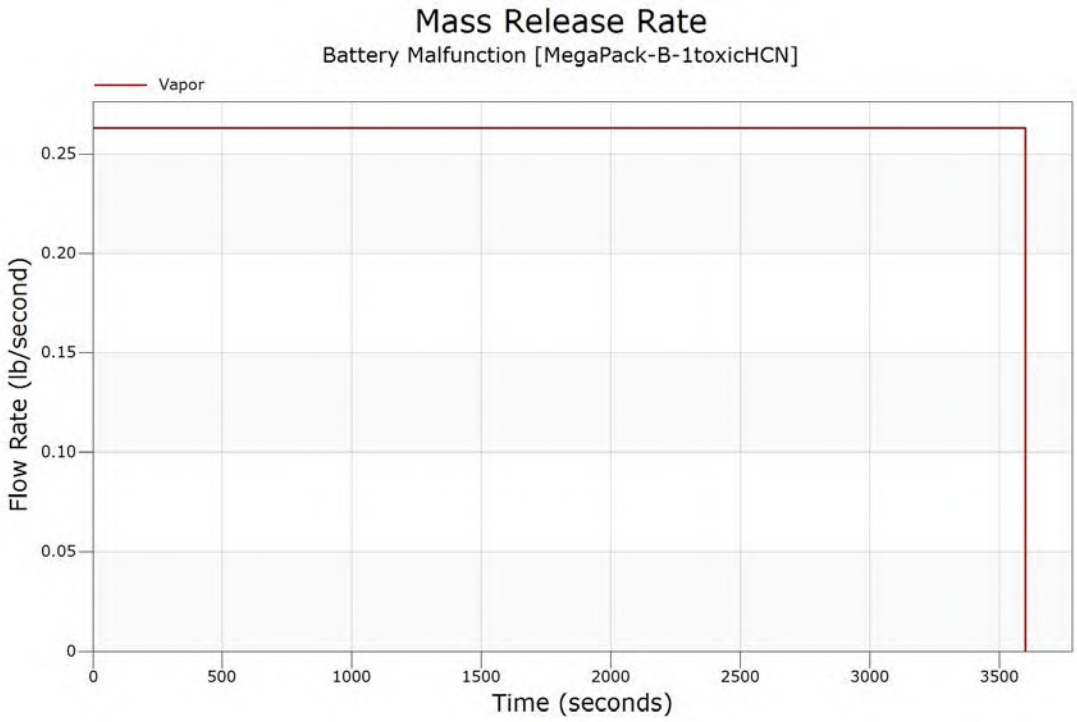
NOTES:

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicHCN]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

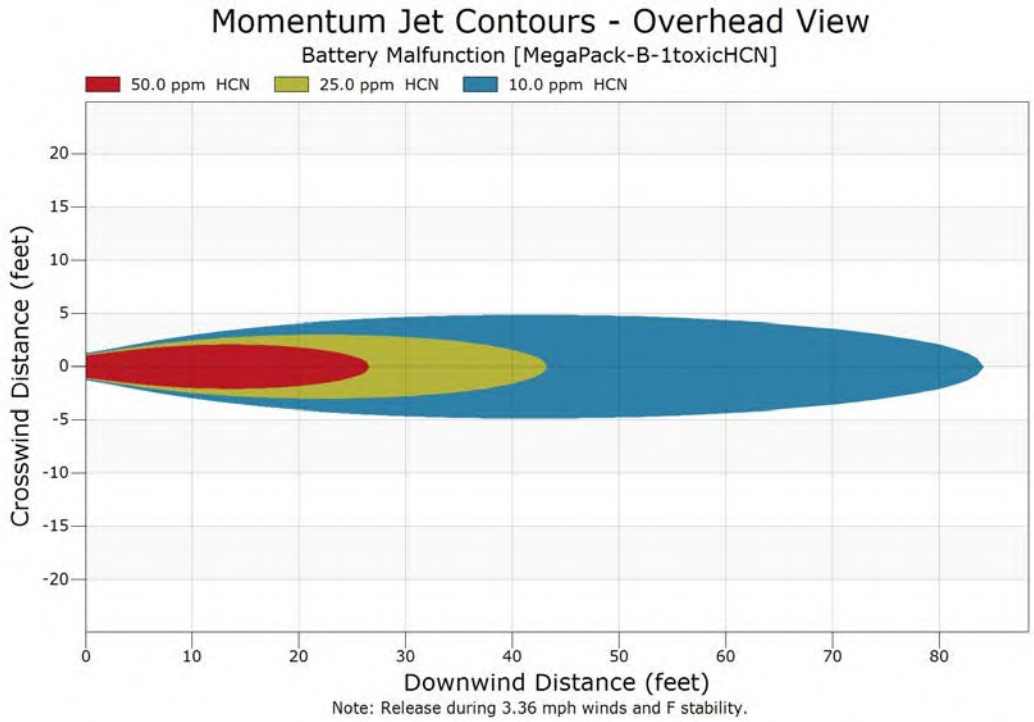
concentration limits

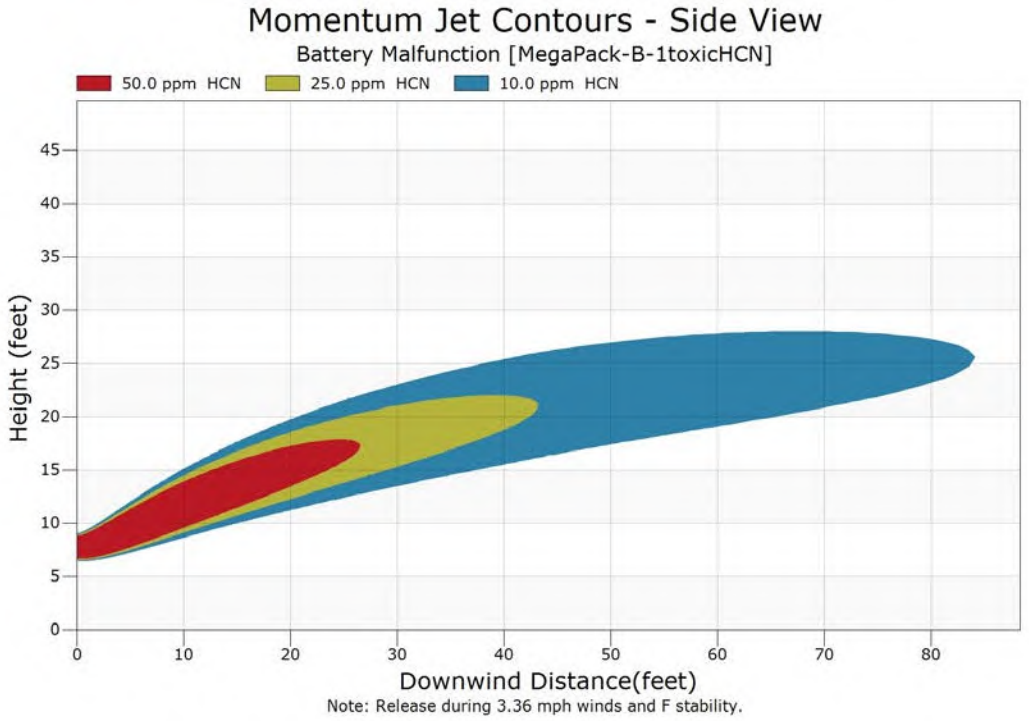
Endpoint 1 (highest) = 50.0 ppm
Endpoint 2 (middle) = 25.0 ppm
Endpoint 3 (lowest) = 10.0 ppm

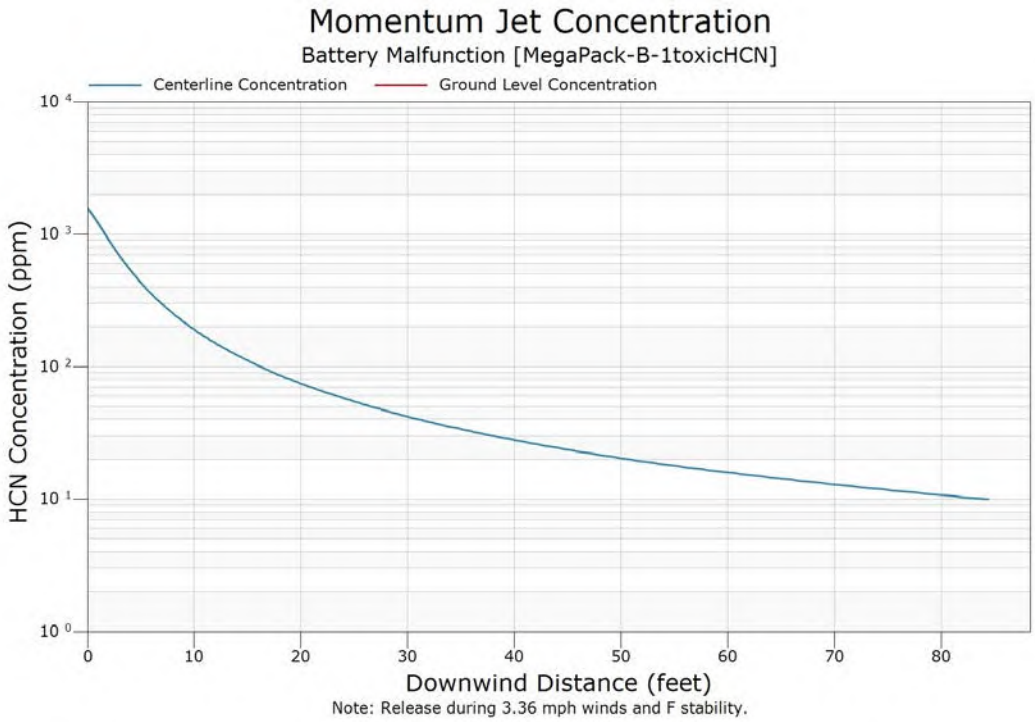
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	1589.510	0.000	1.3	1.1	1.0	7.7
2	905.371	0.000	1.6	1.4	1.3	8.2
4	537.140	0.000	2.0	1.7	1.5	9.0
6	353.983	0.000	2.3	2.0	1.7	9.9
8	252.500	0.000	2.7	2.3	1.9	10.8
10	190.676	0.000	3.0	2.5	2.0	11.7
12	150.295	0.000	3.2	2.6	2.1	12.5
14	122.097	0.000	3.5	2.8	2.1	13.3
16	101.728	0.000	3.7	2.9	2.0	14.0
18	86.382	0.000	3.9	3.0	2.0	14.7
20	74.569	0.000	4.1	3.0	1.8	15.4
22	65.236	0.000	4.2	3.0	1.6	16.0
24	57.707	0.000	4.3	3.0	1.2	16.6
26	51.528	0.000	4.5	3.0	0.6	17.2
28	46.380	0.000	4.6	2.9	0.0	17.7
30	42.039	0.000	4.6	2.8	0.0	18.2
32	38.334	0.000	4.7	2.7	0.0	18.7
34	35.147	0.000	4.8	2.5	0.0	19.2
36	32.431	0.000	4.8	2.3	0.0	19.6
38	30.027	0.000	4.8	2.0	0.0	20.0
40	27.885	0.000	4.8	1.6	0.0	20.5
42	26.028	0.000	4.9	1.0	0.0	20.9
44	24.376	0.000	4.8	0.0	0.0	21.2
46	22.871	0.000	4.8	0.0	0.0	21.6
48	21.579	0.000	4.8	0.0	0.0	21.9
50	20.388	0.000	4.8	0.0	0.0	22.2
52	19.312	0.000	4.7	0.0	0.0	22.5
54	18.331	0.000	4.6	0.0	0.0	22.8
56	17.446	0.000	4.6	0.0	0.0	23.0
58	16.631	0.000	4.5	0.0	0.0	23.3
60	15.883	0.000	4.4	0.0	0.0	23.5
62	15.192	0.000	4.2	0.0	0.0	23.7
64	14.540	0.000	4.1	0.0	0.0	23.9
66	13.951	0.000	3.9	0.0	0.0	24.1
68	13.395	0.000	3.8	0.0	0.0	24.3

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
70	12.869	0.000	3.6	0.0	0.0	24.5
72	12.385	0.000	3.4	0.0	0.0	24.7
74	11.932	0.000	3.1	0.0	0.0	24.8
76	11.500	0.000	2.8	0.0	0.0	25.0
78	11.096	0.000	2.5	0.0	0.0	25.1
80	10.717	0.000	2.1	0.0	0.0	25.3
82	10.357	0.000	1.5	0.0	0.0	25.4
84	10.018	0.000	0.1	0.0	0.0	25.5

	Endpoint (ppm, HCN)	Downwind Distance (feet)	Approximate Time (seconds)
1	50.0	26.6	6
2	25.0	43.2	9
3	10.0	84.1	18




Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicHCN]
50.0 ppm HCN
25.0 ppm HCN
10.0 ppm HCN
Height (feet)
0
5
10
15
20
25
30
35
40
45
0
10
20
30
40
50
60
70
80
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicHCN]
Centerline Concentration
Ground Level Concentration
HCN Concentration (ppm)
10 4
10 3
10 2
10 1
10 0
0
10
20
30
40
50
60
70
80
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicHF
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
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```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate                             0.26 lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component   50 = HF        Hydrogen Fluoride
Concentration endpoint 1                        50.0 ppm
Concentration endpoint 2                        30.0 ppm
Concentration endpoint 3                        20.0 ppm

Dispersion coefficient averaging time              1 min

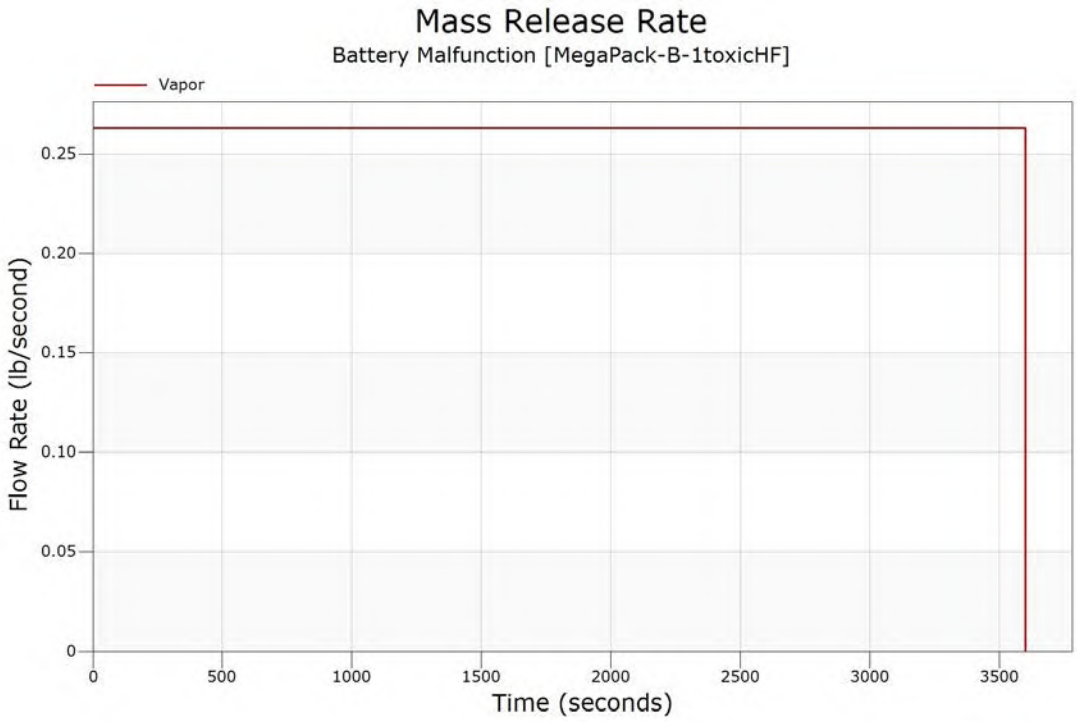

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicHF]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

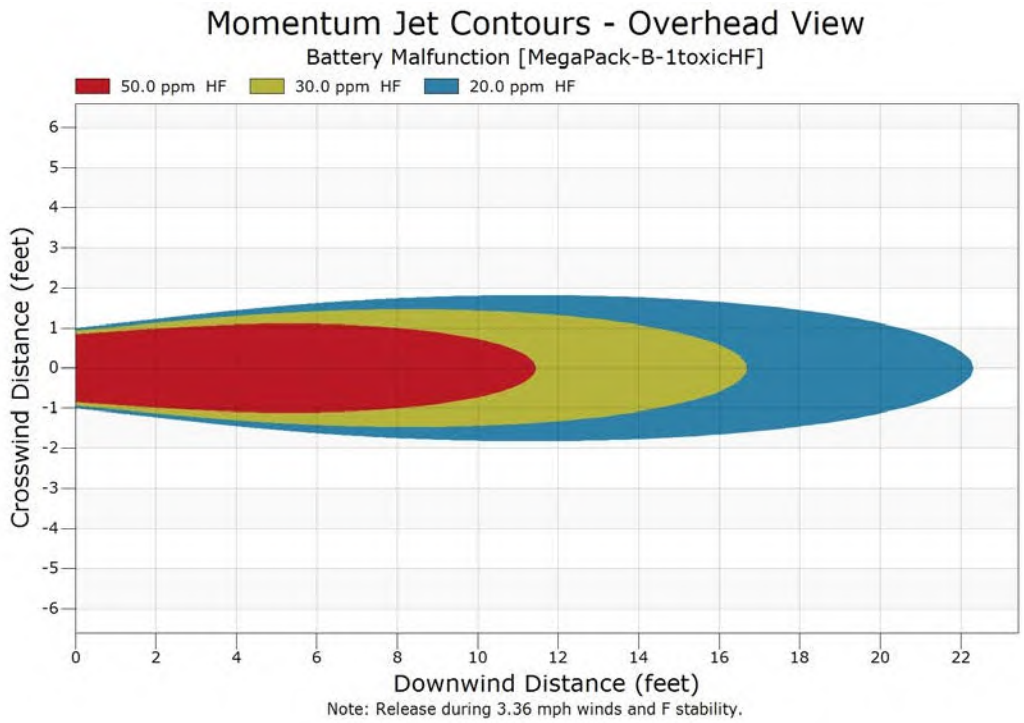
concentration limits

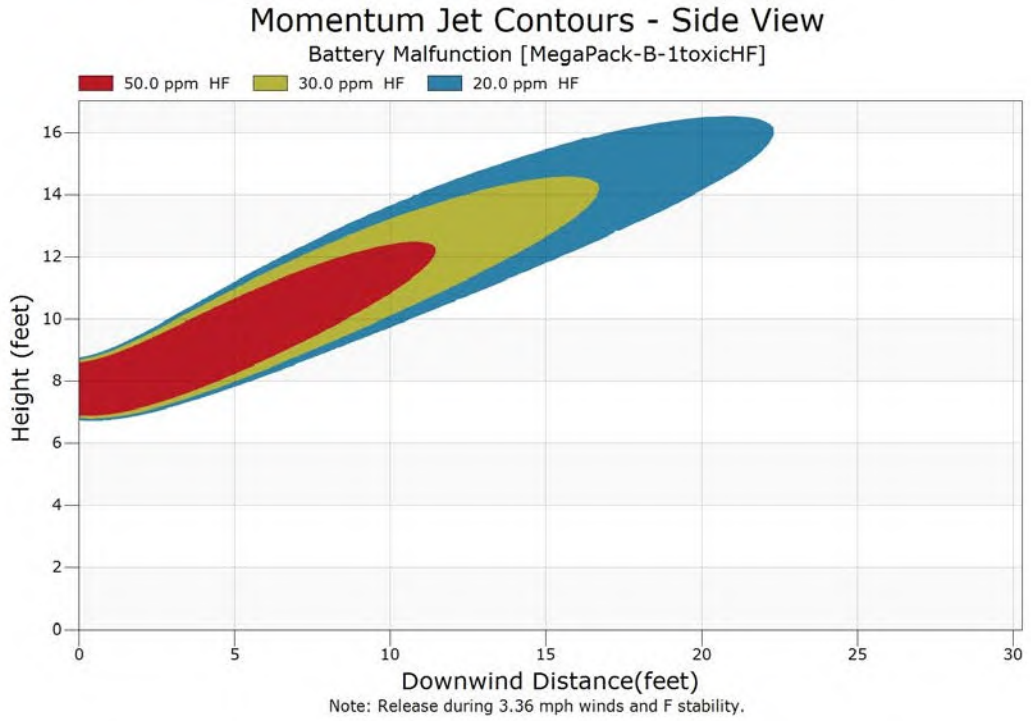
Endpoint 1 (highest) = 50.0 ppm
Endpoint 2 (middle) = 30.0 ppm
Endpoint 3 (lowest) = 20.0 ppm

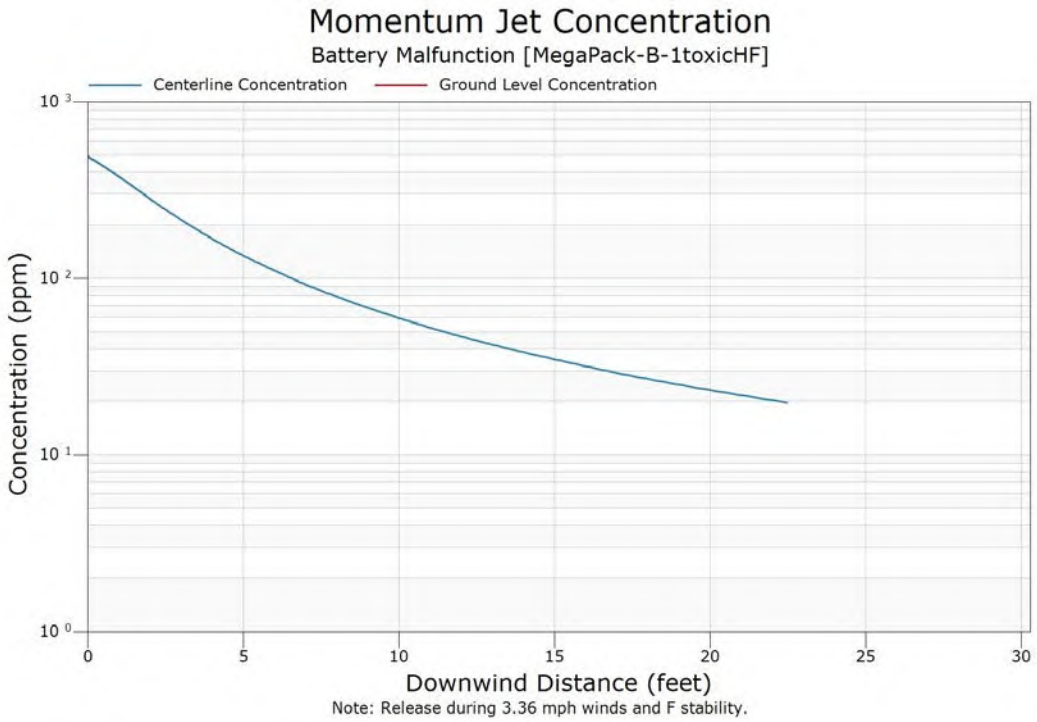
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	496.720	0.000	1.0	0.9	0.8	7.7
0.5	433.768	0.000	1.1	1.0	0.9	7.8
1.0	377.913	0.000	1.1	1.0	0.9	7.9
1.5	326.959	0.000	1.2	1.1	1.0	8.0
2.0	282.971	0.000	1.2	1.1	1.0	8.2
2.5	245.832	0.000	1.3	1.2	1.0	8.3
3.0	215.014	0.000	1.3	1.2	1.0	8.6
3.5	189.408	0.000	1.4	1.3	1.1	8.8
4.0	168.001	0.000	1.4	1.3	1.1	9.0
4.5	149.977	0.000	1.5	1.3	1.1	9.2
5.0	134.669	0.000	1.5	1.4	1.1	9.4
5.5	121.764	0.000	1.6	1.4	1.1	9.7
6.0	110.701	0.000	1.6	1.4	1.1	9.9
6.5	101.019	0.000	1.7	1.4	1.1	10.1
7.0	92.631	0.000	1.7	1.4	1.1	10.4
7.5	85.339	0.000	1.7	1.5	1.0	10.6
8.0	78.908	0.000	1.7	1.5	1.0	10.8
8.5	73.237	0.000	1.8	1.5	1.0	11.0
9.0	68.198	0.000	1.8	1.5	0.9	11.3
9.5	63.659	0.000	1.8	1.5	0.8	11.5
10.0	59.591	0.000	1.8	1.4	0.7	11.7
10.5	55.959	0.000	1.8	1.4	0.6	11.9
11.0	52.670	0.000	1.8	1.4	0.4	12.1
11.5	49.697	0.000	1.8	1.4	0.0	12.3
12.0	46.960	0.000	1.8	1.3	0.0	12.5
12.5	44.484	0.000	1.8	1.3	0.0	12.7
13.0	42.178	0.000	1.8	1.2	0.0	12.9
13.5	40.081	0.000	1.8	1.2	0.0	13.1
14.0	38.148	0.000	1.8	1.1	0.0	13.3
14.5	36.376	0.000	1.7	1.0	0.0	13.5
15.0	34.740	0.000	1.7	0.9	0.0	13.7
15.5	33.201	0.000	1.7	0.8	0.0	13.9
16.0	31.786	0.000	1.7	0.6	0.0	14.0
16.5	30.459	0.000	1.6	0.3	0.0	14.2
17.0	29.229	0.000	1.6	0.0	0.0	14.4

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
17.5	28.077	0.000	1.5	0.0	0.0	14.6
18.0	27.002	0.000	1.5	0.0	0.0	14.7
18.5	25.988	0.000	1.4	0.0	0.0	14.9
19.0	25.038	0.000	1.3	0.0	0.0	15.1
19.5	24.147	0.000	1.2	0.0	0.0	15.2
20.0	23.306	0.000	1.1	0.0	0.0	15.4
20.5	22.516	0.000	1.0	0.0	0.0	15.6
21.0	21.767	0.000	0.9	0.0	0.0	15.7
21.5	21.058	0.000	0.7	0.0	0.0	15.9
22.0	20.390	0.000	0.4	0.0	0.0	16.0

	Endpoint (ppm, HF)	Downwind Distance (feet)	Approximate Time (seconds)
1	50.0	11.4	2
2	30.0	16.7	3
3	20.0	22.3	5




Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicHF]
50.0 ppm HF
30.0 ppm HF
20.0 ppm HF
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicHF]
Centerline Concentration
Ground Level Concentration
Concentration (ppm)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Case Inputs

```
Case Type           : Vapor Dispersion
Case Name           : MegaPack-B-1toxicTol
User ID             : GC
Project Number      :
Type of Units       : English Units

  NOTES:

MATERIAL MENU
Materials Released  : Number  Formula   Name                        Fraction
Component  1        :     51 = H2       Hydrogen(equilibrium)       0.258295
Component  2        :     43 = CO       Carbon Monoxide             0.506656
Component  3        :      1 = CH4      Methane                     0.099344
Component  4        :      2 = C2H6     Ethane                      0.039738
Component  5        :      3 = C3H8     Propane                     0.089410
Component  6        :     50 = HF       Hydrogen Fluoride           0.000497
Component  7        :     26 = HCl      Hydrogen Chloride           0.000993
Component  8        :    103 = HCN      Hydrogen Cyanide            0.001590
Component  9        :    281 = C7H8     Toluene                     0.003477
Component 10        :

Temperature         :       122.00 °F
Pressure            :        15.00 psia
The material is Indeterminate


  NOTES:

ENVIRONMENT MENU
Wind speed                                    3.36 mph
Wind speed measurement height                 32.8 feet
Stability class <A-F>                            F
Relative humidity                               70 %
Air temperature                               77.0 °F
Spill surface temperature                     77.0 °F

Substrate name                          Soil
  Substrate thermal conductivity          1.0000 Btu/hr-ft-F
  Substrate density                          100 lb/cu.ft
  Substrate heat Capacity                   0.24 Btu/lb-F
  Substrate delay time                        60 sec
Surrounding terrain                     Long grass or crops > 15 cm (6 in)

  NOTES:
```

```
RELEASE MENU
Type of release:   Regulated, Continuous release
Release duration                                  60 min
Regulated flow rate                             0.26 lb/sec
Pipe inner diameter                            12.00 inches
Equivalent release diameter                    12.00 inches
Height of release point                          7.8 feet
Angle of release from horizontal                90.0 degrees

  NOTES:

IMPOUNDMENT MENU
Unconfined

  NOTES:

VDVE MENU
Vapor generation and dispersion - Toxic calculation
Tracking component  281 = C7H8      Toluene
Concentration endpoint 1                      1000.0 ppm
Concentration endpoint 2                       500.0 ppm
Concentration endpoint 3                       300.0 ppm

Dispersion coefficient averaging time              1 min

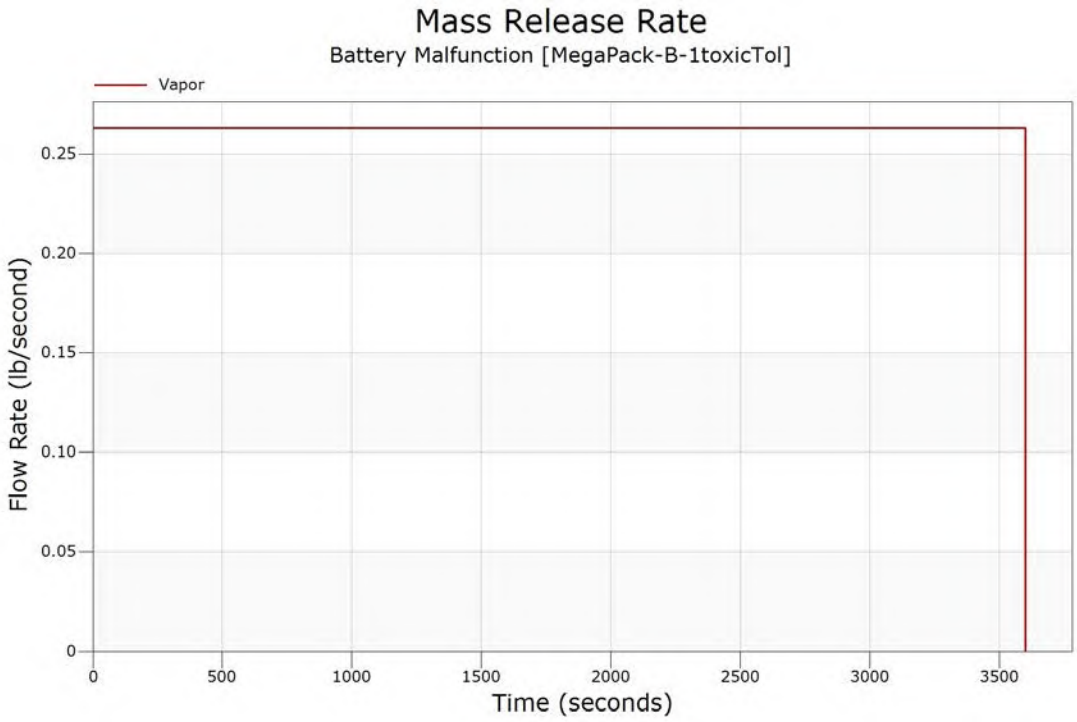

  NOTES:
```

Release Model

WARNING USER ASSUMES RESPONSIBLIITY FOR INPUT CONSISTENCY IN REGULATED RELEASE CASE

Time (sec)	Vapor (lb/sec)	Aerosol Rate (lb/sec)	Liquid Rate (lb/sec)	Total Rate (lb/sec)
0.000000	.2631001	0.000000	0.000000	.2631001
0.1000000	.2631001	0.000000	0.000000	.2631001
0.3000000	.2631001	0.000000	0.000000	.2631001
0.5000000	.2631001	0.000000	0.000000	.2631001
0.7000000	.2631001	0.000000	0.000000	.2631001
1.000000	.2631001	0.000000	0.000000	.2631001
3.000000	.2631001	0.000000	0.000000	.2631001
5.000000	.2631001	0.000000	0.000000	.2631001
7.000000	.2631001	0.000000	0.000000	.2631001
10.00000	.2631001	0.000000	0.000000	.2631001
20.00000	.2631001	0.000000	0.000000	.2631001
30.00000	.2631001	0.000000	0.000000	.2631001
40.00000	.2631001	0.000000	0.000000	.2631001
50.00000	.2631001	0.000000	0.000000	.2631001
60.00000	.2631001	0.000000	0.000000	.2631001
70.00000	.2631001	0.000000	0.000000	.2631001
85.00000	.2631001	0.000000	0.000000	.2631001
100.0000	.2631001	0.000000	0.000000	.2631001
200.0000	.2631001	0.000000	0.000000	.2631001
300.0000	.2631001	0.000000	0.000000	.2631001
400.0000	.2631001	0.000000	0.000000	.2631001
500.0000	.2631001	0.000000	0.000000	.2631001
600.0000	.2631001	0.000000	0.000000	.2631001
700.0000	.2631001	0.000000	0.000000	.2631001
850.0000	.2631001	0.000000	0.000000	.2631001
1000.000	.2631001	0.000000	0.000000	.2631001
2000.000	.2631001	0.000000	0.000000	.2631001
3000.000	.2631001	0.000000	0.000000	.2631001
3600.000	.2631001	0.000000	0.000000	.2631001
Totals (lb)	947.1604	0.000000	0.000000	947.1604

Reason for Ending: Reached Stop Time


Mass Release Rate
Battery Malfunction [MegaPack-B-1toxicTol]
Vapor
Flow Rate (lb/second)
0.25
0.20
0.15
0.10
0.05
0
0
500
1000
1500
2000
2500
3000
3500
Time (seconds)

Release Compositions

Component Number	Component Name, Formula
51	Hydrogen(equilibrium), H2
43	Carbon Monoxide, CO
1	Methane, CH4
2	Ethane, C2H6
3	Propane, C3H8
50	Hydrogen Fluoride, HF
26	Hydrogen Chloride, HCl
103	Hydrogen Cyanide, HCN
281	Toluene, C7H8

Composition (Mole Fraction) of Fluid Streams

Comp. No.	Feed Stream	Momentum Jet Stream				Liquid Pool Stream
		Flashed Vapor	Evaporated Vapor	Aerosol Liquid	Total Stream	Liquid to Ground
51	0.258295	0.258295	0.000000	0.000000	0.258295	0.000000
43	0.506656	0.506656	0.000000	0.000000	0.506656	0.000000
1	0.099344	0.099344	0.000000	0.000000	0.099344	0.000000
2	0.039738	0.039738	0.000000	0.000000	0.039738	0.000000
3	0.089410	0.089410	0.000000	0.000000	0.089410	0.000000
50	0.000497	0.000497	0.000000	0.000000	0.000497	0.000000
26	0.000993	0.000993	0.000000	0.000000	0.000993	0.000000
103	0.001590	0.001590	0.000000	0.000000	0.001590	0.000000
281	0.003477	0.003477	0.000000	0.000000	0.003477	0.000000
	1.000000	1.000000	0.000000	0.000000	1.000000	0.000000

Momentum Jet Dispersion

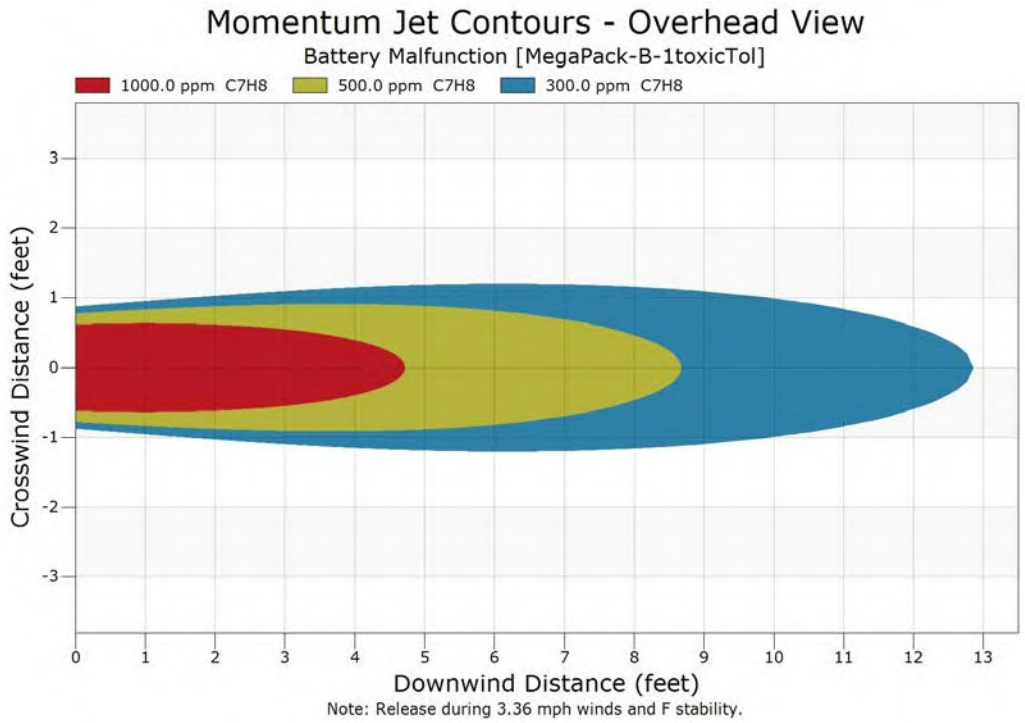
concentration limits

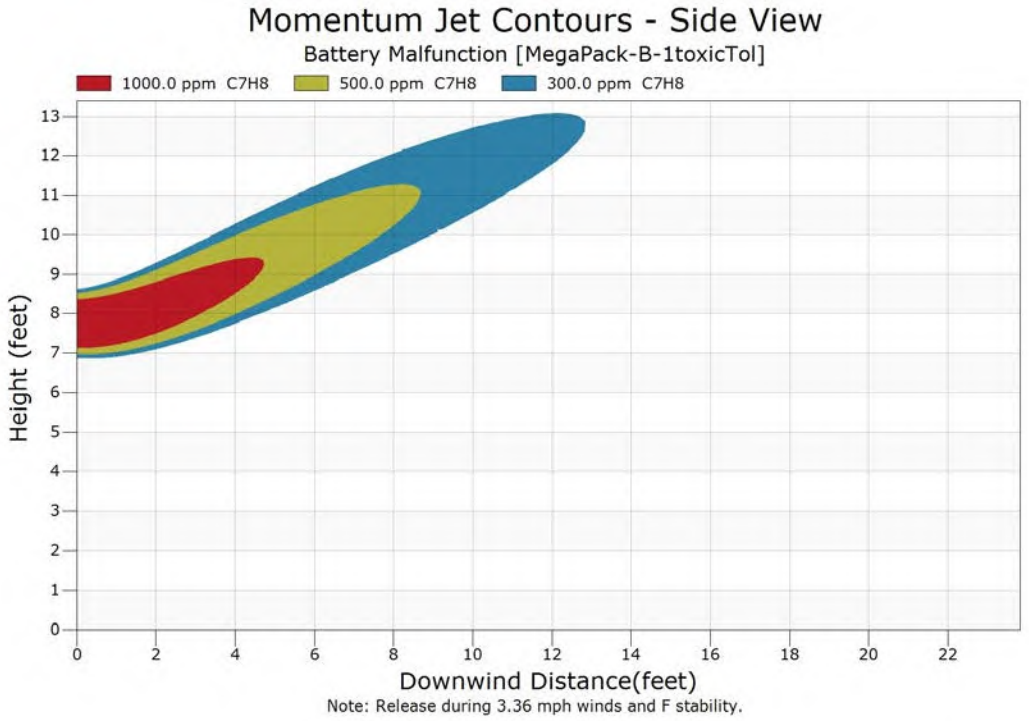
Endpoint 1 (highest) = 1000.0 ppm
Endpoint 2 (middle) = 500.0 ppm
Endpoint 3 (lowest) = 300.0 ppm

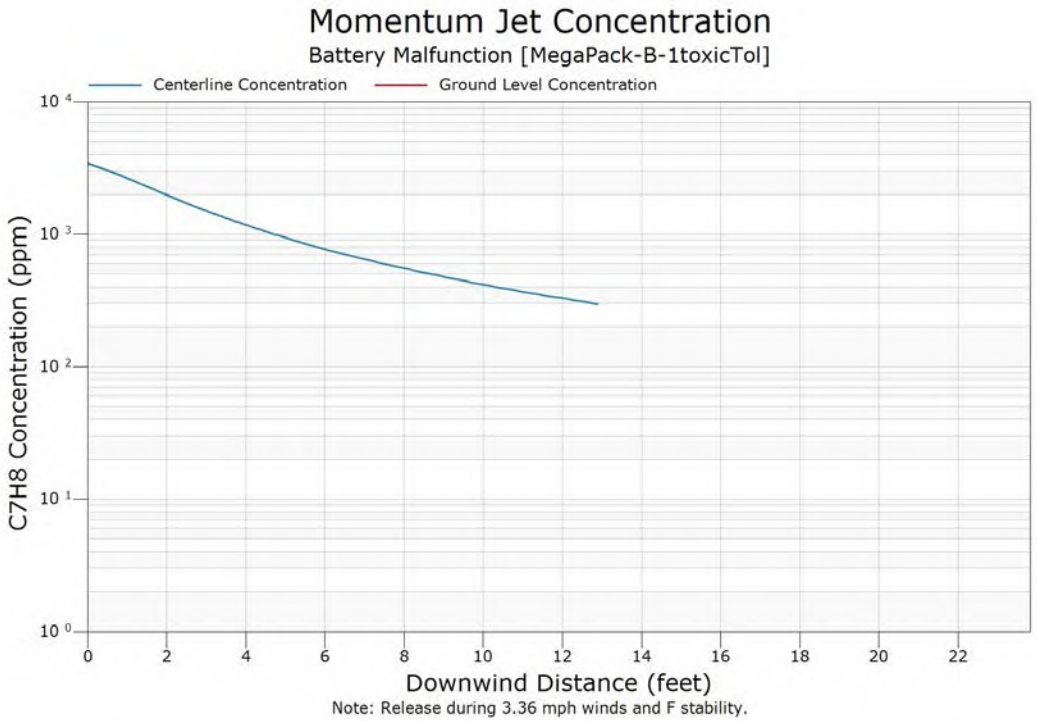
downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
0	3477.050	0.000	0.9	0.8	0.6	7.7
0.3	3234.423	0.000	0.9	0.8	0.6	7.8
0.5	3037.018	0.000	0.9	0.8	0.6	7.8
0.8	2839.863	0.000	0.9	0.8	0.6	7.8
1.0	2646.355	0.000	1.0	0.8	0.6	7.9
1.3	2461.649	0.000	1.0	0.8	0.6	7.9
1.5	2289.478	0.000	1.0	0.9	0.6	8.0
1.7	2128.320	0.000	1.0	0.9	0.6	8.1
2.0	1980.617	0.000	1.0	0.9	0.6	8.2
2.3	1845.573	0.000	1.0	0.9	0.6	8.3
2.5	1721.141	0.000	1.1	0.9	0.6	8.3
2.8	1608.097	0.000	1.1	0.9	0.6	8.4
3.0	1505.462	0.000	1.1	0.9	0.6	8.6
3.3	1411.967	0.000	1.1	0.9	0.5	8.7
3.5	1326.015	0.000	1.1	0.9	0.5	8.8
3.7	1246.785	0.000	1.1	0.9	0.4	8.9
4.0	1175.388	0.000	1.2	0.9	0.4	9.0
4.3	1110.273	0.000	1.2	0.9	0.3	9.1
4.5	1050.037	0.000	1.2	0.9	0.2	9.2
4.8	994.230	0.000	1.2	0.9	0.0	9.3
5.0	942.715	0.000	1.2	0.9	0.0	9.4
5.3	896.213	0.000	1.2	0.9	0.0	9.6
5.5	852.259	0.000	1.2	0.9	0.0	9.7
5.8	812.000	0.000	1.2	0.8	0.0	9.8
6.0	774.559	0.000	1.2	0.8	0.0	9.9
6.3	739.492	0.000	1.2	0.8	0.0	10.0
6.5	706.908	0.000	1.2	0.8	0.0	10.1
6.8	676.786	0.000	1.2	0.7	0.0	10.3
7.0	648.326	0.000	1.2	0.7	0.0	10.4
7.3	622.167	0.000	1.2	0.7	0.0	10.5
7.5	597.368	0.000	1.2	0.6	0.0	10.6
7.8	574.154	0.000	1.2	0.5	0.0	10.7
8.0	552.315	0.000	1.2	0.5	0.0	10.8
8.3	531.886	0.000	1.1	0.4	0.0	10.9
8.5	512.646	0.000	1.1	0.2	0.0	11.0

downwind distance (ft)	centerline conc. (ppm)	ground conc. (ppm)	Endpoint3 1/2 width (ft)	Endpoint2 1/2 width (ft)	Endpoint1 1/2 width (ft)	centerline height (ft)
8.8	494.311	0.000	1.1	0.0	0.0	11.1
9.0	477.372	0.000	1.1	0.0	0.0	11.3
9.3	460.996	0.000	1.1	0.0	0.0	11.4
9.5	445.642	0.000	1.1	0.0	0.0	11.5
9.8	431.118	0.000	1.0	0.0	0.0	11.6
10.0	417.148	0.000	1.0	0.0	0.0	11.7
10.3	404.197	0.000	1.0	0.0	0.0	11.8
10.5	391.738	0.000	0.9	0.0	0.0	11.9
10.8	379.840	0.000	0.9	0.0	0.0	12.0
11.0	368.656	0.000	0.8	0.0	0.0	12.1
11.3	358.047	0.000	0.8	0.0	0.0	12.2
11.5	347.763	0.000	0.7	0.0	0.0	12.3
11.8	338.001	0.000	0.7	0.0	0.0	12.4
12.0	328.729	0.000	0.6	0.0	0.0	12.5
12.3	319.872	0.000	0.5	0.0	0.0	12.6
12.5	311.336	0.000	0.4	0.0	0.0	12.7
12.8	303.196	0.000	0.2	0.0	0.0	12.8

	Endpoint (ppm, C7H8)	Downwind Distance (feet)	Approximate Time (seconds)
1	1000.0	4.7	1
2	500.0	8.7	2
3	300.0	12.9	3




Momentum Jet Contours - Side View
Battery Malfunction [MegaPack-B-1toxicTol]
1000.0 ppm C7H8
500.0 ppm C7H8
300.0 ppm C7H8
Height (feet)
Downwind Distance(feet)
Note: Release during 3.36 mph winds and F stability.


Momentum Jet Concentration
Battery Malfunction [MegaPack-B-1toxicTol]
Centerline Concentration
Ground Level Concentration
C7H8 Concentration (ppm)
Downwind Distance (feet)
Note: Release during 3.36 mph winds and F stability.

Attachment H

Fisher Engineering UL 9540A Test Results Discussion Paper

Tesla
Megapack

UL 9540A Test Results: Interpretive Report and FPE Code Narrative

August 26, 2020

10475 Medlock Bridge Rd #520
Johns Creek, GA 30097
770-495-7770

www.feifire.com

Atlanta, GA
Biddeford, ME
Boston, MA
Phoenix, AZ
Virginia Beach, VA

FISHER ENGINEERING

Prepared for:

Tesla Energy
3500 Deer Creek Rd
Palo Alto, CA 94304

Table of Contents

INTRODUCTION

Fisher Engineering, Inc. (FEI) performed an analysis of Tesla Energy's (Tesla) new energy storage system (ESS), known as the "Megapack". The Megapack is a ground mounted lithium-ion (li-ion) battery ESS that can have a storage capacity between approximately one and three MWh. It is meant for outdoor installations only, mounted to the ground. The analysis included a review of the Megapack, its construction, design, fire safety features, UL9540A fire test data and correlates those features / fire test results to the regulatory requirements currently found in fire codes and standards. This narrative has been prepared by FEI and summarizes our analysis. It is intended to be used as a tool for a fire code official or an authority having jurisdiction (AHJ) to assist in their review of a Megapack installation by helping guide them through the code requirements for an ESS installation and how the Megapack meets or exceeds those requirements. This narrative also discusses other fire safety concerns not specifically contained within the codes, how the Megapack addresses those concerns and highlights how the Megapack performed during large-scale UL9540A fire testing to demonstrate its performance during an actual fire event.

APPLICABLE CODES

The following codes and standards have been applied to this analysis:

- 2021 International Fire Code® (IFC), to be released in the fall of 2020
- 2021 NFPA 1, *Fire Code* (NFPA 1), to be released in the fall of 2020
- 2020 NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems* (NFPA 855)
- UL9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*, Edition 4, November 12, 2019 (UL9540A).

FIRE CODE BACKGROUND

Across the United States (US), two fire codes are predominantly adopted by jurisdictions, the IFC and NFPA 1. Both of these codes address ESS installations. Energy storage is not a new concept. Pumped hydroelectric, for instance, has been a form of energy storage for over a hundred years and lead-acid batteries have been used as backup power supplies for decades. However, more recently, new technologies have advanced energy storage, including the proliferation of li-ion batteries. Li-ion battery ESS are still a relatively new form of energy storage that has only become popular in the last decade. To address these new technologies and systems, the ESS requirements contained within the IFC has gone through significant changes over the past decade. For the first time, the 2018 edition of the IFC contains a standalone Chapter (Chapter 12) dedicated solely to energy systems and a section for electrical ESS, which includes li-ion battery ESS. The 2021 edition of the IFC, to be released in the fall of 2020, will further augment the requirements of Chapter 12 and electrical ESS with new safety provisions. Similarly, NFPA 1 has seen its language significantly change over the last decade. The 2021 edition of NFPA 1, also to be released in the fall of 2021, will no longer contain significant ESS guidance for a li-ion battery ESS. NFPA 1 will adopt by reference NFPA 855, *Standard for the*

Installation of Stationary Energy Storage Systems, which is a new NFPA standard solely focusing on ESS safety. The adoption of NFPA 855 by NFPA 1 codifies the ESS installation requirements within that standard into the code.

With so many changes occurring in energy storage; the types of systems, batteries, fire protection features, as well as changes to the codes and standards themselves, it can become difficult to keep up with all that is required of an ESS installation from a regulatory standpoint. In an effort to ease some of this confusion, FEI has compiled the regulatory requirements within the IFC and NFPA 1 into one document to assist a fire code official or an AHJ with their review of a proposed Megapack installation. The objective of this narrative is to provide a direct link (cross reference) between what is required by either fire code and how the Megapack meets or exceeds the regulatory requirements. This analysis is being performed using the most recent IFC and NFPA 1 codes (2021 editions), even though they have not yet been released to the public. With so many changes in the technologies and the codes themselves, utilizing the 2021 fire code editions (and not the older editions necessarily adopted in a given jurisdiction), is the most prudent method for applying the most up to date fire and life safety to an ESS installation.

FIRE CODE REQUIREMENTS FOR OUTDOOR ESS INSTALLATIONS

Tesla's Megapack is a three MWh ESS that is meant for outdoor, ground mounted installations only. It can be installed near an adjacent building or in remote locations, not in close proximity to any structure. The IFC (Section 1207.8.1) and NFPA 855 (Section 4.4.3.1) define "remote outdoor installations" as ESS installations that are located more than 100 feet (30.5 meters) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock and other exposure hazards. The fire codes define "locations near exposures" as all other outdoor installations that do not meet the definition of a remote outdoor installation.

Table 1 provides a summary of IFC, Table 1207.8 and NFPA 855, Table 4.4.3. These two fire code tables list all the necessary compliance requirements for an outdoor ESS installation for both remote installations and installations near exposures. In the table, if a cell is denoted as "No" that means the IFC / NFPA 855 code requirement is not applicable to type of installation. For instance, for a remote Megapack installation, the size and separation requirements do not apply; however, for a Megapack installation near exposures, those requirements would apply, as denoted as "Yes." In addition to what these two tables require, Table 1 also lists out additional code requirements that are required of the Megapack based on its unique features, such as its size / capacity and installation guidance. Each of the code requirements contained within Table 1 are discussed in more detail in the accompanying pages within Tables 2-16. As demonstrated in Tables 2-16, the Megapack meets or exceeds all the regulatory requirements outlined in the IFC and NFPA 855 for a ground mounted, outdoor ESS installation.

Table 1 Summary of Fire Code Compliance Requirements for Outdoor ESS Installations

Compliance Required	Remote Installations[a]	Installations Near Exposures[b]	Report Table
IFC, 1207.5.1 Size and separation NFPA 855, 4.6 Size and separation	No	Yes[c]	2
IFC, 1207.1.5 Large-scale testing NFPA 855, 4.1.5 Large-scale testing	Yes[e]	Yes[e]	3
IFC, 1207.5.2 Maximum allowable quantities NFPA 855, 4.8 Maximum stored energy	No	Yes	4
NFPA 855, 4.1.4 Hazard mitigation analysis	Yes[e]	Yes[e]	5
IFC, 1207.5.4 Smoke and automatic fire detection NFPA 855, 4.10 Smoke and fire detection	Yes	Yes	6
IFC, 1207.5.5 Fire suppression systems NFPA 855, 4.11 Fire control and suppression	Yes [d]	Yes	7
IFC, 1207.5.8 Means of egress separation NFPA 855, 4.4.3.4 Means of egress separation	Yes NA	Yes Yes	8
IFC, 1207.8.3 Clearance to exposures NFPA 855, 4.4.3.3 Clearance to exposures	Yes NA	Yes Yes	9
IFC, 1207.6 Technology specific (explosion control) NFPA 855, Ch. 9 Technology specific (explosion control)	Yes	Yes	10
IFC, 1207.4.8 NFPA 855, 4.3.5 Signage	Yes	Yes	11
IFC, 1207.5.6 Maximum enclosure size NFPA 855, 4.4.3.2 Maximum size	Yes	Yes	12
IFC, 1207.5.7 Vegetation control NFPA 855, 4.4.3.6 Vegetation control	Yes	Yes	13
NFPA 855, 4.13 Water supply	Yes [d]	Yes	14
NFPA 855, 4.4.3.7 Enclosures	Yes	Yes	15
NFPA 855, 4.4.3.5 Walk-in units	Yes	Yes	16
NFPA 855, 4.7 Occupied work centers	Not Allowed	Not Allowed	NA

NA: Not applicable.

a. See Section 1207.8.1.

b. See Section 1207.8.2.

c. In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure.

d. Where approved by the fire code official / AHJ, fire suppression systems and / or water supply are permitted to be omitted.

e. Not listed in IFC, Table 1207.8 and NFPA 855, Table 4.4.3 but required because of the size / capacity of Megapack.

Table 2 Regulatory Requirement: Size and Separation

Reference	Requirement	Analysis
IFC, 1207.5.1	Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 Mega joules).	Megapack is an ESS grouped between approximately 1.0 – 3.0 MWh, which exceeds the grouping size 50 kWh.
NFPA 855, 4.6.2	ESS shall be comprised of groups with a maximum stored energy of 50 kWh each.	
IFC, 1207.5.1	Each group shall be separated a minimum three feet (914 mm) from other groups and from walls in the storage room or area.	Megapack is for outdoor installations only (not to be installed near walls) and is separated from other Megapacks by 6-inches, which is less than the minimum 3-foot separation distance required.
NFPA 855, 4.6.3	Each group shall be spaced a minimum 3 ft (914 mm) from other groups and from walls in the storage room or area.	
IFC, 1207.5.1	Exceptions: 2. The fire code official is authorized to approve larger capacities or smaller separation distances based on large scale fire testing complying with Section 1207.1.5.	Megapack installations utilizing larger group sizes and shorter separation distances can meet code requirements and gain approval based upon large-scale fire testing.
NFPA 855, 4.6.4	The AHJ shall be permitted to approve groups with larger energy capacities or smaller group spacing based on large-scale fire testing complying with 4.1.5.	
Finding: The Megapack's capacity is larger than what is permitted by code for an ESS grouping. In addition, the separation distance between Megapacks is less than what is permitted by code. However, a Megapack installation can still meet code requirements and gain approval from a fire official / AHJ by performing large-scale fire testing to demonstrate this grouping size and separation distance can meet the pass / fail criteria of a large-scale fire test, such as UL9540A. This is discussed in further detail below in Table 3.		

Table 3 Regulatory Requirement: Large-Scale Fire Testing

Reference	Requirement	Analysis
IFC, 1207.1.5	Where required elsewhere in Section 1207, large scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A.	Due to its size and separation distances, as discussed in Table 1, large scale fire testing (UL9540A) is required of the Megapack.
NFPA 855, 4.1.5.1*	Where required elsewhere in this standard, large-scale fire testing in accordance with 4.1.5 shall be conducted on a representative ESS in accordance with UL 9540A or equivalent test standard.	
IFC, 1207.1.5	The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS…	Testing was witnessed and reported on by TÜV and demonstrated that a fire involving one ESS unit will not propagate to an adjacent unit.
NFPA 855, 4.1.5.2	The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS unit will not propagate to an adjacent unit.	
IFC, 1207.1.5	…and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire resistance rating of the room separation specified in Section 1207.7.4	Does not apply. Megapack is for outdoor installations only.
NFPA 855, 4.1.5.3	Where installed within buildings, the fire during the test shall be contained within the room or enclosed area for a duration equal to the fire resistance rating of the room separation specified in 4.3.6.	
IFC, 1207.1.5	The test report shall be provided to the fire code official for review and approval in accordance with Section 104.7.2.	See TÜV Report # 32072059.001 dated 6/17/2020.
NFPA 855, 4.1.5.4*	The test report shall be provided to the AHJ for review and approval.	
Finding: The Megapack is required by code to be tested due to its increased grouping size (greater than 50 kWh) and decreased separation clearances to other Megapacks (6 inches). To meet the full-scale fire test code requirements, Megapack was tested and passed UL9540A at the 3 MWh grouping size and 6-inch clearance distances for ground mounted, outdoor installations. The testing was witnessed by an approved third-party testing laboratory and the test report is available for the fire code official / AHJ to review. Based on the large-scale fire testing results, the Megapack meets all code requirements for performing large-scale fire testing, for increased grouping sizes and decreased separation distances.		

Table 4 Regulatory Requirement: Maximum Allowable Quantities

Reference	Requirement	Analysis
IFC, 1207.5.2	Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 1207.5.	Does not apply. Megapack is for outdoor installations only.
IFC, Table 1207.5	For ESS containing lithium-ion batteries, the maximum stored energy is 600 kWh	
NFPA 855, 4.8	ESS in the following locations shall comply with Section 4.8 as follows: (2) Outdoor ESS installations in locations near exposures as described in 4.4.3.1(2) shall not exceed the maximum stored energy values in Table 4.8 except as permitted by 4.8.3 (note, this is a typo and should read 4.8.2).	Megapack is a 3.0 MWh ESS, which exceeds the maximum stored energy threshold of 600 kWh.
NFPA 855, Table 4.8	For ESS containing lithium-ion batteries, the maximum stored energy is 600 kWh	
NFPA 855, 4.8.2	Where approved by the AHJ, outdoor ESS installations, ESS installations in open parking garages and on rooftops of buildings, and mobile ESS equipment that exceed the amounts in Table 4.8 shall be permitted based on a hazardous mitigation analysis in accordance with 4.1.4 and large-scale fire testing in accordance with 4.1.5.	Megapack installations utilizing maximum stored energy greater than 600 kWh can meet code requirements and gain approval based upon a hazardous mitigation analysis and large-scale fire testing.
Finding: In the IFC, the maximum allowable quantity requirements do not apply to an outdoor installation of the Megapack since it is not installed within a room, area of a building or a walk-in unit. However, NFPA 855 only permits outdoor ESS installations to exceed a maximum stored energy of 600 kWh if a hazardous mitigation analysis, in accordance with NFPA 855, 4.1.4 and large-scale fire testing, in accordance with NFPA 855, 4.1.5 are performed. Based on the large-scale fire testing results, the Megapack meets all code requirements for performing large-scale fire testing and for increased maximum stored energy, as discussed above in Table 3. However, the Megapack still needs to meet the hazard mitigation analysis requirements, which is discussed below in Table 5.		

Table 5 Regulatory Requirement: Hazardous Mitigation Analysis

Reference	Requirement	Analysis
NFPA 855, 4.1.4.1*	A hazard mitigation analysis shall be provided to the AHJ for review and approval when any of the following conditions are present: (3) When allowed as a basis for increasing maximum stored energy as specified in 4.8.1 and 4.8.2.	Due to its maximum stored energy, as discussed in Table 4, a hazard mitigation analysis is required of the Megapack.
NFPA 855, 4.1.4.3	The AHJ shall be permitted to approve the hazardous mitigation analysis as documentation of the safety of the ESS installation provided the consequences of the analysis demonstrate the following:	The AHJ can permit a Megapack installation provided it demonstrates it can safely address the six hazards listed below.
	(1) Fires will be contained within unoccupied ESS rooms for the minimum duration of the fire resistance rating specified in 4.3.6.	Does not apply. Megapack is for outdoor installations only.
	(2) Suitable deflagration protection is provided where required.	Megapack is provided with deflagration protection.
	(3) ESS cabinets in occupied work centers allow occupants to safely evacuate in fire conditions.	Does not apply. Megapack is for outdoor installations only.
	(4) Toxic and highly toxic gases released during normal charging, discharging, and operation will not exceed the PEL in the area where the ESS is contained.	Megapack does not release toxic and highly toxic gases during normal charging, discharging, and operation.
	(5) Toxic and highly toxic gases released during fires and other fault conditions will not reach concentrations in excess of immediately dangerous to life or health (IDLH) level in the building or adjacent means of egress routes during the time deemed necessary to evacuate from that area.	Does not apply. Megapack is for outdoor installations only.
	(6) Flammable gases released during charging, discharging, and normal operation will not exceed 25 percent of the LFL.	Megapack does not release flammable gases during charging, discharging, and normal operation.
Finding: A hazard mitigation analysis meeting the six criteria (listed above) for the Megapack is required by NFPA 855 as a basis for exceeding the maximum stored energy threshold of 600 kWh. Criteria (1), (3) and (5) only apply to indoor ESS installations. Criteria (4) and (6) do not apply to li-ion batteries, as no toxic or flammable gases are produced during normal battery operation. Criteria (2) has been addressed through the design of over-pressure vents and a sparker system, which is described in more detail later in this report. These safety features were proven to be effective in protecting against deflagrations in UL9540A large-scale fire testing. Based on this, the Megapack meets all code requirements for AHJ hazard mitigation analysis approval and for increasing the maximum stored energy of the installation.		

Table 6 Regulatory Requirement: Fire Detection

Reference	Requirement	Analysis
IFC, 1207.5.4	An approved automatic smoke detection system or radiant energy–sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. An approved radiant energy–sensing fire detection system shall be installed to protect open parking garage and rooftop installations.	Does not apply. Megapack is for outdoor installations only.
NFPA 855, 4.10.1	All fire areas containing ESS systems located within buildings or structures shall be provided with a smoke detection system in accordance with NFPA 72.	
Finding: A fire detection system is not required for an outdoor installation of the Megapack since it is not installed inside a building, structure, room, indoor area, walk-in unit, open parking garage or rooftop. However, NFPA 72 compliant thermal imaging fire detection system has been shown effective in detecting a fire very early in an event, during the fire's incipient stage and can be provided if necessary. The effectiveness of this detection system is discussed later in the UL9540A large-scale testing section of this report where it demonstrated that the detection system was capable of detecting the event 38 seconds after the li-ion cells went into thermal runaway.		

Table 7 Regulatory Requirement: Fire Suppression Systems

Reference	Requirement	Analysis
IFC, 1207.5.5	Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following…	Does not apply. Megapack is for outdoor installations only.
NFPA 855, 4.11.1*	Where required elsewhere in this standard, fire control and suppression for rooms or areas within buildings and outdoor walk-in units containing ESS shall be provided in accordance with this section.	
Finding: A fire suppression system is not required for an outdoor installation of the Megapack since it is not installed inside a building, room, areas within buildings or walk-in units.		

Table 8 Regulatory Requirement: Means of Egress Separation

Reference	Requirement	Analysis
IFC, 1207.5.8	ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the fire code official to ensure safe egress under fire conditions, but in no case less than 10 feet (3048 mm). Exception: The fire code official is authorized to approve a reduced separation distance if large scale fire testing complying with Section 1207.1.5 is provided that shows that a fire involving the ESS will not adversely impact occupant egress.	Megapack is an outdoor ESS and requires separation. The Megapack Site Design Manual, Section 3.8, Clearances requires Megapack installations to be greater than 10 feet from a means of egress serving a building or structure.
NFPA 855, 4.4.3.4.1	ESS located outdoors shall be separated from any means of egress as required by the AHJ to ensure safe egress under fire conditions but in no case less than 10 ft (3048 mm).	
Finding: Per the Megapack Site Design Manual, Section 3.8, Clearances, the Megapack will not be installed within 10 feet of a means of egress serving an adjacent building or structure. Based on these installation requirements, the Megapack meets all code requirements for protecting the means of egress.		

Table 9 Regulatory Requirement: Clearance to Exposures

Reference	Requirement	Analysis
IFC, 1207.8.3	ESS located outdoors shall be separated by a minimum ten feet (3048 mm) from the following exposures: 1. Lot lines; 2. Public ways; 3. Buildings; 4. Stored combustible materials; 5. Hazardous materials; 6. High-piled stock; 7. Other exposure hazards.	Megapack is an outdoor ESS and requires separation. Megapack Site Design Manual, Section 3.8, Clearances requires Megapack installations to be greater than 10 feet from all exposures.
NFPA 855, 4.4.3.3	ESS located outdoors shall be separated by a minimum 10 ft (3048 mm) from the following exposures: (1) Lot lines; (2) Public ways; (3) Buildings; (4) Stored combustible materials; (5) Hazardous materials; (6) High-piled stock; (7) Other exposure hazards not associated with electrical grid infrastructure.	
Finding: Per the Megapack Site Design Manual, Section 3.8, Clearances, the Megapack will not be installed within 10 feet of any exposure. Note, electrical equipment associated with the ESS, including, but not limited to transformers, are not considered exposures. That equipment is considered integral to the ESS and is not an external exposure. Based on these installation requirements, the Megapack meets all code requirements for clearance to exposures.		

Table 10 Regulatory Requirements: Explosion Control

Reference	Requirement	Analysis
IFC, 1207.6.3	Where required by Table 1207.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in units containing electrochemical ESS technologies.	Does not apply. Megapack is for outdoor installations only.
NFPA 855, Table 9.2	Explosion control is required for lithium-ion battery ESS in accordance with NFPA 855, 4.12	Technology specific requirements for li-ion battery ESS contained in Table 9.2 require the Megapack to have explosion control in accordance with Section 4.12.
NFPA 855, 4.12	Where required elsewhere in this standard, explosion prevention or deflagration venting shall be provided in accordance with this section.	Does not apply. Megapack is for outdoor installations only.
NFPA 855, 4.12.1*	ESS installed within a room, building, or walk-in unit shall be provided with one of the following: (1) Explosion prevention systems designed, installed, operated, maintained, and tested in accordance with NFPA 69 (2) Deflagration venting installed and maintained in accordance with NFPA 68	
NFPA 855, 4.12.2	Explosion prevention and deflagration venting shall not be required where approved by the AHJ based on large-scale fire testing in accordance with 4.1.5 that demonstrates that flammable gas concentrations in the room, building, or walk-in unit cannot exceed 25 percent of the LFL in locations where the gas is likely to accumulate.	

Finding: Explosion control is not required for an outdoor installation of the Megapack since it is not installed inside a building, room, areas within buildings or walk-in units. However, Megapack has been designed to mitigate an over-pressure event and deflagration through the use of over-pressure vents and a sparker system, which is described in more detail later in this report. These safety features were proven to be effective in protecting against deflagrations in UL9540A large-scale fire testing where no explosion hazards were observed (flying debris or explosive discharge of gases).

Table 11 Regulatory Requirement: Signage

Reference	Requirement	Analysis
IFC, 1207.4.8	Signage. Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages. Signs designed to meet both the requirements of this section and NFPA 70 shall be permitted. The signage shall include the following or equivalent. 1. "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or the equivalent. 2. The identification of the electrochemical ESS technology present. 3. "Energized electrical circuits" 4. If water reactive electrochemical ESS are present the signage shall include "APPLY NO WATER" 5. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1207.1.6.1.	Megapack is an outdoor ESS and requires signage. Megapack Site Design Manual, Section 6.3, requires all Megapack installations to be provided with signage as outlined by the fire code.
NFPA 855, 4.3.5.1	Approved signage shall be provided in the following locations: (3) In approved locations on outdoor ESS that are not enclosed in occupiable containers or otherwise enclosed.	Megapack is an outdoor ESS and requires signage. Megapack Site Design Manual, Section 6.3, requires all Megapack installations to be provided with signage as outlined by the fire code.
NFPA 855, 4.3.5.2*	The signage required in 4.3.5.1 shall be in compliance with ANSI Z535 and include the following information as shown in Figure 4.3.5.2: (1) “Energy Storage Systems” with symbol of lightning bolt in a triangle (2) Type of technology associated with the ESS (3) Special hazards associated as identified in Chapters 9 through 15. (4) Type of suppression system installed in the area of the ESS (5) Emergency contact information	
NFPA 855, 4.3.5.3	A permanent plaque or directory denoting the location of all electric power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all energy sources capable of being interconnected.	
Finding: Per the Megapack Site Design Manual, Section 6.3, Signage Requirements, signage must be posted in approved locations in accordance with local codes and standards, as described above. Note, as mentioned in the Megapack Emergency Response Guide (ERG), Megapack contains li-ion cells that are non-reactive to water and thus the “APPLY NO WATER” signage is not required. Based on these installation requirements, the Megapack meets all code requirements for signage.		

Table 12 Regulatory Requirement: Maximum Enclosure Size

Reference	Requirement	Analysis
IFC, 1207.5.6	Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high, not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 1207.7.	Does not apply. Megapack does not have an outer enclosure, is not a walk-in unit and cannot be entered.
NFPA 855, 4.4.3.2.1	Outdoor walk-in containers or enclosures housing ESS shall not exceed 53 ft × 8.5 ft × 9.5 ft (16.2 m × 2.6 m ×2.9 m), not including HVAC and other equipment.	
NFPA 855, 4.4.3.2.2	Units that exceed the dimensions in 4.4.3.2.1 shall be treated as indoor installations and comply with the requirements in 4.4.2.	
Finding: Megapack cannot be entered for inspection, maintenance, and repair. All work of this nature is performed outside the unit with the cabinet door(s) open. Megapack cannot be occupied. Fire code requirements related to maximum enclosure size do not apply to the Megapack.		

Table 13 Regulatory Requirement: Vegetation Control

Reference	Requirement	Analysis
IFC, 1207.5.7	Areas within 10 feet (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt provided that they do not form a means of readily transmitting fire.	Megapack is an outdoor ESS and requires separation. Megapack Site Design Manual, Section 3.8, Clearances requires Megapack installations to be greater than 10 feet from all vegetation.
NFPA 855, 4.4.3.6.1	Areas within 10 ft (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth.	
NFPA 855, 4.4.3.6.2	Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt provided that they do not form a means of readily transmitting fire.	
Finding: Per the Megapack Site Design Manual, Section 3.8, Clearances, the Megapack will not be installed within 10 feet of any vegetation. Based on these installation requirements, the Megapack meets all code requirements for vegetation control.		

Table 14 NFPA 855 Only Requirement: Water Supply

Reference	Requirement	Analysis
NFPA 855, 4.13.1*	Where required elsewhere in this standard, sites where nonmechanical ESS are installed shall be provided with a permanent source of water for fire protection.	Megapack is a non-mechanical ESS and shall be provided with a permanent source of water for fire protection. However, the Megapack does not require water for fire protection as no water-based suppression system is installed for an outdoor Megapack installation.
NFPA 855, 4.13.3	Accessible fire hydrants shall be provided for site ESS installations where a public or private water supply is available.	Megapack installations in locations where public or private water is available shall be provided with accessible fire hydrants. When feasible, a permanent source of water for fire hydrants shall be provided for an outdoor Megapack installation. The feasibility of this requirement should be determined on a site by site basis.
NFPA 855, Table 4.4.3 note (d)	When agreeable with the ESS owner and approved by the AHJ, fire suppression systems and water supply are permitted to be omitted.	Megapack installations in remote locations may not be provided with a permanent water supply and fire hydrants when approved by the AHJ.
Finding: When feasible, a permanent source of water for fire protection and fire hydrants shall be provided for an outdoor Megapack installation. The feasibility of this requirement is determined on a site by site basis. Megapack installations in locations that are remote for instance, may not be provided with a permanent water supply and fire hydrants, as permitted by NFPA 855, Table 4.4.3 note (d). Based on these installation requirements, the Megapack meets all code requirements for water supply.		

Table 15 NFPA 855 Only Requirement: Enclosures

Reference	Requirement	Analysis
NFPA 855, 4.4.3.7.1	ESS electrical circuitry shall be within weatherproof enclosures marked with the environmental rating suitable for the type of exposure required by NFPA 70.	Megapack is for outdoor installations only, it is weatherproof and is NEMA 3, IP66 enclosure.
NFPA 855, 4.4.3.7.2	Enclosures shall be of noncombustible construction.	Megapack is constructed from noncombustible materials.
Finding: Megapack is a NEMA 3, IP66 rated enclosure. It is weatherproof and of noncombustible construction. Based on the design and construction of the cabinet, the Megapack meets all code requirements for enclosures.		

Table 16 NFPA 855 Only Requirement: Walk-in Units

Reference	Requirement	Megapack
NFPA 855, 4.4.3.5.1	Where an ESS includes an outer enclosure, the unit shall only be entered for inspection, maintenance, and repair of energy storage units and ancillary equipment and not be occupied for other purposes.	Does not apply. Megapack is not defined as a walk-in unit.
Finding: Megapack cannot be entered for inspection, maintenance, and repair. All work of this nature is performed outside the unit with the cabinet door(s) open. Megapack cannot be occupied. NFPA 855 requirements related to walk-in units do not apply to Megapack.		

LARGE-SCALE FIRE TESTING TO UL9540A

UL 9540A is a test method developed by UL to address safety concerns with battery ESS. The test method provides a method to evaluate thermal runaway and fire propagation at the cell-to-cell (small-scale), module-to-module (intermediate-scale), and rack-to-rack / unit-to-unit (large-scale) levels. UL9540A is referenced by both the IFC and NFPA 1 as a fire test method capable of providing key fire safety information of a battery ESS. As outlined in the fire code analysis, the codes only permit an ESS installation the size of the Megapack if large-scale fire testing is performed, either in accordance with UL9540A or some other approved fire test method. To demonstrate the fire safety of the Megapack and to meet fire code requirements, Tesla performed cell, module and large-scale fire testing to the UL9540A test method. This report mainly focuses on the large-scale fire test as required by the fire codes; however, the cell and module level test reports are available to a code official / AHJ to review.

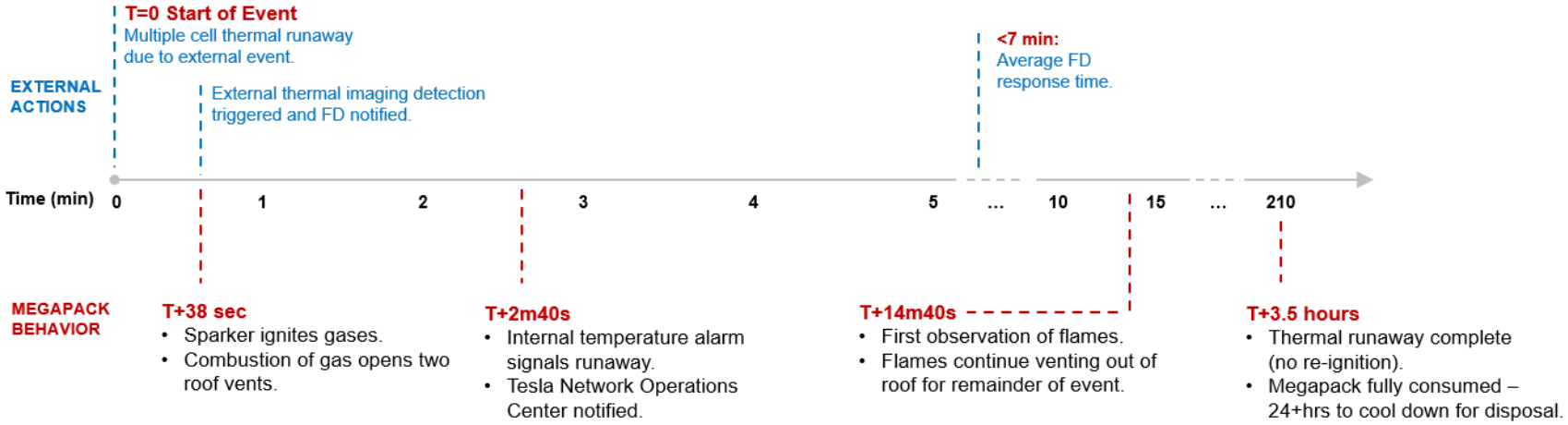
The large-scale fire test was conducted at Tesla's full-scale fire test facility on May 13, 2020 and was witnessed by TÜV Rheinland of North America, Inc. (TÜV). TÜV is an OSHA-approved Nationally Recognized Testing Laboratory (NRTL) and offers the cTUVus mark, which is equivalent to other NRTL marks such as UL, ETL or CSA. The test was performed on a fully populated Megapack consisting of 17 battery modules, which is the maximum number of battery modules a Megapack can hold. The tested Megapack has a capacity of approximately 3 MWh and was tested with the cells fully charged at 100% state of charge (SOC). As such, the large-scale fire test performed on the Megapack, from a hazard perspective, is considered a worst-case scenario. Of all the variations in which the Megapack can be installed, the 3 MWh unit, fully charged at 100% SOC, has the most cells and the most stored energy. Megapacks can be shipped depopulated down to as few as 6 battery modules (about 1MWh). Therefore, any tests performed on a smaller capacity Megapack would not be expected to perform worse from this worst-case scenario.

Below is a summary of the UL9540A fire test results as well as a description of key fire safety features / systems of the Megapack and how those features / systems performed during the large-scale test. The performance of these systems is also related back to the fire code requirements listed in Table 2-16, as appropriate. This discussion is just a summary of the results, for a full description of the test setup, test data and test results, please refer to the full UL9540A test report produced by TUV.

Test Results

Figure 1 provides a summary of key events from the UL9540A large-scale fire test of the Megapack. The Megapack was ignited at time 0:00:00 through the simultaneous forced failure of 27 li-ion cells within a single battery module. 38 seconds later, the internal sparker system

ignited hot gases inside the Megapack opening two over-pressure vents in the roof. At this time, hot gases were observed emitting from the Megapack and the external thermal imaging fire detection system detected the event and went into alarm. At 0:08:25, a constant stream of hot smoke and gases were observed coming out of the over-pressure roof vents. Visible flames were first observed emanating from the roof vents of the Megapack at 0:14:40. The fire continued to burning until reaching a peak flame intensity starting around minute 38. Heat flux levels recorded between minutes 38 and 43 at distances of 20 and 30 feet in front of the Megapack measured their highest values during this 5-minute stretch of time. At a distance of 20 feet in front of the Megapack, heat flux measurements oscillated during this approximate 5-minute stretch between 10.5 and 28.8 kW/m^2 with an average heat flux of 19.1 kW/m^2. At 30 feet, heat fluxes were between 1.5 and 9.8 kW/m^2 with an average value of 4.9 kW/m^2. From the next 10 minutes (minutes 43 to 53) the intensity of the fire weakened and heat flux measurements fell below 10 kW/m^2 and 5 kW/m^2 at 20 and 30 feet, respectively. A brief secondary heat flux peak was recorded between minutes 53 and 58; however, the heat fluxes never reached as high as the initial peak that occurred between minutes 38 and 43. For the remainder of the fire test, the fire slowly spread from module bay to module bay, until the entire Megapack was consumed, taking almost 3 hours 30 minutes to fully burn itself out. During this time, flames are only observed coming out of the top of the Megapack through the roof vents. No projectiles, explosions or flying debris were observed at any time. Fire never spread to the target Megapacks installed 6 inches to the side and to the back of the Megapack nor were the cells of the neighboring Megapacks damaged by the heat. Heat flux measurements at 20 and 30 feet essentially remained below 10 kW/m^2 and 5 kW/m^2 for the duration of the test.



Time (h:mm:ss)	Event
0:00:00	Start of test. First cells go into thermal runaway.
0:00:38	Internal sparker ignites localized concentration of flammable gases and over-pressure roof vents open.
0:00:38	External thermal imaging detector alarm goes into alarm.
0:02:40	Internal module temperature alarm signals thermal runaway at the BMS and notifies the Tesla Network Operations Center.
0:08:25	Ongoing constant stream of hot smoke and gases coming out of the over-pressure roof vents.
0:14:40	First observation of external flames. Continuous flaming event from this time until test end.
0:38:00 – 0:43:00	Peak heat flux measured 20-30 feet in front of Megapack.
3:30:00	End of test. Last observation of visible flames. Fire consumed the Megapack slowly spreading from module bay to module bay until all cells were combusted. All doors remain shut throughout the event. No projectiles, explosions or flying debris were observed.

Figure 1 UL9540A Fire Testing: Timeline of Key Events

Fire Propagation: Thermal Insulation

UL9540A large-scale fire testing of the Megapack demonstrated that a catastrophic failure event (27 li-ion cells were forced into simultaneous thermal runaway) that spreads fire throughout the entire unit, will not spread fire to a neighboring Megapack installed within 6 inches of it. None of the cells in the neighboring Megapacks went into thermal runaway or were damaged by the heat during the 3-hour 30-minute fire test.

The Megapack's performance can be attributed to a number of fire safety features incorporated into its design; most notably, its thermal insulation. The Megapack has 1-inch thick external insulation, covered in steel, installed on the sides and rear of the Megapack cabinet. The roof panels are also insulated and painted with a high reflectivity paint. 1.5-inch internal insulation is also installed on the front battery bay doors and on the ceiling. The thermal insulation helps protect the Megapack and lessen the likelihood of a fire spreading from one Megapack unit to the next. By utilizing this thermal insulation, in combination with other fire safety features, the Megapack is capable of being stored in close proximity, as close as 6 inches, to other Megapacks without allowing fire spread from one unit to another, even during an event that results in complete combustion of the entire Megapack, as was demonstrated during UL9540A testing. This testing result justifies a clearance distance of 6-inches (and not 3-feet, as prescribed in the Fire Code) between Megapacks for outdoor installations.

Deflagration Control: Over-Pressure Vents and Sparker System

UL9540A large-scale fire testing of the Megapack demonstrated that in the event of a thermal runaway of the li-ion cells, the unit has safety features installed to mitigate the risks of an explosion. During the test, the fire consumed the Megapack slowly, spreading from module bay to module bay until all cells were combusted. All doors remain shut throughout the event and no projectiles, explosions or flying debris were observed; only flames were observed emanating from the roof vents.

The Megapack's performance can be attributed to a number of fire safety features incorporated into its design; most notably, its over-pressure vents and sparker system. The design of Megapack includes 33 pressure-sensitive vents (over-pressure vents) and a unique sparker system, as shown in Figure 2. The over-pressure vents and sparker system work in combination with each other to mitigate the risks of deflagration and overpressure events by combusting flammable off-gases before they reach the enclosure's lower flammability limit (LFL). This design essentially ignites the gases very early in a thermal runaway event, before there is time for the gases to build up within the enclosure and become an explosion hazard. Eight sparkers in total are installed at the top of all battery module bays, just below the over-pressure vents installed

within the roof. The sparkers enable a rapid combustion of the hot gases and opening of the closest over-pressure vents. This ensures products of combustion and flames will exit through the roof, without creating a pressure event within the Megapack large enough to blow open doors or expel projectiles from the unit. By keeping all the doors shut during the fire, this also helps ensure that the fire will not propagate to adjacent Megapacks.

The over-pressure vents in combination with the sparker system alleviates explosion hazards, such as flying debris or an explosive discharge of gases, from occurring during a fire event involving a Megapack and meets the requirements for deflagration control required of it by the fire codes.

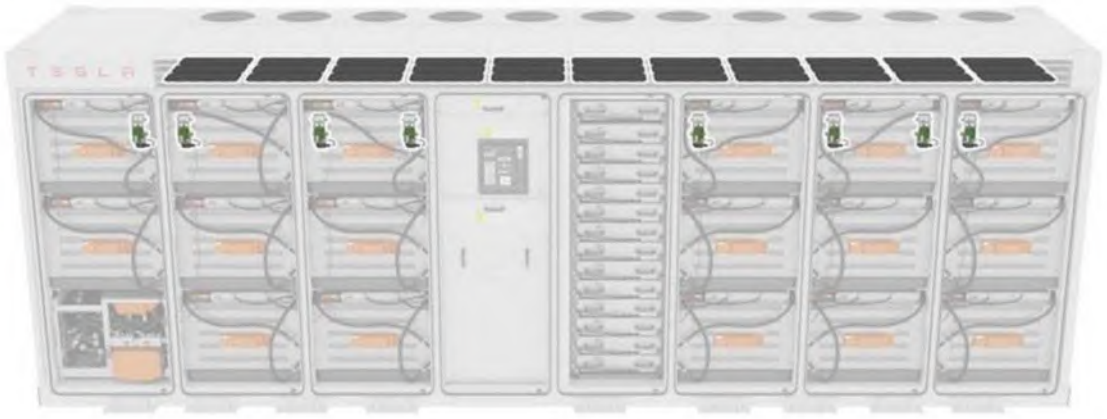


Figure 2 Sparker and roof vent locations

External Fire Detection System

The Megapack does not have an internal fire detection system or one that is integral to its design / construction. As discussed previously in the code analysis, a fire detection system is not required for an outdoor installation. However, previous experience, as well as the UL9540A large-scale testing, has shown that external fire detection systems can work very well in detecting a fire event in an ESS. For the test, a Mobotix, model MX-M16TBR079 thermal imaging camera was utilized. The thermal imaging camera went into alarm 38 seconds after the start of the event, when just a small cloud of hot gases had escaped the cabinet. In a real-world installation, this alarm would be monitored and would trigger a response from the monitoring company to notify the fire department. Based on typical fire department response times, the fire department could be on site very early in the fire event. In this case, during UL9540A testing, visible flames were not observed until more than 14 minutes after the cells were forced into thermal runaway. Also, peak fire intensity / heat flux recordings were not observed / measured until approximately 38 minutes after thermal runaway. An external fire detection system, if installed for an outdoor

Megapack installation, could provide a responding fire department ample time to perform operations before the fire reaches its peak intensity.

External Fire Suppression System / Firefighting Water Supply

The Megapack does not have an internal fire suppression system or one that is integral to its design / construction. As discussed previously in the code analysis, a fire suppression system is not required for an outdoor installation. The UL9540A large-scale fire test results demonstrate that a suppression system is not required to stop the spread of fire from one Megapack to another. The construction of the Megapack, with its thermal insulation, is sufficient to keep a fire, even one that fully consumes the unit, from spreading to neighboring units. The UL9540A testing also demonstrated that active firefighting tactics, such as applying water to the burning unit, is not required to stop fire spread to neighboring units. The test results confirm first responder guidance contained in the Megapack Emergency Response Guide (ERG) is appropriate. The ERG recommends that first responders do not try to suppress a Megapack fire, but instead take a defensive position and protect nearby exposures / Megapacks. Note, per the Megapack ERG, the Megapack contains li-ion cells that are non-reactive to water. Therefore, first responders should not be concerned if water is sprayed onto the Megapack indirectly while protecting nearby exposures.

Runoff / Products of Combustion

UL9540A large-scale fire testing does not require the collection of runoff or products of combustion as part of an outdoor installation test. However, during the large-scale test, and afterwards during cleanup, no liquid runoff (such as from glycol) was observed.

Although products of combustion are not collected during the large-scale outdoor fire test, UL9540A does require them to be collected and analyzed during the module level testing. The module level test involves forcing a module of battery cells (the module is made up of 1053 cells) into thermal runaway and analyzing the fire behavior, which includes products of combustion. During the fire event, the hot gases are captured inside a hood and collected for analysis. The gases collected during the module level testing are listed in Table 17 and can provide guidance as to what type of gases first responders can be expected to encounter when responding to a Megapack fire involving its li-ion batteries. As shown, very trace amounts of hydrocarbons (propane, methane and ethylene) were collected during the test. Hydrogen was also captured, although its maximum quantity measured during the test remained below its LEL.

In addition to flammable gases, typical fire byproducts, such as carbon monoxide, carbon dioxide and trace amounts (less than 1 ppm) of hydrogen fluoride were detected. Given the Megapack is installed outdoors only, the quantity of these gases would not typically pose a threat to first

responders. These test results also confirm Megapack's ERG, which recommends that fire responders don their typical personal protective equipment (PPE), remain at a safe distance away from the unit on fire, perform defensive tactics to protect nearby exposures / other Megapacks, do not try to suppress a Megapack fire and do not try to open or gain access to a Megapack's interior.

Table 17 Products of Combustion: Module Testing

Chemical Structure	Gas Name	Quantity Measured
C3H8	Propane	2.181 ppm
CH4	Methane	2.858 ppm
CO	Carbone Monoxide	82.985 ppm
CO2	Carbone Dioxide	650.165 ppm
C2H4	Ethylene	2.547 ppm
HF	Hydrogen Fluoride	0.545 ppm
H2	Hydrogen Gas	35% LEL

Heat Flux Measurements

Heat flux measurements were recorded throughout the UL9540A large-scale fire test. Peak flame intensity was observed starting around minute 38. Heat flux levels recorded between minutes 38 and 43 at distances of 20 and 30 feet in front of the Megapack measured their highest values for the entire event during this 5-minute stretch of time. During these 5 minutes, the peak heat flux was measured to be 28.8 kW/m^2 and 9.8 kW/m^2 at a distance of 20 and 30 feet, respectively. Those values were only brief peaks though. The average heat flux values during these 5 minutes was measured to be 19.1 kW/m^2 and 4.9 kW/m^2 at a distance of 20 and 30 feet, respectively. After this peak intensity the fire weakened and the heat fluxes recorded at these distances dropped to below 10 kW/m^2 at 20 feet and 5 kW/m^2 at 30 feet. After another smaller uptick in heat flux measurements when the fire intensified between minutes 53 and 58, the fire weakened and slowly burned itself out, taking almost 3.5 hours to consume all the modules within the Megapack. From minute 58 until the end of the test, heat flux measurements at 20 and 30 feet essentially remained below 10 kW/m^2 and 5 kW/m^2 for the duration of the test.

The UL9540A testing demonstrated that active firefighting tactics, such as applying water to the burning unit, is not required to stop fire spread to neighboring units and that defensive tactics are best. The Megapack's ERG recommends that first responders don their typical personal protective equipment (PPE), remain at a safe distance away from the unit on fire, perform

defensive tactics to protect nearby exposures / other Megapacks, do not try to suppress a Megapack fire and do not try to open or gain access to a Megapack's interior. The test results confirm this first responder guidance as fire department personnel, in their PPE, can typically operate at a safe distance away from the Megapack to perform their operations without being exposed to a thermal assault from the burning Megapack that could endanger them.

UL9540A large-scale fire testing for outdoor, ground mounted ESS installations requires the ESS to be tested with the initiating ESS and two target ESS; one installed to the side and one to the back of the initiating ESS. The test results demonstrated that a fire will not propagate from the initiating Megapack to neighboring units installed 6 inches away; however, the test method does not require the target ESS to be installed in other areas, such as in front of the Megapack. The Megapack Site Design Manual specifies a minimum of 8 feet of clearance in front of two Megapacks installed facing one another. This distance is required so that the units can be serviced through their front bay doors. During the UL9540A testing, the test was performed outdoors, as permitted since the unit is meant for outdoor installations. Environmental conditions were closely monitored and were all within the limits prescribed by the UL9540A test method. However, wind conditions generally pushed the flames exiting the roof vents towards the front of the Megapack throughout the test.

Given this observation, an analysis was performed to determine how a unit installed 8 feet in front of the initiating Megapack would respond to this fire event (i.e. flames blowing towards it). Since no target ESS was installed in this position during testing, a heat transfer model was utilized to determine the expected rise in cell temperatures inside a target Megapack installed 8 feet in front of the initiating unit. The model utilized actual heat flux data collected during the test at this exact distance (8 feet). The model calculates this temperature rise by analyzing the heat transfer from the flames across the 8-foot gap and through the front bay door and 1.5-inch internal thermal insulation of the target Megapack.

The model was first validated by comparing predicted cell temperatures versus actual cell temperatures measured during the fire test in the neighboring unit installed on the backside of the initiating unit. The backside target Megapack is positioned directly in line with the initiating unit, similar to how a target Megapack 8 feet in front of the initiating unit would be positioned, albeit at a much bigger distance (8 feet vs. 6 inches). This makes the backside Megapack a good candidate for validating the heat transfer model across the air gap before applying it to the 8-foot target Megapack. To validate the model, the actual cell temperature data collected from the fire event was compared to the predicted model to confirm its accuracy. For the backside target Megapack, two modules were instrumented with thermocouples to measure the cell temperatures. As shown in Attachment 1, Figures 3 and 4, the predicted model and the actual

test data cell temperatures of the two modules of the backside target Megapack were found to be very close for the 3.5-hour test duration.

With the model showing a good correlation between predicted and actual fire test data, it was then used to predict the cell temperatures of the front 8-foot target Megapack. The model predicted that during this event, where flames were observed blowing towards the front of the Megapack, an adjacent Megapack installed 8 feet in front of it would only see its cell temperatures rise by no more than 40°C, as shown in Attachment 1, Figure 5. With an ambient temperature of 23°C, this cell temperature rise would result in a peak cell temperature of 63°C. For reference, cell failure for the li-ion batteries utilized in the Megapack was determined during cell level UL9540A testing to be at a temperature of 139°C. As such, the cell temperatures predicted for a Megapack installed 8 feet in front of the initiating unit are expected to remain well below the temperature required for cell failure. In addition, flame propagation from the initiating unit to a Megapack installed 8 feet in front of it is not expected.

CONCLUSIONS

Based on our review of the available materials, our background, experience and training, and the analysis performed to date described above, the following conclusions are submitted within a reasonable degree of scientific and engineering certainty:

1. The largest variant of the Megapack, approximately 3 MWh, has been tested, as a worst-case scenario at 100% SOC, and passed the large-scale fire test outlined in UL9540A for the outdoor installation of a ground mounted ESS.

2. Smaller Megapack units, between 1 and 3 MWh would be expected to perform similarly if not better, given they will contain less li-ion cells and will have less stored energy than larger 3 MWh unit that was tested.

3. Large-scale fire testing on the Megapack was required per nationally adopted fire codes / standards given the size of the Megapack and how closely units are installed to one another.

4. UL9540A testing demonstrated that the Megapack's fire performance meets or exceeds the pass / fail criteria of the test method and justifies its larger size and closer clearance distances for outdoor ESS installations.

5. During the UL9540A test, the fire did not propagate to either of the neighboring units nor were there any observations of a deflagration, including projectiles, flying debris or explosive discharge of gases.

6. Fire detection systems are not required for outdoor Megapack installations per nationally adopted fire codes / standards; however, an external third-party thermal imaging fire detection system detected the event 38 seconds after the first cells went into thermal runaway, demonstrating its effectiveness in this type of outdoor installation.

7. Fire suppression systems (such as sprinklers or a clean agent) are not required for outdoor Megapack installations per nationally adopted fire codes / standards and UL9540A testing demonstrated that a fire suppression system and active firefighting tactics (such as applying water to the burning unit) are not required to stop fire spread to neighboring units.

8. Heat flux measurements during large-scale fire testing and products of combustion measurements during module level testing confirmed that Megapack's ERG recommendations for first responders is appropriate and that fire department personnel should don their typical PPE, remain at a safe distance away from the unit on fire while performing defensive tactics to protect nearby exposures / other Megapacks, should not try to suppress a Megapack fire and should not, under any circumstances, try to open or gain access to a Megapack's interior.

9. A heat transfer analysis calculated that cell temperatures would rise of no more than 40°C in a target Megapack installed 8 feet in front of the initiating unit when using the heat flux data recorded from the UL9540A large-scale fire test. This temperature rise is expected to remain well below the temperature required for cell failure (139°C) and flame propagation from the initiating unit to a Megapack installed 8 feet in front of it is not expected.

10. Based on a review of the Megapack, its fire safety features and the UL9540A fire test results, the Megapack meets or exceeds all the regulatory requirements outlined in the nationally adopted fire codes / standards for outdoor, ground mounted installations of ESS.

If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

Fisher Engineering Inc.

Andrew Blum, CFEI, CVFI
Senior Fire Protection Consultant

Reviewed by

Doug Fisher, PE, FSFPE
Principal Fire Protection Engineer

QUALIFICATIONS

Mr. Andrew Blum graduated from the University of Maryland with a Bachelor of Science and Master of Science degree in Fire Protection Engineering. His experience includes fire/explosion investigations, fire protection systems failure analysis/investigations, fire hazard analysis, life safety/building code surveys, computer fire modeling, small and large-scale fire testing, interpretation and enforcement of fire/building codes, as well as the design, inspection, and analysis of fire protection system installations.

Mr. Blum is a registered professional fire protection engineer and has extensive experience utilizing the National Fire Protection Association (NFPA) codes, standards, and recommended practices, model building and fire codes from the International Code Council (ICC) and product safety standards, such as UL standards and listings in his analyses. He has experience in performing and supervising small- to large-scale flammability projects for research and development and product testing related to recalls. These tests include first hand fire testing experience with nationally and internationally accepted standards published by the NFPA, ASTM, ISO, UL, FM and CFR. He also has specific expertise in fire-testing lithium ion batteries used in consumer electronics/products, electric drive vehicles, in-storage configurations and energy storage systems, including involvement in fire testing Tesla ESS units.

Mr. Blum is a principal member on the technical committee on NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems* and is an active member of the NFPA, ICC, ASTM and Society of Fire Protection Engineers (SFPE). He has presented many times on the topic of li-ion batteries as it relates to fire safety and has published numerous papers / reports on the same subject, including lithium ion battery ESS.

Attachment 1: Heat Transfer Analysis Predictions vs. Test Data

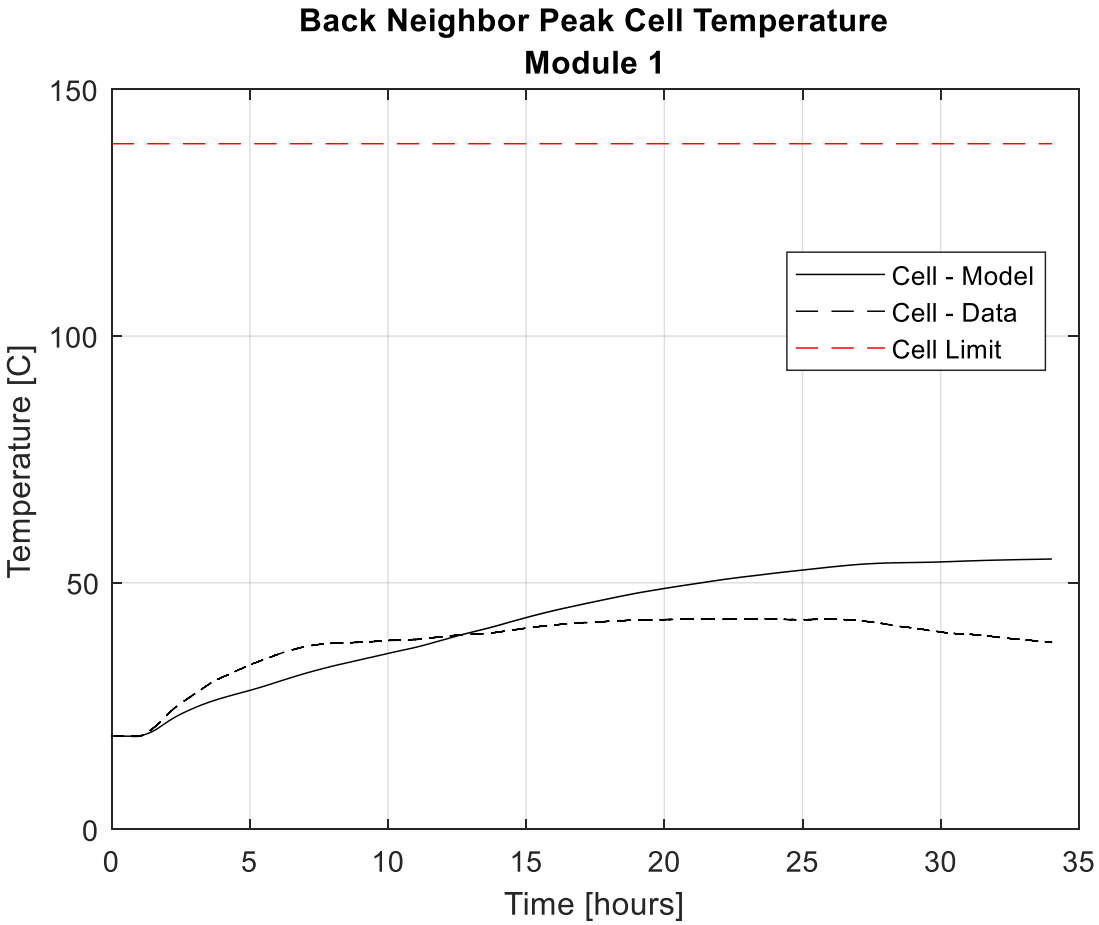


Figure 3 Backside target Megapack cell temperatures for module 1. The solid black line indicates the predicted cell temperatures from the heat transfer model. The dashed line is the actual cell temperatures measured during the test and the dashed red line at the top, is the failure temperature (139°C) of the li-ion cells utilized in the Megapack. The predicted vs. actual cell temperatures are very similar for the 3.5-hour test duration and remain relatively close even further out after 34 hours. As demonstrated from the cell temperature data, the cell temperatures in the backside target Megapack remained well below their failure temperature throughout the UL9540A large-scale fire test. Note, cell temperatures were monitored well after the fire test ended to ensure safety during cleanup and overhaul. As can be seen in the data, the target units adjacent to a Megapack that caught on fire will remain hot for some time afterwards before starting too cool off. Module 1's cells did not start to cool until almost 16 hours after the test ended (around hour 20 on the plot). These slightly elevatored temperatures are not a risk though and do not pose a reignition hazard.

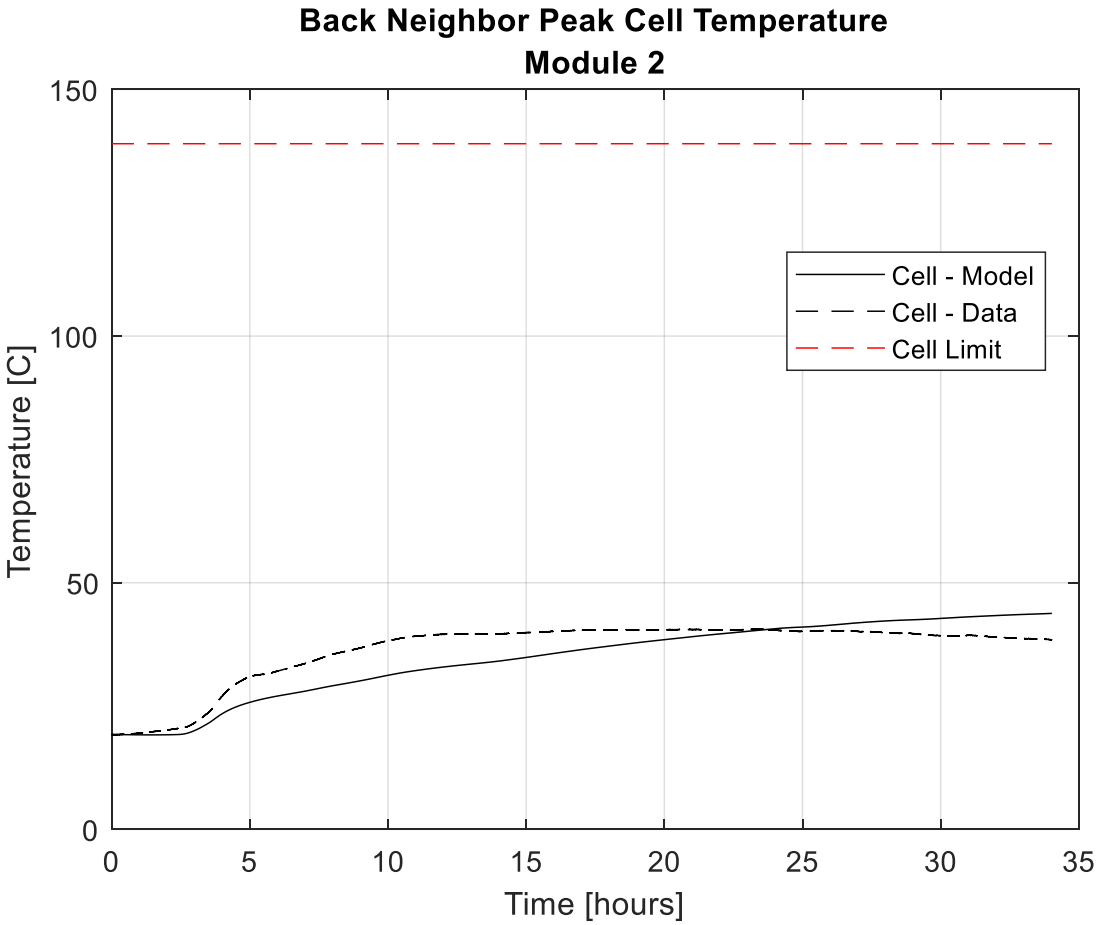


Figure 4 Backside target Megapack cell temperatures for module 2. The solid black line indicates the predicted cell temperatures from the heat transfer model. The dashed line is the actual cell temperatures measured during the test and the dashed red line at the top, is the failure temperature (139°C) of the li-ion cells utilized in the Megapack. The predicted vs. actual cell temperatures are very similar for the 3.5-hour test duration and remain relatively close even further out after 34 hours. As demonstrated from the cell temperature data, the cell temperatures in the backside target Megapack remained well below their failure temperature throughout the UL9540A large-scale fire test. Note, cell temperatures were monitored well after the fire test ended to ensure safety during cleanup and overhaul. As can be seen in the data, the target units adjacent to a Megapack that caught on fire will remain hot for some time afterwards before starting too cool off. Module 1's cells did not start to cool until almost 16 hours after the test ended (around hour 20 on the plot). These slightly elevatored temperatures are not a risk though and do not pose a reignition hazard.

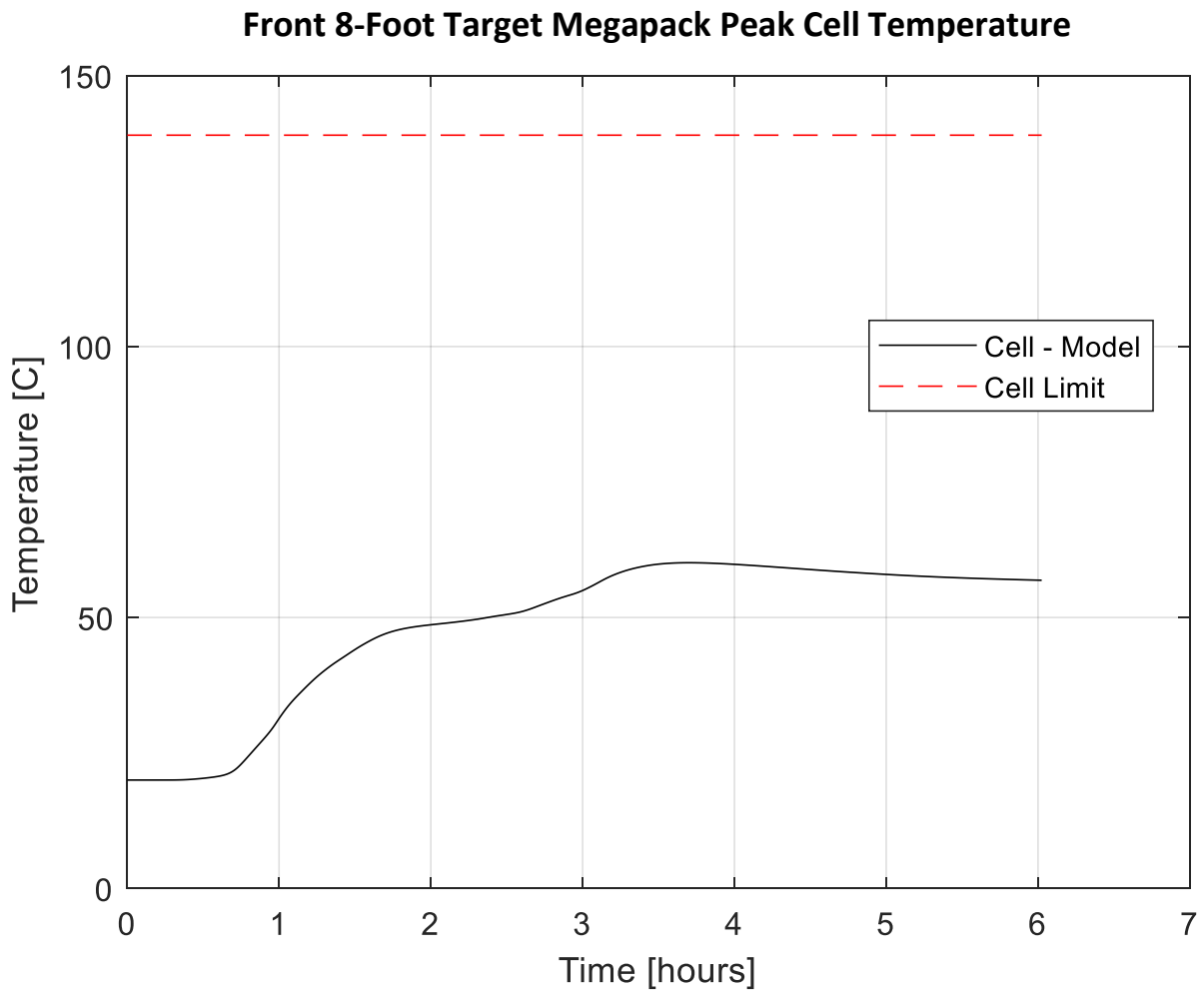


Figure 5 Predicted cell temperature rise for a target Megapack installed 8 feet in front of the initiating unit. The model predicted a temperature rise of 40°C, which would peak at around 63°C at an ambient starting temperature of 23°C. This peak cell temperature is well below the failure temperature (139°C) of the li-ion cells utilized in the Megapack. As would be expected, once the flames of the initiating unit subsided at 3.5 hours, the predicted cell temperatures began to decrease until the model was stopped at 6 hours. The model was stopped at this time because that is when the heat flux gauge stopped collecting data in the UL9540A large-scale fire test. By this time though, the heat flux coming from the initiating unit was low and an obvious downward trend in the cell temperature is demonstrated.

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3615 MAIN STREET, SUITE 103
RIVERSIDE, CALIFORNIA 92501

MEMORANDUM

To:	Condor Energy Storage, LLC (Applicant)
From:	David Ortega (Dudek); Mark Storm, INCE Bd. Cert. (Dudek)
Subject:	Condor Energy Storage Project, Preliminary Operational Noise Analysis
Date:	July 14, 2021
cc:	Bradley Cole (Dudek)
Attachments:	Figure 1

Dudek has prepared the following summary of the preliminary analysis of proposed operational noise levels for the proposed Condor Energy Storage Project (project) and offers a discussion with respect to relevant City of Grand Terrace (City) Noise Ordinance standards.

Project Background

The proposed project site is located on a parcel of land at 21660 Main Street, Grand Terrace, California, designated as an Industrial (M2-Industrial) Zone under the City's Zoning Ordinance. The project will consist of modular battery energy storage enclosures, inverters, medium-voltage (MV) transformers, and a high-voltage (HV) transformer.

Site Operation Noise Limits

Noise sources affecting outdoor sound levels on the project site and in the vicinity include industrial operations and electrical generation facility operations. Operational noise levels from the project are expected to be compatible with existing outdoor sound environment in the area, which includes the adjacent Southern California Edison Highgrove Substation. The following noise standards apply at nearby off-site noise-sensitive receptors such as the Grand Terrace High School east of the project site and existing residential homes southeast and southwest of the project site in the Highgrove community of Riverside County.

City of Grand Terrace Noise Ordinance

Chapter 8.108, Noise, of the City's Municipal Code does not offer any quantifiable limits for project operation noise. As such, the City's General Plan (City of Grand Terrace 2010) was referenced to obtain noise level standards for the various land uses surrounding the project site.

City of Grand Terrace General Plan Noise Element

According to the City General Plan's Noise Element, Section 6.2, Table 6.2, the exterior noise level standard for schools is 65 A-weighted decibels (dBA) community noise equivalent level (CNEL) (City of Grand Terrace 2010).

County of Riverside Noise Ordinance

According to the County of Riverside Noise Ordinance (County of Riverside 2006), the exterior noise level standard for residential community developments (including low-density residential [LDR], medium-density residential [MDR],

and high-density residential [HDR]) appears consistent with using 55 dBA maximum level (L_{max}) and 45 dBA L_{max} as daytime and nighttime noise assessment criteria, respectively. The residential land uses in the Highgrove community to the southwest and southeast of the project site would be subject to these standards. Because the proposed project involves operation of electro-mechanical equipment that is expected to exhibit continuous, or "steady-state," sound emission when functioning normally, it is reasonable to assume and anticipate that the L_{max} dBA value and the energy-equivalent sound level (L_{eq}) dBA value would be very comparable and may thus be used interchangeably for purposes of this acoustic assessment of the proposed project's stationary operational noise sources.

Prediction Model Methodology

Using DataKustik's CadnaA software, which models three-dimensional outdoor sound propagation based on International Organization for Standardization (ISO) 9613-2 algorithms and relevant reference data, an operational scenario of the proposed project was modeled for purposes of this analysis. The modeled scenario included the following operating assumptions for the anticipated noise sources: 256 battery energy storage enclosures (each with eight fans) with cooling system fans at 40% capacity[1]; 64 MV transformers, each operating at up to 3.5 megavolt-amperes (MVA); and 1 HV transformer operating nominally at 200 MVA. Facilities are expected to operate 24 hours a day, 365 days a year.

The predictive analysis assumes that all the above equipment is operating under a charging or discharging condition that may last up to a full continuous hour. For purposes of this preliminary analysis, the overall A-weighted levels appearing in Table 1 were used to define the individual project sound sources.

Table 1. Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	Sound Level per OBCF Reference (dBA)									Overall Sound Level (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
Eight-fan BESS[a]	38.3	45.1	52.5	68.4	73.0	71.2	65.0	53.2	45.3	82.7
HV transformer[b]	47	66	78	80	86	83	79	74	65	89.4
MV transformer[b]	30	49	61	63	69	66	62	57	48	72.4

Notes: OBCF = Octave Band Center Frequency; dBA = A-weighted decibels; BESS = battery energy storage system; HV = high voltage; MV = medium voltage.

[a] Reference sound power level data shown herein, provided by the Applicant's candidate supplier of on-site equipment, represents the aforementioned 40% capacity setting for cooling fan operation.

[b] Based on the Applicant-provided sound pressure level, converted to sound power and with OBCF granularity based on the Electric Power Plant Environmental Noise Guide (Edison Electric Institute 1984).

Prediction Results

As shown on Figure 1, the predicted aggregate sound emission from a 1-hour-long period of all operating battery energy storage enclosures, MV transformers, and the HV transformer stays below 55 dBA L_{eq} at the project site boundary line. Applying a 6.7 decibel (dB) addition to the 1-hour average 55 dBA L_{eq} noise level would result in a

[1] This cooling system fan capacity setting is consistent with confidential operational data provided by the Applicant's candidate supplier of on-site equipment, which accounts for expected seasonal environmental conditions in the vicinity of the proposed project site.

61.7 dBA CNEL noise level. Therefore, the calculated CNEL noise level would be more than 3 dB below the City's allowable 65 dBA CNEL exterior noise level standards for schools to the east of the project site.

Further, the predicted sound pressure levels at positions across the street from the south side of the project site and associated with apparent residential uses are anticipated to be below 44 dBA L_{eq}, which as an amalgam for L_{max} on the expected character of "steady-state" noise emission from the proposed project would also be compliant with the 55 dBA L_{max} daytime and 45 dBA L_{max} nighttime County standards. Therefore, project operations are not expected to exceed exterior noise level standards at the residential uses to the south of the project site. Table 2 provides the predicted sound pressure levels at the modeled receptors (M1–M7) surrounding the project site.

Table 2. Predicted Sound Pressure Levels at Modeled Receptors

Modeled Receptor	Land Use	Sound Pressure Level (dBA L_{eq})
M1	Residential	42
M2	Residential	42
M3	Residential	44
M4	Residential	43
M5	Residential	42
M6	School	39
M7	School	46

Notes: dBA = A-weighted decibels; L_{eq} = energy-equivalent level.

Figure 1 displays the predicted aggregate project operational noise as concentric bands of different colors representing 5-decibel-wide ranges of sound pressure level, consistent with the color band legend appearing at the bottom left of the image. The predicted operational noise emission displayed in Figure 1 does include the partial noise-occluding effect of a solid, 9-foot-tall decorative block wall along the eastern and southern sides of the proposed project, which adjoin Taylor Street and West Main Street, respectively. However, the influence of the decorative wall on the predicted values for modeled receptors M1–M7 (as shown in Table 2) is negligible for reasons including the following: (1) the noise-generating fans on the anticipated battery enclosures are located relatively high on the equipment surfaces, (2) an access gate breaks wall solidity on the southern side parallel with West Main Street, and (3) the position of the wall on the eastern side (Taylor Street) is distant from the noise-emitting sources on site. In other words, the decorative wall could instead be acoustically porous (or nonexistent) and have little or no effect on the predicted sound levels at the nearest off-site noise-sensitive receptors.

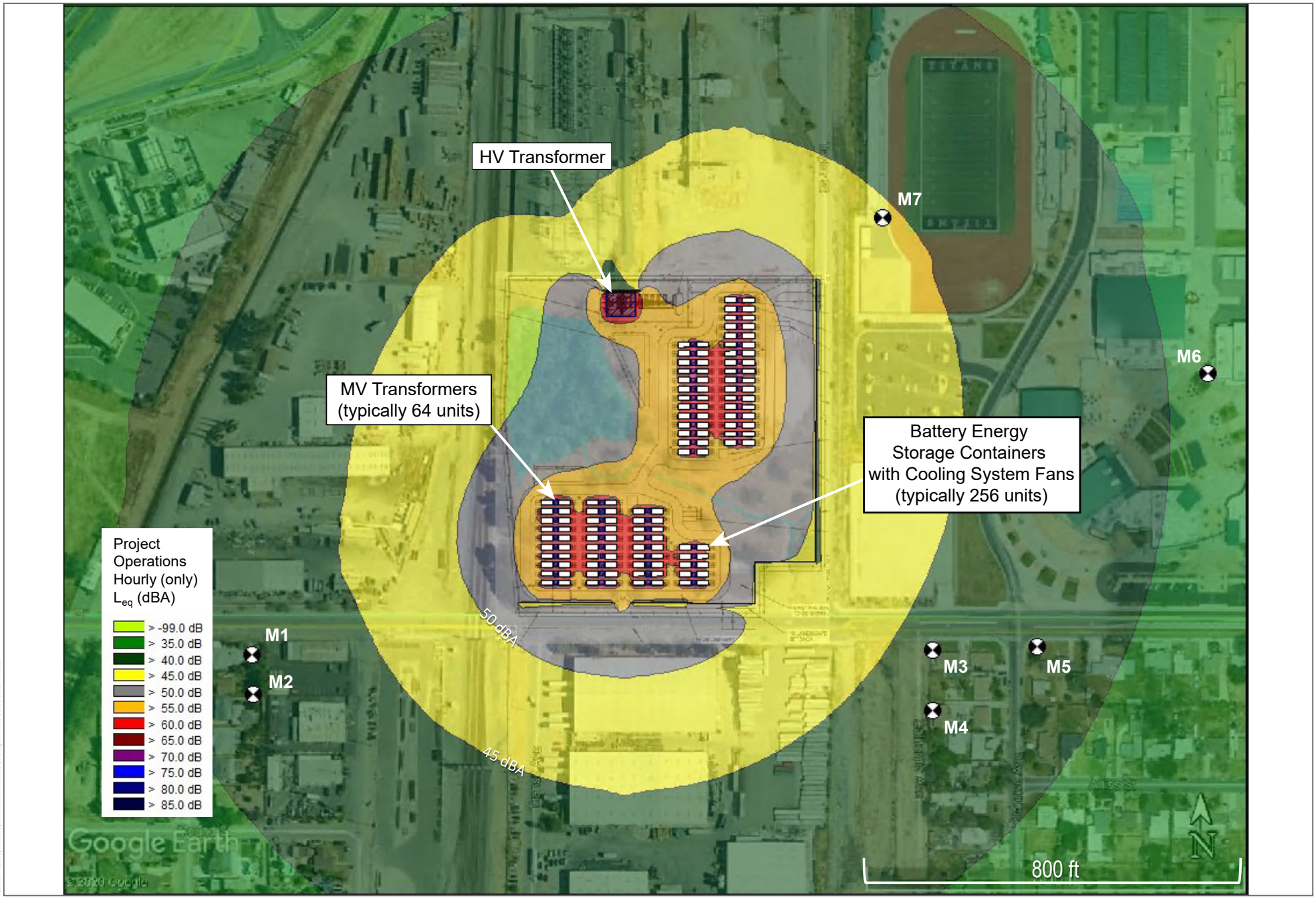
References

City of Grand Terrace. 1983. City of Grand Terrace Municipal Code; Chapter 8.108: Noise. Accessed February 2021. https://library.municode.com/ca/grand_terrace/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.108NO.

City of Grand Terrace. 2010. "Noise Element." Chapter 6 in *City of Grand Terrace General Plan*. Adopted April 27, 2010. https://www.grandterrace-ca.gov/departments/planning_development_services/planning.

County of Riverside. 2006. Riverside County Code; Title 9: Public Peace, Morals and Welfare; Chapter 9.52: Noise Regulation; Section 9.52.040: General Sound Level Standards. Accessed February 2021. https://library.municode.com/ca/riverside_county/codes/code_of_ordinances?nodeId=TIT9PUPEMOWE_CH9.52NORE.

Edison Electric Institute. 1984. *Electric Power Plant Environmental Noise Guide*. Second Edition, Volumes 1 and 2. Prepared by Bolt, Beranek, and Newman for Edison Electric Institute. Washington DC: Edison Electric Institute.



SOURCE: Google Earth 2020

DUDEK

FIGURE 1

Operational Noise Analysis

Condor Energy Storage Project