

Appendix I: Phase I Report



EEI
Engineering Solutions

PHASE I ENVIRONMENTAL SITE ASSESSMENT

CONSULTANTS COLLABORATIVE

Undeveloped Land – 6.87-Acres

APNs 224-260-23-00, -46-00 and -47-00

**West of Intersection of N. Centre City Parkway and N. Nutmeg Street
City of Escondido, San Diego County, California 92026**

September 15, 2017

EEI Project CCI-72559.1

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Prepared for:

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Subject property location:

6.87-Acres of Undeveloped Land
APNs 224-260-23-00, -46-00 and -47-00
West of the Intersection of N. Centre City Parkway and N. Nutmeg Street
City of Escondido, County of San Diego, California 92026

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EI Project CCI-72559.1

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GENERAL SUBJECT PROPERTY INFORMATION

Project Information: 6.87-Acres of Undeveloped Land

EEI Project: CCI-72559.1

Subject Property Information:

APNs 224-260-23-00, -46-00 and -47-00

West of Intersection of N. Centre City Parkway and N. Nutmeg Street
City of Escondido, County of San Diego, California 92026

Subject Property Access Contact: Jason Greminger and Jim Simmons, Consultants Collaborative
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Consultant Information:

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Inspection Date: September 6, 2017; **Report Date:** September 15, 2017

Client Information:

Mr. Jason Greminger
Project Manager
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160 Industrial Drive, Suite 200
San Marcos, California 92078

Site Assessor:

Dylan Ehram - Staff Scientist

EP Certification:

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 (**Resume, Appendix A**).

DRAFT

Brian R. Brennan, M.Sc. – Director, Environmental Services

AAI Certification:

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

DRAFT

Brian R. Brennan, M.Sc. – Director, Environmental Services

EXECUTIVE SUMMARY

At the request and authorization of Consultants Collaborative (i.e. “Client”), EEI conducted a Phase I Environmental Site Assessment (ESA) for the subject property located west of the intersection of N. Centre City Parkway and N. Nutmeg Street, in the City of Escondido, San Diego County, California. The purpose of this Phase I ESA was to assess the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any 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 (i.e., *recognized environmental condition* as delineated in ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, Designation E1527-13 [ASTM E1527-13]).

The following bulleted items summarize the information obtained during the preparation of this ESA:

- The irregular-shaped subject property is comprised of approximately 6.87-acres of land located on three (3) parcels identified by Assessor’s Parcel Numbers (APNs) 224-260-23-00, -46-00 and -47-00. Two (2) of the subject parcels, identified by APNs 224-260-46-00 and -47-00, have no assigned physical address, while the third subject parcel, identified by APN 224-260-23-00, is assigned 2401 N. Nutmeg Street. The property is currently undeveloped land, with N. Nutmeg Street separating APN 224-260-23-00 from APNs 224-260-46-00 and -47-00.
- The subject property is located within a predominantly rural residential area of the northern portion of the City of Escondido. The property is bisected by N. Nutmeg Street, trending east to west, and is immediately bound to the north by undeveloped land, and to the south by undeveloped land, followed by a northbound onramp for Interstate 15 (I-15). To the east, the subject property is bound by N. Centre City Parkway, followed by undeveloped land, and rural residential development beyond. To the west, the subject property is bound by undeveloped land, followed by I-15 and rural residential development beyond. According to the City of Escondido Planning Department, the property is zoned as Residential Estates (R-E-20), and provides for single-family dwellings in a rural setting. Limited agricultural pursuits, including the keeping of horses, are also allowed. The zoning calls for minimum lot sizes of 20,000 square feet. EEI understands that the subject property will be developed into a 160-unit multi-family residential community.
- Based on historical records such as aerial photographs, topographic maps, and city directories, portions of the northern and southern halves of the subject property appeared plowed/disc'd between 1939, until at least 1946. By 1953, the subject property appeared vacant and undeveloped. The property has remained in this configuration to date. Development of the adjacent and surrounding area appeared to begin in the 1950s, and slowly continued to expand.
- EEI contacted the County of San Diego Department of Environmental Health (CSDDEH), and reviewed California Department of Toxic Substances Control (DTSC), State Water Resources Control Board (SWRCB), and other State and Federal databases to determine if the subject property, or any adjacent properties, were listed as hazardous waste generators, underground storage tank releases (UST), or as having other environmental concerns (i.e., spill, leak, or above-ground tank). With the exception of inclusion in the CSDDEH Voluntary Assistance Program (VAP), the subject property was not listed on any of the databases researched. The following summarizes the files provided by the CSDDEH:

- Approximately 8,500 cubic yards of fill of unknown origin was reported on the subject property located at 2401 N. Nutmeg Street, and identified as APN 224-260-23. Laboratory testing of two (2) soil samples collected for geotechnical purposes indicated the presence of petroleum hydrocarbon compounds at low concentrations, and Total Arsenic at concentrations above preliminary remediation goals. The property owner requested review and input from the CSDDEH toward site assessment and characterization, corrective action plan, and regulatory case closure. As a result VAP Case No. H39704-001 was opened on February 19, 2007.
- Construction Testing & Engineering, Inc. (CTE) prepared a Workplan, dated April 16, 2007, for environmental site assessment of the subject property. The purpose of the site assessment was to evaluate the existence and extent, if present, of chemicals of concern (COCs) potentially impacting human health and the environment. CTE's Workplan called for the collection of six (6) soil samples from six (6) random locations selected by computer from within the subject property's boundary limits. One (1) soil sample would be collected from each location from within the fill material at depths ranging between 0.5 to 4 feet below ground surface (bgs). All samples were to be analyzed for Arsenic using USEPA Test Methods 6010B and 1311, and utilizing Toxicity Characteristic Leaching Procedure (TCLP).
- CSDDEH concurred with the number of samples and sample locations outlined in CTE's Workplan, dated April 16, 2007. However, CSDDEH did not concur with the proposed analyses presented by CTE, stating that the fill should be investigated for concentrations of all metals that may be present, not just Arsenic, and that Total Threshold Limit Concentration (TTLC) and/or Soluble Threshold Limit Concentration (STLC) methods should be used in place of TCLP. Furthermore, CSDDEH requested the following:
 - Run TTCL on all samples for Title 22 metals;
 - Run STLC on all sample where the TTLC value is greater than 10% of the STLC lower limit;
 - Analyze all samples for Total Petroleum Hydrocarbons (TPH) using USEPA Test Method 8015;
 - Analyze the two (2) samples with the highest TPH concentrations for Volatile Organic Compounds (VOCs) using USEPA Test Method 8260B; and
 - Submit a site assessment report that includes all the items in the SAM Manual Site Assessment Checklist.
- On May 15, 2007, CTE conducted a site assessment of the undocumented fill by collected six (6) discrete soil samples from six (6) locations dispersed across the subject property within the undocumented fill material. Laboratory analysis indicated the presence of low concentrations of TPH, VOCs and select metals in samples analyzed. It was CTE's opinion that detectable concentrations of COCs are low enough to allow for use of the property for residential purposes. Additionally, a health risk evaluation conducted by CTE, utilizing the CalTOX Version 4.0 Multimedia Exposure Model, also supported the use of the subject property for residential purposes.

- CSDDEH notified the Regional Water Quality Control Board (RWQCB) of the undocumented fill material allegedly illegally placed on the subject property, and of the property's owners request for closure of VAP Case No. H39704-001. The RWQCB reportedly had no objections to case closure. CSDDEH subsequently closed VAP Case No. H39704-001 on September 4, 2007, noting that the undocumented fill located at the subject property will not pose a threat to humans or the environment, and may remain in place if the land is developed for residential use.
- On September 6, 2017, EEI personnel conducted a site reconnaissance to physically observe the subject property and adjoining properties for conditions indicating a potential environmental concern. Concerns would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon staining, waste drums, illegal dumping, or improper waste storage and/or handling. At the time of EEI's visit, small amounts of windblown debris, consisting of mainly household debris and other miscellaneous items were noted along N. Nutmeg Street. No evidence of environmental concern to the subject property was noted during our site reconnaissance.
- As part of the Phase I ESA, EEI performed a Vapor Encroachment Screen (VES) for the subject property, in accordance with ASTM E2600-10. The purpose was to evaluate whether sites (e.g., gas stations, dry cleaners, or other listings of environmental concern) that store or dispose of potential chemicals of concern or have documented releases, may migrate as vapors onto the property, as a result of contaminated soil and/or groundwater which may be present on or near the property (i.e., a Vapor Encroachment Condition or VEC). Based on the results the VES, EEI concluded that a VEC can be ruled out, because a VEC does not or is not likely to exist due to the lack of known or suspected contaminated properties within the Area of Concern (AOC).

Findings and Opinions

Based on the information obtained in this ESA, EEI has the following findings and opinions:

- *Known or suspected RECs* – are defined by the ASTM E1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any 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.

This assessment has revealed no evidence of *known or suspected RECs* in connection with the subject property, except for the following:

According to the Client, approximately 8,500 cubic yards of undocumented fill material was reportedly illegally dumped within a portion of the subject parcel identified as APN 224-160-23-00 during mid-year 2006. The subject property was subsequently enrolled in the CSDDEH's VAP program (Case No. H39704-001). Limited sampling and analysis of the undocumented fill material performed by CTE during May 2007 did not reveal Chemicals of Concern (COCs) above screening levels for residential land use. Based on the results of CTE's investigation, the CSDDEH issued a letter dated September 4, 2007, approving the onsite use of the undocumented fill material for residential purposes. EEI understands that the proposed development will consist of a 160-unit multifamily residential community, which will include roadways and walkways and limited landscaping. Furthermore, according to the user of this ESA, the 8,500 cubic yards of undocumented fill material will be used as part of proposed future grading activities. Additional fill

material will be borrowed from the subject property's northern two (2) parcels, and placed on portions of the subject property's southern parcel, identified as APN 224-160-23-00. Based on the aforementioned, no further investigation appears to be warranted at this time. However, as a precautionary measure, EEI recommends that the approximately 8,500 cubic yards of undocumented fill material be placed in deep fill or under roadways. If any stained or discolored soil, buried trash/debris, or other waste is encountered during future subject property development, the material should be evaluated by an experienced environmental consultant, and if deemed necessary, characterized for proper disposal.

- *Controlled RECs (CRECs)* – are defined by the ASTM E1527-13 as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a NFA 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 (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

This assessment has revealed no evidence of *CRECs* in connection with the subject property.

- *Historical REC's (HRECs)* – are defined by the ASTM E1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

This assessment has revealed no evidence of *HRECs* in connection with the subject property.

- *De Minimis Conditions* – include environmental concerns identified which may warrant discussion but do not qualify as RECs, as defined by the ASTM Standard Practice E 1527-13.

This assessment has revealed no *de minimis* conditions in connection with the subject property.

Conclusions

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E1527-13 of APNs 224-260-23-00, -46-00 and -47-00, the *subject property*. Any exceptions to, or deletions from, this practice are described in Section 7.0 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the *subject property*, except for the following:

- According to the Client, approximately 8,500 cubic yards of undocumented fill material was reportedly illegally dumped within a portion of the subject parcel identified as APN 224-160-23-00 during mid-year 2006. The subject property was subsequently enrolled in the CSDDEH's VAP program (Case No. H39704-001). Limited sampling and analysis of the undocumented fill material performed by CTE during May 2007 did not reveal Chemicals of Concern (COCs) above screening levels for residential land use. Based on the results of CTE's investigation, the CSDDEH issued a letter dated September 4, 2007, approving the onsite use of the undocumented fill material for residential purposes. EEI understands that the proposed development will consist of a 160-unit

multifamily residential community, which will include roadways and walkways and limited landscaping. Furthermore, according to the user of this ESA, the 8,500 cubic yards of undocumented fill material will be used as part of proposed future grading activities. Additional fill material will be borrowed from the subject property's northern two (2) parcels, and placed on portions of the subject property's southern parcel, identified as APN 224-160-23-00. Based on the aforementioned, no further investigation appears to be warranted at this time. However, as a precautionary measure, EEI recommends that the approximately 8,500 cubic yards of undocumented fill material be placed in deep fill or under roadways. If any stained or discolored soil, buried trash/debris, or other waste is encountered during future subject property development, the material should be evaluated by an experienced environmental consultant, and if deemed necessary, characterized for proper disposal.

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to assess the possible presence of *recognized environmental conditions (RECs)* for the property located west of the intersection of N. Centre City Parkway and N. Nutmeg Street, in the City of Escondido, San Diego County, California (**Figure 1**). *RECs* include property uses that may indicate the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any 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. The term *RECs* is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment, and that would not be subject to enforcement action by a regulatory agency.

This ESA was performed in conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, Designation E1527-13 (ASTM E1527-13).

1.2 Scope of Services

The following scope of services was conducted by EEI:

- A review of readily available documents which included topographic, geologic, and hydrogeologic conditions associated with the subject property.
- A review of readily available maps, aerial photographs and other documents relative to historical subject property usage and development.
- A review of readily available federal, state, county, and city documents and database files concerning hazardous material storage, generation and disposal, active and inactive landfills, existing environmental concerns, and associated permits related to the subject property and/or immediately adjacent sites.
- A site reconnaissance to ascertain current conditions of the subject property.
- Interviews with person(s) knowledgeable of the subject property.
- The preparation of this report which presents our findings, conclusions, and recommendations.

1.3 Reliance

This ESA has been prepared for the sole use of Consultants Collaborative (i.e. “Client”), City of Escondido, John R. Martin, and JMI. This assessment should not be relied upon by other parties without the express written consent of EEI and the Client. Any use or reliance upon this assessment by a party other than the Client, City of Escondido, John R. Martin, or JMI, therefore, shall be solely at the risk of such third party and without legal recourse against EEI, its employees, officers, or directors, regardless of whether the action in which recovery of damages is brought or based upon contract, tort, statute or otherwise.

This assessment should not be interpreted as a statistical evaluation of the subject property, but rather is intended to provide a preliminary indication of onsite impacts from previous property usage and/or the release of hazardous materials. If no significant indicators of the presence of hazardous materials and/or petroleum contamination are encountered during this search, this does not preclude their presence.

The findings in this report are based upon published geologic and hydrogeologic information and information (both documentary and oral) provided by the Client, City of Escondido, San Diego County, Environmental Data Resources Inc. (EDR®) (i.e., agency database search), and various state and federal agencies, and EEI's field observations. Some of these data are subject to change over time. Some of these data are based on information not currently observable or measurable, but recorded by documents or orally reported by individuals.

2.0 PHYSIOGRAPHIC SETTING

2.1 Subject Property Description

The irregular-shaped subject property, is located west of the intersection of N. Centre City Parkway and N. Nutmeg Street, in the City of Escondido, San Diego County, California (**Figure 2**), and is comprised of approximately 6.87-acres of land located on three (3) parcels identified by Assessor's Parcel Numbers (APNs) 224-260-23-00, -46-00 and -47-00 (**Appendix B**). Two (2) of the subject parcels, identified by APNs 224-260-46-00 and -47-00, have no assigned physical address, while the third subject parcel, identified by APN 224-260-23-00, is assigned 2401 N. Nutmeg Street. The property is currently undeveloped land, with N. Nutmeg Street separating APN 224-260-23-00 from APNs 224-260-46-00 and -47-00.

The subject property is located within a predominantly rural residential area of the northern portion of the City of Escondido. The property is bisected by N. Nutmeg Street, trending east to west, and is immediately bound to the north by undeveloped land, and to the south by undeveloped land, followed by a northbound onramp for Interstate 15 (I-15). To the east, the subject property is bound by N. Centre City Parkway, followed by undeveloped land, and rural residential development beyond. To the west, the subject property is bound by undeveloped land, followed by I-15 and rural residential development beyond. According to the City of Escondido Planning Department, the property is zoned as Residential Estates (R-E-20), and provides for single-family dwellings in a rural setting. Limited agricultural pursuits, including the keeping of horses, are also allowed. The zoning calls for minimum lot sizes of 20,000 square feet.

2.2 Topography

The subject property is located on the United States Geological Survey (USGS), Valley Center, 7.5-Minute Quadrangle (USGS, 2012). The subject property elevation ranges from approximately 885 feet above mean sea level (amsl) (southern portions) to approximately 950 feet amsl (northwestern portions). The property is characterized by low to moderate topographical relief which predominantly rises from the southeast to the northwest, with an elevation change of approximately 65 feet. Based on topography, surface runoff generated on the subject property would appear to flow towards the lower elevations in the south region.

2.3 Regional and Local Geology

The subject property and vicinity lies within the Peninsular Ranges Geomorphic Province of California (CDMG, 2002). The Peninsular Ranges Geomorphic Province extends from the Transverse Ranges Geomorphic Province and the Los Angeles Basin, south to Baja California. This province varies in width from about 30- to 100-miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province. The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. The Transverse Ranges Geomorphic Province bounds the Peninsular Ranges on the north.

Major fault zones and subordinate fault zones found in the Peninsular Ranges Province typically trend in a northwest-southeast direction. Three (3) major fault zones and some subordinate fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zones trend northwest-southeast, and are found near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province, whereas, a fault related to the San Andreas Transform Fault System, the Newport-Inglewood-Rose Canyon Fault zone exists near the western margin and Continental Borderland Geomorphic Province (CDMG, 1977).

Soils beneath the subject property and vicinity have been identified by the United States Department of Agriculture – Natural Resources Conservation Service, Web Soil Survey as mainly sandy loam of the Ramona Series, Vista Series, and Cieneba Series, ranging from 5 to 75 percent slopes (USDA, 2017). The Ramona soils are well drained, have high runoff, and moderately high permeability, with 5 to 9 percent slopes. Ramona soils are found on alluvial fans at elevations of 250 to 3,500 feet, and are formed in alluvium derived from granite. Vista soils are well drained, have low runoff, and high permeability, with 5 to 9 percent slopes. Vista soils are found on hills at elevations of 400 to 3,900 feet, and are formed in residuum weathered from granodiorite and quartz-diorite. Cieneba soils are somewhat excessively drained, have medium runoff, and high permeability, with 30 to 75 percent slopes. Cieneba soils are found on hills at elevations of 500 to 4,000 feet, and are formed in residuum weathered from granite and granodiorite.

2.4 Regional and Local Hydrogeology

According to the San Diego Regional Water Quality Control Board (SDRWQCB, 1994), the subject property is located within the Escondido Hydrologic Subarea (HAS – 904.62), of the Escondido Creek Hydrologic Area (HA), within the Carlsbad Hydrologic Unit (HU). Groundwater in the Escondido Hydrologic Subareas has existing beneficial use designations for agricultural, industrial service and municipal supply purposes (SDRWQCB, 1994).

Based on topography, and general knowledge of the hydrogeology in the site vicinity, groundwater is estimated to flow generally towards the west. Groundwater depth and flow direction beneath the site may vary due to proximity to creeks and streams, local irrigation practices, seasonal rainfall, and fracture systems in the underlying bedrock units.

EEI contacted the San Diego County Department of Environmental Health (CSDDEH), Land and Water Quality Division to request a records search for any water well or septic system permits associated with the subject property. A response from the CSDDEH indicated that no records were on file for the property.

EEI reviewed the California Department of Water Resources, Water Data Library website (WDL, 2017) for additional information pertaining to groundwater and water supply wells on or close to the subject property. According to the website, there are no water supply wells located on the property or in the immediate site vicinity. The closest registered well to the property is State Well Number 11S02W34M002S, located approximately 1.27 miles to the east-northeast, with a measured depth to groundwater of 28.13 feet below ground surface (bgs), as last measured on June 17, 1987.

According to a CSDDEH Case Closure Summary dated September 4, 2007 for the subject property, identified as 2401 Nutmeg Street, reported depth to groundwater at the property is estimated to range between 6 feet to 16.5 feet bgs. The estimated groundwater flow direction was reported to be towards the west.

2.5 Hydrologic Flood Plain Information

EEI reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) online database to determine if the subject property was in a flood zone. According to FIRM Number 06073C0811G, Panel 811 of 2375 (effective May 16, 2012), the subject property is located within flood Zone X. FEMA defines Zone X as an area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level (**Appendix B**).

3.0 SUBJECT PROPERTY BACKGROUND

3.1 Subject Property Ownership

Information regarding property ownership was obtained from a Preliminary Title Report (PTR) prepared by First American Title Insurance Company, dated July 24, 2017. According to the information reviewed, the current owner of the subject property is listed as ADJ Holdings, LLC, a California limited liability company. The detailed parcel and legal descriptions are outlined in the PTR, which is included in **Appendix B**.

3.2 Subject Property History

EEI reviewed readily available information sources to evaluate historic land use in and around the subject property. These information sources include aerial photographs, USGS maps, county of San Diego Planning and Building and Safety Department files. The information sources are reviewed in the following sections.

3.2.1 Historical Use Review

Aerial photographs and historical topographical maps, provided by EDR[®], were reviewed to identify historical land development and any surface conditions which may have impacted the subject property. Photographs and historical topographic maps dating between 1893 and 2012 were reviewed. A 2016 aerial photograph was obtained from Google Earth[®], a copy of which is included herein (**Figure 2**). **Table 1** summarizes the results of the aerial photograph and historical topographic map review. Copies of the aerial photographs and historical topographic maps provided by EDR[®], Inc. are included in **Appendix C**.

TABLE 1		
Summary of Historical Aerial Photograph and Topographic Map Review		
Year	Source and Scale	Comments
1893/ 1901	Topographic Map 1:62,500	Subject property appeared undeveloped. Unimproved roads to the north and west of the subject property. Rural residential development was shown in the site vicinity.
1939	Aerial Photograph 1:500	Portions of the northern and southern half of the subject property appeared plowed/disc'd. A large rock outcropping was located within the southern region of the subject property. An unimproved road, trending northeast to southwest, spans the northern portion of the subject property, and a dirt driveway, trending east to west, spans the northern portion of the southern half of the subject property. Adjacent property to the north, south and east is undeveloped. Adjacent property to the west is a mix of undeveloped, rural residential and agricultural development. Property within the site vicinity is a mix of undeveloped, rural residential, and agricultural development.
1946	Aerial Photograph 1:500	Majority of subject property appeared plowed/disc'd. No apparent change to adjacent property since the 1939 photograph.
1947	Topographic Map 1:50,000	Street and structural development increased predominantly to the south of the subject property. Property to the north and west shaded green, indicating forested areas.
1953/ 1964/ 1967/ 1970	Aerial Photograph 1:500	N. Nutmeg Street, trending east to west, bisected the subject property. N. Centre City Parkway bounds the subject property to the east. Subject property no longer appears plowed/disc'd. Rural residence bounding the subject property to the west was removed. Increase rural residential development within the site vicinity.
1948/ 1949	Topographic Map 1:24,000	State Route 395 appeared along the property's eastern boundary. Vista Canal, trending predominately east to west, bisects the subject property. Increased urban development to the south of the subject property.
1968/ 1975	Topographic Map 1: 24,000	Escondido Corporate Boundary bounds the subject property to the north. City of Escondido labeled to the west-southwest of the subject property. Gravel pit located west of the subject property. Radio tower located to the northwest of the subject property. Increased urban development within the vicinity of the subject property.
1979/ 1985/ 1989/ 1995/ 2005/ 2009/ 2010/ 2010	Aerial Photograph 1:500	Graded land bounds the subject property to the south, and I-15 bounds the subject property to the west. No apparent change to the adjacent property to the north and east since the 1970 photograph. Increased residential development to the south of the subject property.
1996	Topographic Map 1:24,000	No apparent changes were noted to the subject property since the 1975 map. Interstate 15 (I-15) bounds the subject property to the west. State Route 395 no longer bounds the subject property to the east.
2012	Topographic Map 1:24,000	Increased urban development within the vicinity of the subject property.
2016	Aerial Photograph GoogleEarth®	The subject property appeared as its current configuration, consisting of undeveloped land bisected by N. Nutmeg street, trending east to west. N. Centre City Parkway bounds the subject property to the east, I-15 bounds the subject property to the west.

3.2.2 City/County Directories

Directory listings associated with the subject property street address and adjacent properties between the years of 1903 and 2014 were searched by EDR®, an environmental information/database retrieval service. The subject property address, 2401 N. Nutmeg Street, was not identified in the City Directory Report. Coyote Hill Glen, a nearby street, was listed in directories in 2006, and appeared with a residential occupant. According to the information reviewed, no gas stations, cleaners, automotive shops, or other occupants of potential environmental concern were located on the property, the subject street, or within the vicinity of the target address. A copy of the City Directory Report is provided in **Appendix C**.

3.2.3 Sanborn Fire Insurance Maps

EEI researched available Sanborn Fire Insurance Maps of the subject property. Sanborn Maps provide detailed information on site structures, uses, and occupancies and were typically utilized by insurance companies to evaluate potential fire risk. EEI requested a Sanborn map search from EDR®, an environmental information/database retrieval service. According to EDR, there is no Sanborn map coverage for the area of the subject property (**Appendix C**).

3.2.4 City of Escondido Building Department Files

EEI contacted the City of Escondido Building Department to review existing building records as they relate to development of the subject property. According to City personnel, no records were on file for the subject parcels identified as APNs 224-260-23-00, -46-00 and -47-00.

3.2.5 County of San Diego Building Department Files

EEI researched the County of San Diego Land Use and Environmental Group (LUEG) website to review any existing records related to development of the subject property. According to the online database, one (1) record was listed for the subject parcel identified as APN 224-260-23-00, and pertained to a Site Assessment and Mitigation (SAM) Investigation, identified by Case No. H39704-00, dated February 26, 2007. The VAP case is discussed below under **Section 3.4.2 County of San Diego Department of Environmental Health**. No additional records associated with the subject property address or APNs was available on the website.

3.2.6 Summary of Historical Use

Based on historical records such as aerial photographs, topographic maps, and city directories, portions of the subject property appeared plowed/disc'd between 1939, until at least 1946. By 1953, the subject property appeared vacant and undeveloped. The property has remained in this configuration to date. Development of the adjacent and surrounding area appeared to begin in the 1950s, and slowly continued to expand.

3.3 Regulatory Database Search

EEI reviewed known electronic database listings for possible hazardous waste generating establishments in the vicinity of the subject property, as well as adjacent sites with known environmental concerns. Facilities were identified by county, state, or federal agencies that generate, store, or dispose of hazardous materials. The majority of information in this section was obtained from EDR[®], an environmental information/database retrieval service. A copy of the EDR[®] report is provided in **Appendix D**, along with a description of the individual databases. Following is a list of databases that were reviewed in the preparation of this report. The subject property was not listed on any of the databases searched.

3.3.1 Federal Databases

Federal National Priority (NPL)/Delisted NPL sites – No listings were reported within a one mile radius of the subject property.

Federal Superfund Enterprise Management System (SEMS) (formerly known as CERCLIS) list – No listings were reported within a one-half mile radius of the subject property.

Federal National Priority (NPL)/Delisted NPL sites – No listings were reported within a one mile radius of the subject property.

Federal Superfund Enterprise Management System (SEMS) (formerly known as CERCLIS) list – No listings were reported within a one-half mile radius of the subject property.

Federal CERCLIS No Further Assessment Planned (NFRAP) site list – No listings were reported within a one-half mile radius of the subject property.

Federal Resource Conservation Recovery Act (RCRA) Corrective Action Sites (CORRACTS) facilities list – No listings were reported within a one mile radius of the subject property.

Federal RCRA non-CORRACTS Treatment, Storage and Disposal (TSD) facility list (RCRA-TSDF) – No listings were reported within a one-half mile radius of the subject property.

Federal RCRA generators list (RCRA-LOG SQG CESQG) – No listings were reported within a one-quarter mile radius of the subject property.

Federal Institutional Controls/Engineering Controls (IC/EC) registries – No listings were reported within a one-half mile radius of the subject property.

Federal Emergency Response Notification System (ERNS) – No listings were reported for the subject property.

3.3.2 State and Regional Sources

State and Tribal equivalent NPL sites – No listings were reported within a one mile radius of the subject property.

State/Tribal equivalent CERCLIS (ENVIROSTOR) sites – Two (2) listings were reported within a one mile radius of the subject property. This database by the California DTSC tracks facilities with known contamination with hazardous substances and uncharacterized properties which may be contaminated. Both listings are located greater than one-eighth of a mile from the subject property. Based on their location (i.e. greater than one-eighth mile from the subject property), and oversight by the appropriate regulatory agency, these listings are not considered to be an environmental concern to the subject property.

State and tribal landfill and/or solid waste disposal site lists – No listings were reported within a one-half mile radius of the subject property.

State and tribal leaking storage tank lists – No listings were reported within a one-half-mile radius of the subject property.

State and tribal registered storage tank lists – No listings were reported within a one-half mile radius of the subject property.

State and Tribal voluntary cleanup sites – No listings were reported within a one-half mile radius of the subject property.

State and Tribal Brownfields sites – No listings were reported within a one-half mile radius of the subject property.

Local Brownfield lists – No listings were reported within a one-half mile radius of the subject property.

Local Lists of Landfill and Solid Waste Disposal Sites (SWRCY) – No listings were reported within a one-half mile radius of the subject property.

Local Lists of Landfill and Hazardous Waste/Contaminated Sites – No listings were reported within a one mile radius of the subject property.

Local Lists of Registered Storage Tanks – No listings were reported within a one-quarter mile radius of the subject property.

Local Land Records – No listings were reported within a one-half mile radius of the subject property.

Records of Emergency Release Reports – No listings were reported for the subject property.

Other Ascertainable Records – No listings were reported within a one mile radius of the subject property.

EDR Exclusive Records – No listings were reported within a one mile radius of the subject property.

EDR Recovered Government Archives – No listings were reported for the subject property.

3.4 Regulatory Agency Review

3.4.1 City of Escondido Fire Department

EEI contacted the City of Escondido Fire Department concerning any permit, inspection, UST, or cleanup information available for the subject property. Personnel from the department indicated that all records regarding hazardous materials and USTs are held with the County Certified Unified Program Agency (CUPA), which is the County of San Diego Department of Environmental Health Hazardous Materials Division. See Section 3.4.2.

3.4.2 County of San Diego Department of Environmental Health

EEI contacted the county of San Diego Department of Environmental Health (CSDDEH) concerning any permit, inspection, UST, or cleanup information available for the subject property. According to an emailed response from the CSDDEH, no records were on file for the subject parcels identified as APN 224-260-46-00 and -47-00. However, Mr. Edwin C. Andrus, Office Support Specialist for the CSDDEH provided multiple records related to the subject parcel identified as APN 224-260-23-00, which are discussed below:

- CSDDEH Voluntary Assistance Program (VAP) Application for Assistance (Case No. H39704-001), dated February 19, 2007. Approximately 8,500 cubic yard of fill of unknown origin was reported on the subject property located at 2401 N. Nutmeg Street, and identified as APN 224-260-23. Laboratory testing of two (2) soil samples collected for geotechnical purposes indicated the presence of petroleum hydrocarbon compounds at low concentrations, and Arsenic at concentrations above preliminary remediation goals. The property owner requested review and input toward site assessment and characterization, corrective action plan, and regulatory case closure.
- Workplan, prepared by Construction Testing & Engineering, Inc. (CTE), dated April 16, 2007. Upon acceptance of CSDDEH into the VAP, CTE prepared a Workplan for environmental site assessment of the subject property. The purpose of the site assessment was to evaluate the existence and extent, if present, of chemicals of concern (COCs) potentially impacting human health and the environment. CTE's Workplan called for the collection of six (6) soil samples from six (6) random locations selected by computer from within the subject property's boundary limits. One soil sample would be collected from each location from within the fill material at depths ranging between 0.5 to 4 feet bgs. All samples were to be analyzed for Arsenic using USEPA Test Methods 6010B and 1311, and utilizing Toxicity Characteristic Leaching Procedure (TCLP).
- CSDDEH correspondence titled "Workplan Concurrence", dated May 2, 2007. CSDDEH concurred with the number of samples and sample locations outlined in CTE's Workplan, dated April 16, 2007. However, CSDDEH did not concur with the proposed analyses presented by CTE, stating that the fill should be investigated for concentrations of all metals that may be present, not just Arsenic, and that Total Threshold Limit Concentration (TTCL) and/or Soluble Threshold Limit Concentration (STLC) methods should be used in place of TCLP. Furthermore, CSDDEH requested the following:
 - Run TTCL on all samples for Title 22 metals;

- Run STLC on all sample where the TTLC value is greater than 10% of the STLC lower limit;
 - Analyze all samples for Total Petroleum Hydrocarbons (TPH) using USEPA Test Method 8015;
 - Analyze the two (2) samples with the highest TPH concentrations for Volatile Organic Compounds (VOCs) using USEPA Test Method 8260B; and
 - Submit a site assessment report that includes all the items in the SAM Manual Site Assessment Checklist.
-
- Site Assessment Report, prepared by CTE, dated June 5, 2007. The purpose of CTE's Site Assessment Report was to evaluate the existence and extent, if present, of COCs potentially impacting human health and the environment. On May 15, 2007, CTE collected six (6) discrete soil samples from six (6) locations dispersed across the subject property. Laboratory analysis indicated the presence of low concentrations of TPH, VOCs and select metals in samples analyzed. It was CTE's opinion that detectable concentrations of COCs are low enough to allow for use of the property for residential purposes. Additionally, a health risk evaluation conducted by CTE, utilizing the CalTOX Version 4.0 Multimedia Exposure Model, also supported the use of the subject property for residential purposes.
 - Case Closure Summary, Non- Local Oversight Program (LOP) or VAP, dated September 4, 2007. According to the Case Closure Summary, VAP Case No. H39704-001 was opened so CSDDEH could provide regulatory oversight for the characterization of undocumented fill dumped on the subject property allegedly without the property owner's consent. The purpose of the oversight was to determine if the undocumented fill may remain on the subject property when the property is developed without posing additional risk to human health or the environment. The Regional Water Quality Control Board was notified of the undocumented fill, and had no objections to case closure. To characterize the fill, soil samples were collected from six (6) locations distributed throughout the property, and analyzed for petroleum hydrocarbons and California heavy metals. Laboratory results indicated that all contaminant concentrations were below the United State Environmental Protection Agency (USEPA) Region 9 Preliminary Remediation Goals (PRGs) throughout the subject property. A health assessment was performed using the CalTOX Version 4.0 Multimedia Exposure Model. The results of the risk assessment indicated no additional health risks from exposure to soil. Based on the data collected during site assessment activities, CSDDEH concurred that the undocumented fill located at the subject property will not pose a threat to humans or the environment, and may remain in place if the land is developed for residential use.

3.4.3 Department of Toxic Substances Control

EEI reviewed the California Department of Toxic Substances Control (DTSC, 2017) online database EnviroStor, which provides records on: Federal Superfund sites (National Priority List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. Neither the subject property nor adjacent property was listed on any of the EnviroStor database. Based on the results of our database review and related information, interviews with DTSC agency officials were not performed.

3.4.4 State Water Resources Control Board

EEI reviewed the State Water Quality Control Board (SWRCB, 2017) online database GeoTracker, which provides records on LUSTs and Spills, Leaks, Investigation and Cleanup (SLIC) sites. Neither the subject property nor adjacent property was listed on the GeoTracker database. Based on the results of our database review and related information, interviews with SWRCB officials were not performed.

3.4.5 Review of Division of Oil, Gas and Geothermal Resources Files

Oil and gas wells were not observed at the subject property during our site reconnaissance. A review of the California Division of Oil, Gas, and Geothermal Resources Website for oil and gas fields in California and Alaska (CDOGGR, 2017) did not indicate the presence of oil and gas wells on or adjacent to the subject property (Township 12 South Range 02 West Section 5).

3.4.6 National Pipeline Mapping System

EEI reviewed the National Pipeline Mapping System (NPMS, 2017) public viewer website for gas transmission pipelines and hazardous liquid trunklines on or close to the subject property. According to the information reviewed, no pipelines are located on the subject or adjacent properties.

3.5 Interview with Current Property Owner

EEI contacted the property owner representative, Mr. Arie De Jong, for information regarding the subject property. Information provided by Mr. De Jong is documented in the following sections.

3.5.1 Past or Present Uses Indicating Environmental Concern

Mr. De Jong stated that the subject property was and is vacant land, and is not aware of any past or present uses indicating environmental concern.

3.5.2 Environmental Liens or Governmental Notification

Mr. De Jong stated that he was not aware of any environmental liens or governmental notification relating to past or recurrent violations of environmental laws with respect to the subject property.

3.5.3 Presence of Hazardous Substances or Environmental Violations

Mr. De Jong is not aware of the presence of hazardous substances on the subject property. However, Mr. De Jong provided EEI with a CSDDEH VAP letter and Case Closure Summary, for Case No. H39704-001, dated September 4, 2007. The VAP file was opened upon discovery of approximately 8,500 cubic yards of allegedly illegally deposited undocumented fill material within one (1) of the subject parcels identified as APN 224-260-23-00. The CSDDEH VAP letter indicated that the agency concurred with Mr. De Jong's consultant; CTE, that the investigation goals established for the subject property had been met. Details regarding Case No. H39704-001 are discussed above under **Section 3.4.2 County of San Diego Department of Environmental Health**.

3.5.4 Previous Assessments

Mr. De Jong provided EEI with a CSDDEH VAP letter and Case Closure Summary for Case No. H39704-001, dated September 4, 2007. Included in the Case Closure Summary is discussion of a Site Assessment Report prepared by CTE and dated June 5, 2007. **Section 3.7.1** provides a summary of the CTE's site assessment.

3.5.5 Legal Proceedings

Mr. De Jong stated that he is not aware of any legal proceedings related to a contamination issue at the subject property.

3.6 User Specific Information

Pursuant to ASTM E1527-13, EEI provided a Phase I ESA User Specific Questionnaire to the "user" (the person on whose behalf the Phase I ESA is being conducted), in this case, Mr. Jason Greminger of Consultants Collaborative. The User Specific Information provided by Mr. Greminger is documented below. A list of the user specific questions (per ASTM E1527-05) with the associated responses is included in **Appendix E**.

3.6.1 Environmental Liens or Activity and Use Limitations

Mr. Greminger stated that there are no environmental liens or activity and use limitations (AULs) in association with the subject property. To supplement this information, the Client provided EEI with a PTR prepared by First American Title Insurance Company, dated July 24, 2017. A review of the PTR report confirmed the absence of any environmental liens or AULs associated with the subject property.

3.6.2 Specialized Knowledge

Mr. Greminger stated that the subject property was previously owned by Mr. Dejong of San Marcos, and to Mr. Greminger's knowledge, there has been no known occupation of the vacant land or chemicals used on the property.

3.6.3 Valuation Reduction for Environmental Issues

Mr. Greminger stated that the purchase price being paid for the subject property reasonably reflects the fair market value of the property.

3.6.4 Presence or Likely Presence of Contamination

Mr. Greminger stated that he was not aware of any environmental issues related to the subject property.

3.6.5 Other

Mr. Greminger stated that the Phase I ESA is required due to anticipated due diligence requirements of the City of Escondido. The type of property transaction was described by Mr. Greminger as the purchase of the subject property.

3.7 Previous Assessments

Based on the information provided by the property owner representative, and the Client, previous site investigation activities have been conducted on the subject property. The following section summarizes the information EEI reviewed. Copies of the reports discussed in the following sections are included in this report as **Appendix F**.

3.7.1 Construction Testing & Engineering, Inc. (CTE), Site Assessment Report, Vacant Land, 2401 Nutmeg Street (APN 224-260-23), Escondido, California, DEH VAP Case H39704-001, dated June 5, 2007.

CTE prepared a Site Assessment Report, dated June 5, 2007, to evaluate the existence and extent, if present, of COCs within approximately 8,500 cubic yards of undocumented fill material allegedly placed without the property owners consent on the subject parcel, identified as APN 224-160-23-00, in mid-year 2006. A geotechnical investigation conducted by CTE during October 2006 included the excavation of 13 test pits to a maximum depth of 17 feet bgs, and indicated the presence of undocumented fill within each of their geotechnical test pits to a maximum depth of 6 feet bgs. The undocumented fill material was reported to consist dominantly of loose, dry, light brown, silty fine to coarse grained sand with some clay, gravels and cobbles. The undocumented fill commonly contained construction debris, such as geogrid fabric, twine, plastic, screws, pipes, asphalt fragments, etc. Groundwater was encountered in the geotechnical test pits ranging between 6 feet bgs to 16.5 feet bgs.

On May 15, 2007, CTE collected six (6) discrete soil samples from six (6) locations dispersed across the subject property from within the fill material at depths ranging between 0.5 to 4 feet bgs. Each of the samples were analyzed for total recoverable petroleum hydrocarbons by USEPA Test Method 8015B, for California Title 22 Metals by USEPA Test Methods 6010B/7471A, and for Arsenic by Soluble Threshold Leaching Concentration (STLC). The two (2) soil samples that exhibited the highest concentrations of total recoverable petroleum hydrocarbons were also analyzed for VOCs by USEPA Test Method 8260B.

Laboratory analysis indicated the presence of low concentrations of TPH ranging in concentration between 0.11 mg/kg (C17-C18) to 100 mg/kg (C7-C44 total). Low concentrations of VOCs were detected in only one (1) of the two (2) soil samples analyzed, consisting of Acetone (120 µg/kg), Benzene (0.99 µg/kg), and 2-Butanone (27 µg/kg). Select Title 22 Metals, including Antimony at 0.763 mg/kg, Arsenic with a maximum concentration of 185 mg/kg, Barium with a maximum concentration of 185 mg/kg, Beryllium with a maximum concentration of 0.505 mg/kg, Chromium with a maximum concentration of 40.6 mg/kg, Cobalt with a maximum concentration of 13.0 mg/kg, Copper with a maximum concentration of 22.4 mg/kg, Lead with a maximum concentration of 7.14 mg/kg, Nickel with a maximum concentration of 20.2 mg/kg, Vanadium with a maximum concentration of 41.2 mg/kg, and Zinc with a maximum concentration of 53.7 mg/kg, were detected soil samples analyzed. All samples were below the laboratory detection level for Arsenic by STLC.

Incorporating soil data obtained during their limited soil investigation into the CalTOX Version 4.0 Multimedia Exposure Model, CTE conducted a Health Risk Assessment for the subject property. All the soluble metal concentrations were determined to be below the CCR Title 22 section 66700 STLC regulatory limits. The calculated individual excess CalTOX risks were below the target value of 10-6

for residential land use. The hazard ratio for all the tested chemicals (VOCs) was below the target 1.00 for residential land use.

Based on the above information, it was CTE's opinion that detectable concentrations of COCs were low enough to allow for use of the property for residential purposes. Additionally, the health risk evaluation conducted by CTE also supported the use of the subject property for residential purposes.

3.8 Other Environmental Issues

3.8.1 Asbestos-Containing Materials

Asbestos, a natural fiber used in the manufacturing of a number of different building materials, has been identified as a human carcinogen. Most friable (i.e., easily broken or crushed) Asbestos-Containing Materials (ACM) were banned in building materials by 1978. By 1989, most major manufacturers had voluntarily removed non-friable ACM (i.e., flooring, roofing, and mastics/sealants) from the market. These materials, however, were not banned completely.

In October 1995, the Federal Occupational Safety and Health Administration (OSHA) redefined the manner by which building materials are classified in regards to asbestos and the also the way these materials are to be handled. Under this ruling, "thermal system insulation and sprayed-on or troweled on or otherwise applied surfacing materials" applied before 1980 are considered presumed asbestos containing materials (PACM). Other building materials such as "floor or ceiling tiles, siding, roofing, transite panels" (i.e., non-friable) are also considered PACM unless tested.

The subject property is currently vacant land. Therefore, the presence of asbestos-containing materials is not anticipated.

3.8.2 Lead-Based Paint

Lead-Based Paint (LBP) has been identified by Occupational Safety and Health Administration (OSHA), the United States Environmental Protection Agency (U.S. EPA) and the Department of Housing and Urban Development (HUD) as being a potential health risk to humans, particularly children, based on its effects to the central nervous system, kidneys, and bloodstream. The risk of Lead-Based Paint has been classified by HUD based upon the age and condition of the painted surface.

The subject property is currently vacant land. Therefore, the presence of Lead-Based Paint does not appear to be likely.

3.8.3 Radon

Radon is a radioactive gas which has been identified as a human carcinogen. Radon gas is typically associated with fine-grained rock and soil, and results from the radioactive decay of radium. The U.S. EPA recommends that homeowners in areas with radon screening levels greater than 4 Picocuries per liter (pCi/L) conduct mitigation of radon gas to reduce exposure.

Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA) directed the U.S. EPA to list and identify areas of the U.S. with the potential for elevated indoor radon levels. U.S. EPA's Map of Radon Zones (EPA-402-R-93-071) assigns each of the 3,141 counties in the U.S. to one of three zones

based on radon potential:

- Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L.
- Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L.
- Zone 3 counties have a predicted average indoor radon screening level less than 2 pCi/L.

Based on such factors as indoor radon measurements; geology; aerial radioactivity; and soil permeability, the U.S. EPA has identified the county of San Diego as Zone 3 (i.e., a predicted average indoor radon screening level than 2 pCi/L). EEI does not consider radon as a significant environmental concern at this time.

4.0 SITE RECONNAISSANCE

4.1 Purpose

The purpose of our site reconnaissance was to physically observe the subject property, site structures, and adjoining properties for conditions indicating an existing release, past release, or threatened release of any hazardous substances or petroleum products into structures on the subject site, or into soil and/or groundwater beneath the subject property. This would include any evidence of contamination, distressed vegetation, petroleum-hydrocarbon surface staining, waste drums, USTs, ASTs, illegal dumping, or improper waste storage/handling. Detailed information pertaining to our site reconnaissance is provided in the following text.

4.2 Subject Property

On September 6, 2017, EEI personnel mobilized to the subject property. Visual conditions observed during the site reconnaissance of the subject property, are documented in a Photographic Log (**Appendix G**) and summarized in **Table 2**.

The irregular-shaped subject property, is located west of the intersection of N. Centre City Parkway and N. Nutmeg Street, in the City of Escondido, San Diego County, California (**Figure 2**), and is comprised of approximately 6.87-acres of land located on three (3) parcels identified by APNs 224-260-23-00, -46-00 and -47-00. Two (2) of the subject parcels, identified by APNs 224-260-46-00 and -47-00, have no assigned physical address, while the third subject parcel, identified by APN 224-260-23-00, is assigned 2401 N. Nutmeg Street. The property is currently undeveloped land, with N. Nutmeg Street separating APN 224-260-23-00 from APNs 224-260-46-00 and -47-00.

The subject property is immediately bound by undeveloped land on all sides. To the east, undeveloped land is followed by N. Centre City Parkway and rural residential development beyond, located along Oakwind Lane and Coyote Hill Glen. To the west, undeveloped land is followed by I-15. The subject property appeared to be restricted by a combination of wire and chain link fencing. EEI accessed the subject property by vehicle from along N. Nutmeg Street and continued on the subject property by foot to gain vantage point observations.

The subject property is generally characterized with moderate topographical relief on the northern parcels (APNs 224-260-46-00 and -47-00), and relatively flat and level grade land on the southern parcel (APN 224-260-23-00). The ground surface appeared to be rocky soil with moderate vegetative growth. Rocky outcrops were noted within the northern parcels of the property. Undocumented fill was reported by the Client as illegally deposited during mid-year 2006 within portions of the subject property’s southern parcel. The fill material appeared graded and covered with moderate vegetative growth. No evidence of additional fill was noted during our site reconnaissance. Surface runoff generated on the property would appear to generally flow towards the south. A water utility connection was noted along the north side N. Nutmeg Street, within the southeastern region of APN 224-260-46-00. A storm water drainage/pipe was observed just offsite, near the eastern perimeter of the subject property along N. Centre City Parkway. No other utility infrastructure was observed on the subject property.

Small amounts of windblown debris were noted along N. Nutmeg Street. Debris observed consisted of mainly household debris and other miscellaneous items that did not appear to warrant further investigation or cleanup efforts.

No evidence of contamination, distressed vegetation, petroleum-hydrocarbon surface staining, waste drums, USTs, ASTs, illegal dumping, or improper waste storage/handling was noted during our site reconnaissance.

TABLE 2 Summary of Site Reconnaissance		
Item	Concerns	Comments
General Housekeeping	No	None observed.
Surface Spills	No	None observed.
Stained Surfaces	No	None observed.
Fill Materials	No	Undocumented fill material was reported by the Client as illegally deposited on the subject property’s southern parcel during mid-year 2006. After reviewing a Site Assessment Report prepared by CTE, dated June 5, 2007, CSDDEH concurred that that the fill material was suitable for residential land use.
Pits/Ponds/Lagoons	No	None observed.
Surface Impoundments	No	None observed.
ASTs/USTs	No	None observed.
Distressed Vegetation	No	None observed.
Wetlands	No	None observed.
Electrical Substations	No	None observed.
Areas of Dumping	No	None observed.
Transformers	No	None observed.
Waste/Scrap Storage	No	None observed.
Chemical Use/Storage	No	None observed.

4.3 Adjacent Properties

EEI conducted a visual and auto reconnaissance of the adjoining neighborhoods (to the extent practical) to evaluate the potential for offsite impacts that may affect the subject property. These would include evidence of chemical storage or usage, surface staining or leakage, distressed vegetation, or evidence of illegal dumping.

The irregular-shaped subject property is immediately bound by undeveloped land on all sides. To the east, undeveloped land is followed by N. Centre City Parkway and rural residential development beyond, located along Oakwind Lane and Coyote Hill Glen. To the west, undeveloped land is followed by I-15. Development in the subject property vicinity is predominantly rural residential.

Adjacent properties were not identified as having environmental related issues on any of the databases researched, and are not considered as an environmental concern to the subject property at this time. No service stations, dry cleaners, or industrial properties were located in the immediate vicinity.

5.0 VAPOR ENCROACHMENT SCREENING

ASTM Standard E2600-10 Standard Guide for Vapor Encroachment Screening (VES) on Property Involved in Real Estate Transactions was used as guidance for conducting a VES for the subject property. The purpose of the screening is to determine whether a Vapor Encroachment Condition (VEC) exists from COCs that may migrate as vapors onto a property as a result of contaminated soil and groundwater on or near the property.

The screening involves a two-tiered approach to assessing VEC risk as described in the following text. The VES process includes a review of site conditions (e.g., aerial photographs, city directories, and environmental database information), which is information typically collected during a Phase I ESA, user provided information, and in some instances the use of a third-party vapor encroachment application. The following sections describe the VES performed on the property.

5.1 Subject Property Conditions

The elevation of the subject property elevation ranges from approximately 885 feet amsl (southern portions) to approximately 950 feet amsl (northwestern portions). The property is characterized by low to moderate topographical relief which predominantly rises from the southeast to the northwest, with an elevation change of approximately 65 feet. Based on topography, surface runoff generated on the subject property would appear to flow towards the lower elevations in the south region.

Soils beneath the subject property and vicinity have been identified by the United States Department of Agriculture – Natural Resources Conservation Service, Web Soil Survey as mainly sandy loam of the Ramona Series, Vista Series, and Cieneba Series, ranging from 5 to 75 percent slopes (USDA, 2017). The Ramona soils are well drained, have high runoff, and moderately high permeability, with 5 to 9 percent slopes. Ramona soils are found on alluvial fans at elevations of 250 to 3,500 feet, and are formed in alluvium derived from granite. Vista soils are well drained, have low runoff, and high permeability, with 5 to 9 percent slopes. Vista soils are found on hills at elevations of 400 to 3,900 feet, and are formed in residuum weathered from granodiorite and quartz-diorite. Cieneba soils are somewhat excessively drained, have medium runoff, and high permeability, with 30 to 75 percent slopes. Cieneba soils are found on hills at elevations of 500 to 4,000 feet, and are formed in residuum weathered from granite and granodiorite.

According to a CSDDEH Case Closure Summary dated September 4, 2007 for the subject property, identified as 2401 Nutmeg Street, reported depth to groundwater at the property is estimated to range between 6 feet to 16.5 feet bgs. The estimated groundwater flow direction was reported to be towards the west.

5.2 User Provided Information

To assist EEI in the completion of the VES, Mr. Jason Greminger, with Consultants Collaborative completed a Vapor Encroachment Screen - User Questionnaire (**Appendix H**). The questionnaire provided basic information regarding the use, condition, and proposed development of the subject property.

According to Mr. Greminger, the subject property is currently undeveloped land, and is planned as a future multi-family residential development, consisting of wood-framed construction with elevators. According to Mr. Greminger, he does not know of any reported instances of gas stations, cleaners, storage tanks, odors, chemicals, or health concerns reported on the property. However, Mr. Greminger stated that previous illegal clearing of coastal sage at the subject property had been mitigated and resolved with the governing agency.

5.3 Tier 1 Screening – Search Distance Test/Chemicals of Concern

A Tier 1 Screening includes the search distance test that involves a review of the regulatory database report and available historical records obtained during the Phase I ESA process to make a determination if any *known or suspect potentially contaminated* properties exist within the Area of Concern (AOC). High risk sites are typically current and former gas stations, former and current dry cleaners, manufactured gas plants, and industrial sites (Brownfields). The AOC is defined as any up gradient sites within the ASTM E1527-13 standard search distances and any cross or down gradient sites within one-third (0.3) mile for solvents and petroleum products.

If the contamination at the known or potentially contaminated sites within the AOC consists of COCs, then a VEC exists, and a Tier 2 Screening evaluation is recommended. If no known or potentially contaminated sites with COCs exist within the AOC, no further inquiry is necessary.

Based on EEI's Tier 1 Screening evaluation, no sites were identified within the AOC that were considered to pose a pVEC at the subject property.

5.4 Findings

Based on the results of the Tier 1 VES, EEI concluded that a pVEC can be ruled out, because a pVEC does not or is not likely to exist due to the lack of known or suspected contaminated properties within the AOC.

6.0 FINDINGS AND OPINIONS

Based on the information obtained in this ESA, EEI has the following findings and opinions:

- *Known or suspected RECs* – are defined by the ASTM Standard Practice E 1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any 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.

This assessment has revealed no evidence of *known or suspected RECs* in connection with the

subject property, except for the following:

According to the Client, approximately 8,500 cubic yards of undocumented fill material was reportedly illegally dumped within a portion of the subject parcel identified as APN 224-160-23-00 during mid-year 2006. The subject property was subsequently enrolled in the CSDDEH's VAP program (Case No. H39704-001). Limited sampling and analysis of the undocumented fill material performed by CTE during May 2007 did not reveal Chemicals of Concern (COCs) above screening levels for residential land use. Based on the results of CTE's investigation, the CSDDEH issued a letter dated September 4, 2007, approving the onsite use of the undocumented fill material for residential purposes. EEI understands that the proposed development will consist of a 160-unit multifamily residential community, which will include roadways and walkways and limited landscaping. Furthermore, according to the user of this ESA, the 8,500 cubic yards of undocumented fill material will be used as part of proposed future grading activities. Additional fill material will be borrowed from the subject property's northern two (2) parcels, and placed on portions of the subject property's southern parcel, identified as APN 224-160-23-00. Based on the aforementioned, no further investigation appears to be warranted at this time. However, as a precautionary measure, EEI recommends that the approximately 8,500 cubic yards of undocumented fill material be placed in deep fill or under roadways. If any stained or discolored soil, buried trash/debris, or other waste is encountered during future subject property development, the material should be evaluated by an experienced environmental consultant, and if deemed necessary, characterized for proper disposal.

- *Controlled RECs (CRECs)* – are defined by the ASTM Standard Practice E 1527-13 as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a NFA 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 (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

This assessment has revealed no evidence of *CRECs* in connection with the subject property.

- *Historical Recognized Environmental Conditions (HRECs)* – are defined by the ASTM Standard Practice E 1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

This assessment has revealed no evidence of *HRECs* in connection with the subject property.

- *De Minimis Conditions* – include environmental concerns identified which may warrant discussion but do not qualify as RECs, as defined by the ASTM Standard Practice E 1527-13.

This assessment has revealed no *de minimis* conditions in connection with the subject property.

7.0 DATA GAPS AND DEVIATIONS FROM ASTM PRACTICES

Section 3.2.20 (ASTM E1527-13) defines a data gap as “a lack or inability to obtain information required by the practice despite good faith efforts of the environmental professional to gather such information.”

7.1 Historical Data Gaps

Based on the information obtained during the course of this investigation, no historical data gaps were encountered.

7.2 Regulatory Data Gaps

No regulatory data gaps were identified during our research efforts.

7.3 Onsite Data Gaps

No on-site data gaps were identified during our research efforts.

7.4 Deviations from ASTM Practices

Section 12.10 (ASTM E1527-13), states that all deletions and deviations from this practice shall be listed individually and in detail, including client imposed constraints, and all additions should be listed.

EEI believes that there are no exceptions to, or deletions from, the ASTM Designation E1527-13 Guidelines.

8.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 on APN 224-260-23-00, -46-00 and -47-00, the *subject property*. Any exceptions to, or deletions from, this practice are described in **Section 7.0** of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the *subject property*, except for the following:

- According to the Client, approximately 8,500 cubic yards of undocumented fill material was reportedly illegally dumped within a portion of the subject parcel identified as APN 224-160-23-00 during mid-year 2006. The subject property was subsequently enrolled in the CSDDEH’s VAP program (Case No. H39704-001). Limited sampling and analysis of the undocumented fill material performed by CTE during May 2007 did not reveal Chemicals of Concern (COCs) above screening levels for residential land use. Based on the results of CTE’s investigation, the CSDDEH issued a letter dated September 4, 2007, approving the onsite use of the undocumented fill material for residential purposes. EEI understands that the proposed development will consist of a 160-unit multifamily residential community, which will include roadways and walkways and limited landscaping. Furthermore, according to the user of this ESA, the 8,500 cubic yards of undocumented fill material will be used as part of proposed future grading activities. Additional fill material will be borrowed from the subject property’s northern two (2) parcels, and placed on portions of the subject property’s southern parcel, identified as APN 224-160-23-00. Based on the aforementioned, no further investigation appears to be warranted at this time. However, as a precautionary measure, EEI recommends that the approximately 8,500 cubic yards of

undocumented fill material be placed in deep fill or under roadways. If any stained or discolored soil, buried trash/debris, or other waste is encountered during future subject property development, the material should be evaluated by an experienced environmental consultant, and if deemed necessary, characterized for proper disposal.

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9.0 REFERENCES

California Division of Mines and Geology (CDMG), 2002 California Geological Survey, California Geomorphic Provinces Note 36, Electronic Copy, Revised December 2002.

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Construction Testing & Engineering, Inc. (CTE), 2007, Site Assessment Report, Vacant Land, 2401 Nutmeg Street (APN 224-260-23), Escondido, California, DEH VAP Case H39704-001, dated June 5.

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Federal Emergency Management Agency (FEMA) website, (www.fema.gov), accessed September 2017.

National Pipeline Mapping System (NPMS), Public Map Viewer Website, (<https://www.npms.phmsa.dot.gov/PublicViewer/>), accessed September 2017.

San Diego Regional Water Quality Control Board –Region 9 (SDRWQCB): *Water Quality Control Plan for the San Diego Basin (9), September 8, 1994 (with amendments effective on or before April 4 2011)*, California State Water Resources Control Board Publication.

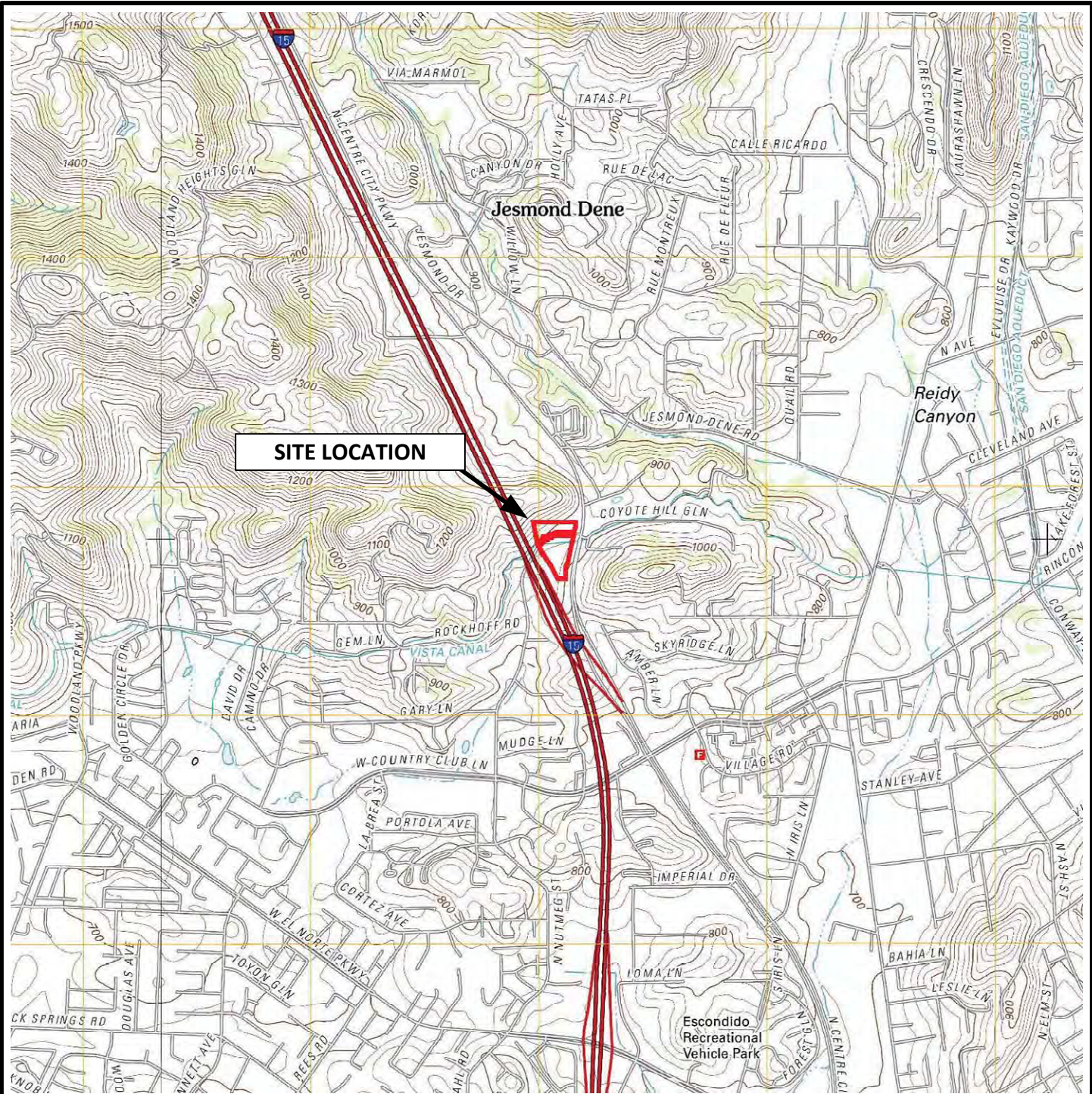
State Water Resources Control Board, Website, GeoTracker database, (<http://www.geotracker.swrcb.ca.gov/>), accessed August 2017.

United States Department of Agriculture (USDA), Natural Resources Conservation Center, Website, Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>), accessed September 2017.

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FIGURES

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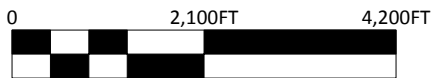


Map Source: USGS, Valley Center, California, 7.5 Minute Quadrangle maps (USGS, 2012)

LEGEND



Scale: 1" = 2,100'



Note: All Locations Are Approximate

SITE LOCATION MAP

6.87-ACRES OF UNDEVELOPED LAND
 APNs 224-260-23-00, -46-00 and -47-00
 West of N. Centre City Parkway and N. Nutmeg Street
 Escondido, San Diego County, CA 92026
 EEI Project CCI-72559.1
 Created August 2017



FIGURE 1



Map Source: Google Earth®, Image Date: September 8, 2016

LEGEND

Note: Approximate limit of undocumented fill based upon Interpolated Post-Grading Contours and Sampling Location Map, Prepared by Construction Testing & Engineering, Inc., dated June 2007.



Scale: 1" = 425'



Note All Locations Are Approximate

AERIAL SITE MAP

6.87-ACRES OF UNDEVELOPED LAND
 APNs 224-260-23-00, -46-00 and -47-00
 West of N. Centre City Parkway and N. Nutmeg Street
 Escondido, San Diego County, CA 92026
 EEI Project CCI-72559.1
 Created August 2017



FIGURE 2

APPENDIX A
RESUME OF ENVIRONMENTAL PROFESSIONAL

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BRIAN R. BRENNAN, M.Sc.
Senior Project Manager

SUMMARY

As a Senior Program Manager and Principal with EEI, Mr. Brennan has over 16 years of environmental consulting experience. Mr. Brennan has wide ranging experience managing and performing due diligence Phase I ESA; site investigations in soil, soil gas, ambient air, and groundwater; and remediation including both in-situ and ex-situ releases. Mr. Brennan directs and manages a team of staff and technicians that perform the majority of EEI's environmental investigation/remediation services. He is a technical expert for Phase I Environmental Site Assessments (ESAs) that comply with American Society for Testing and Materials (ASTM) Standards E1527-13 and is considered an Environmental Professional as defined by USEPA's All Appropriate Inquiry (AAI) requirements. He has managed and/or performed all aspects of Underground Storage Tank (UST), chlorinated solvent, pesticide, and heavy metal remediation with multiple regulatory agency leads. Mr. Brennan has also co-authored the preparation of Environmental Overview and Environmental Assessment documents per National Environmental Policy Act (NEPA) requirements, and is knowledgeable in Geographic Information Systems (GIS), Global Positioning Systems (GPS), and Computer Aided Drafting (CAD) software. Mr. Brennan provides sound Technical and Project Management skills, and is able to effectively communicate with client contacts and state/federal regulatory agency staff.

EDUCATION

Masters of Science, Environmental Engineering, National University, 2008
Bachelor of Arts, Geography – Environmental Analysis and Natural Resource Conservation, San Diego State University, 2000

REGISTRATIONS/CERTIFICATIONS

40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) and Annual Refresher
AHERA Building Inspector
National Groundwater Association (NGWA)

PROFESSIONAL AFFILIATIONS

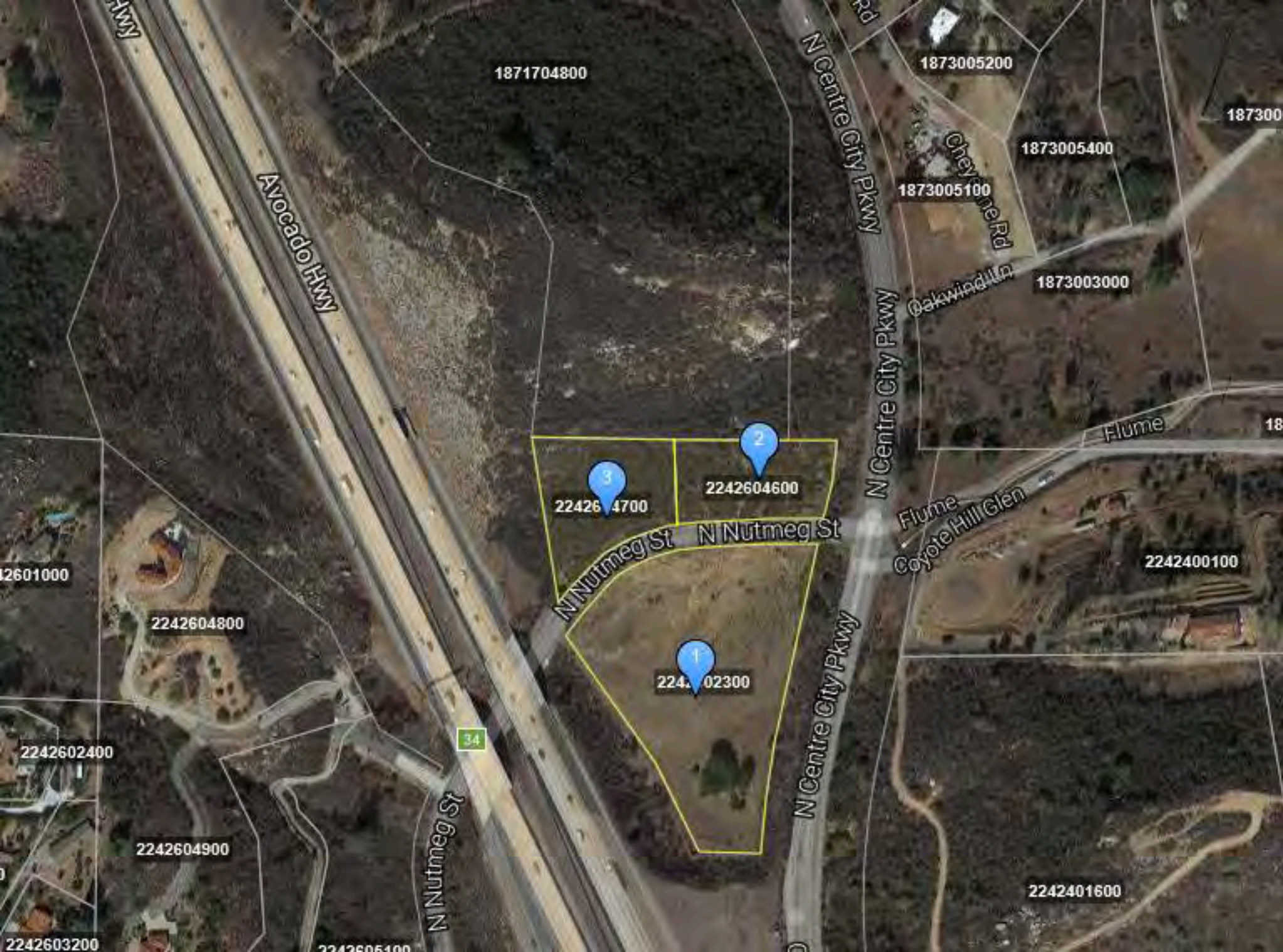
American Society of Civil Engineers (ASCE)
National Groundwater Association (NGWA)
Association of Environmental Professionals (AEP)
San Diego Environmental Professionals (SDEP)

REPRESENTATIVE PROJECTS

400-Acre Residential Development, Escondido, California: Performed and managed staff to investigate, delineate, mitigate, and document multiple historical releases associated with large-scale farming and mining operations at multiple locations.

APPENDIX B
**COUNTY OF SAN DIEGO ASSESSORS PARCEL MAP/FIRM/
PRELIMINARY TITLE REPORT**

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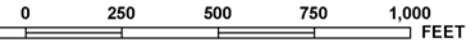


0% (0 of 8 recently sold)

#	APN	Address	Owner(s)	Act
8	2191636300	Armorlite Dr San Marcos, CA 92069	Davia West Development Llc	
7	2191636400	Bingham Dr San Marcos, CA	Davia East Development Llc Co	
6	2191626000	1208 Armorlite Dr 1250 San Marcos, CA 92069	Integral Project Owner li Llc	
5	2191621800	Bingham Dr San Marcos, CA 92069	North San Diego County Transit Development Boar...	
4	2191621900	1152 Armorlite Dr San Marcos, CA 92069	U B Iii Armorlite Llc	
3	2242604700	Nutmeg St Escondido, CA 92026	A D J Holdings Llc	
2	2242604600	Nutmeg St Escondido, CA 92026	A D J Holdings Llc	
1	2242602300	Nutmeg St Escondido, CA 92026	A D J Holdings Llc	



MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0811G

FIRM

FLOOD INSURANCE RATE MAP
SAN DIEGO COUNTY,
CALIFORNIA
AND INCORPORATED AREAS

PANEL 811 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ESCONDIDO, CITY OF	060290	0811	G
SAN DIEGO COUNTY	060284	0811	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06073C0811G

MAP REVISED
MAY 16, 2012



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



First American Title Insurance Company
National Commercial Services
18500 Von Karman Ave, Suite 600
Irvine, CA 92612

July 31, 2017

John Martin
JMI Real Estate
10632 Meads Avenue
Orange, CA 92869
Phone: (949)274-9324

Customer Reference: 2401 Nutmeg Street

Title Officer:	Jeffery Paschal	Title Assistant:	Ryan Achterberg
Phone:	(949)885-2481	Phone:	
Email:	JPaschal@firstam.com	Email:	rachterberg@firstam.com

Order Number: NCS-861610-SA1

Escrow Officer:	Ryan Hahn
Phone:	(949)885-2472
Email:	rhahn@firstam.com

Property: 2401 Nutmeg, Escondido, CA

Attached please find the following item(s):

Commitment

Thank You for your confidence and support. We at First American Title Insurance Company maintain the fundamental principle:

Customer First!

First American Title Insurance Company
INFORMATION

The Title Insurance Commitment is a legal contract between you and the company. It is issued to show the basis on which we will issue a Title Insurance Policy to you. The Policy will insure you against certain risks to the land title, subject to the limitations shown in the policy.

The Company will give you a sample of the Policy form, if you ask.

The Commitment is based on the land title as of the Commitment Date. Any changes in the land title or the transaction may affect the Commitment and the Policy.

The Commitment is subject to its Requirements, Exceptions and Conditions.

This information is not part of the title insurance commitment.

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3. Interest in the Land and Owner	4
4. Description of the Land	4
Schedule B-1 - Requirements	
Schedule B-2 - Exceptions	
Conditions	

YOU SHOULD READ THE COMMITMENT VERY CAREFULLY.
If you have any questions about the Commitment,
please contact the issuing office.

COMMITMENT FOR TITLE INSURANCE

Issued by

First American Title Insurance Company

Agreement to Issue Policy

We agree to issue a policy to you according to the terms of this Commitment.

When we show the policy amount and your name as the proposed insured in Schedule A, this Commitment becomes effective as of the Commitment Date shown in Schedule A.

If the Requirements shown in this Commitment have not been met within six months after the Commitment Date, our obligation under this Commitment will end. Also, our obligation under this Commitment will end when the Policy is issued and then our obligation to you will be under the Policy.

Our obligation under this Commitment is limited by the following:

The Provisions in Schedule A.

The Requirements in Schedule B-1.

The Exceptions in Schedule B-2.

The Conditions.

This Commitment is not valid without Schedule A and Sections 1 and 2 of Schedule B.

SCHEDULE A

1. Commitment Date: July 24, 2017 at 7:30 A.M.

2. Policy or Policies to be issued: Amount

(A) ALTA Owner's Policy \$2,750,000.00
ALTA Standard Owner Policy

Proposed Insured:

JMI REAL ESTATE

(B) ALTA Loan Policy \$To Be Determined
ALTA Extended Loan Policy

Proposed Insured:

To Be Determined

3. (A) The estate or interest in the land described in this Commitment is:

FEE

(B) [Title to said estate or interest at the date hereof is vested in:](#)

ADJ Holdings, LLC, a California limited liability company

4. The land referred to in this Commitment is situated in the City of Escondido, County of San Diego, State of California, and is described as follows:

PARCEL 1:

ALL THAT PORTION OF LOTS 1 AND 2 IN SECTION 5, TOWNSHIP 12 SOUTH, RANGE 2 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF ESCONDIDO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING WESTERLY OF THE WESTERLY LINE OF LAND CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MAY 15, 1947 IN [BOOK 2380, PAGE 435](#) OF OFFICIAL RECORDS, SOUTHEASTERLY AND SOUTHERLY OF THE CENTER LINE OF COUNTY ROAD SURVEY NO. 1113 AS DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO RECORDED MAY 6, 1948 AS DOCUMENT NO. [45789](#) IN [BOOK 2786, PAGE 349](#) OF OFFICIAL RECORDS AND EASTERLY AND NORTHERLY OF THE LAND CONVEYED TO THE STATE OF CALIFORNIA IN DEED RECORDED SEPTEMBER 28, 1971 AS FILE NO. [220908](#) OF OFFICIAL RECORDS.

PARCEL 2:

ALL THAT PORTION OF LOTS 1 AND 2 IN SECTION 5, TOWNSHIP 12 SOUTH, RANGE 2 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF ESCONDIDO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING WESTERLY OF THE WESTERLY LINE OF LAND CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MAY 15, 1947 AS DOCUMENT NO. 51967, IN [BOOK 2380, PAGE 435](#) OF OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 1 WITH THE WESTERLY LINE OF THE LAND CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED MAY 15, 1947 AS DOCUMENT NO. 51967 IN [BOOK 2380, PAGE 435](#) OF OFFICIAL RECORDS; THENCE ALONG THE SAID NORTHERLY LINE TO AND ALONG THE NORTHERLY LINE OF SAID LOT 2, SOUTH 89° 27' WEST 335.26 FEET; THENCE SOUTH 3° 36' 11" EAST TO THE CENTER LINE OF COUNTY ROAD SURVEY NO. 1113, AS DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO, RECORDED MAY 6, 1948 AS DOCUMENT NO. [45789](#) OF OFFICIAL RECORDS; THENCE NORTHEASTERLY AND EASTERLY ALONG SAID NORTHERLY LINE TO SAID WESTERLY LINE OF THE STATE OF CALIFORNIA LAND; THENCE NORTHERLY ALONG SAID WESTERLY LINE TO THE POINT OF BEGINNING.

PARCEL 3:

ALL THAT PORTION OF LOTS 1 AND 2 IN SECTION 5, TOWNSHIP 12 SOUTH, RANGE 2 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF ESCONDIDO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, LYING WESTERLY OF THE WESTERLY LINE OF LAND CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MAY 15, 1947 AS DOCUMENT NO. 51967, IN BOOK 2390, PAGE 435 OF OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 1 WITH THE WESTERLY LINE OF THE LAND CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED MAY 15, 1947 AS DOCUMENT NO. 51967 IN [BOOK 2380, PAGE 435](#) OF OFFICIAL RECORDS; THENCE ALONG THE SAID NORTHERLY LINE TO AND ALONG THE NORTHERLY LINE OF SAID LOT 2, SOUTH 89° 27' WEST 335.26 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 3° 36' 11" EAST TO THE CENTER LINE OF COUNTY ROAD SURVEY NO. 1113 AS DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO, RECORDED MAY 6, 1948 AS DOCUMENT NO. [45789](#) OF OFFICIAL RECORDS; THENCE SOUTHWESTERLY ALONG SAID LINE TO THE EASTERLY LINE OF THE STATE OF CALIFORNIA LAND DESCRIBED IN DEED TO THE STATE OF CALIFORNIA RECORDED JANUARY 10, 1973 AS FILE NO. [73-007572](#); THENCE NORTH 10° 53' 54" WEST 320.77 FEET TO THE NORTHERLY LINE OF SAID LOT 2; THENCE NORTH 89° 27' EAST 284.04 FEET TO THE TRUE POINT OF BEGINNING.

APN: 224-260-23-00 (Affects: Parcel 1), 224-260-46-00 (Affects: Parcel 2) and 224-260-47-00 (Affects: Parcel 3)

SCHEDULE B

SECTION ONE REQUIREMENTS

The following requirements must be met:

- (A) Pay the agreed amounts for the interest in the land and/or the mortgage to be insured.
- (B) Pay us the premiums, fees and charges for the policy.
- (C) Documents satisfactory to us creating the interest in the land and/or the mortgage to be insured must be signed, delivered and recorded.
- (D) You must tell us in writing the name of anyone not referred to in this Commitment who will get an interest in the land or who will make a loan on the land. We may then make additional requirements or exceptions.
- (E) Releases(s) or Reconveyance(s) of Item(s): None
- (F) Other: None
- (G) You must give us the following information:
 - 1. Any off record leases, surveys, etc.
 - 2. Statement(s) of Identity, all parties.
 - 3. Other: None

The following additional requirements, as indicated by "X", must be met:

- (H) Provide information regarding any off-record matters, which may include, but are not limited to: leases, recent works of improvement, or commitment statements in effect under the Environmental Responsibility Acceptance Act, Civil Code Section 850, et seq.

The Company's Owner's Affidavit form (as provided by company) must be completed and submitted prior to close in order to satisfy this requirement. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.

- (I) An ALTA/NSPS survey of recent date, which complies with the current minimum standard detail requirements for ALTA/NSPS land title surveys, must be submitted to the Company for review. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.
- (J) The following LLC documentation is required:
 - (i) a copy of the Articles of Organization
 - (ii) a copy of the Operating Agreement, if applicable
 - (iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
 - (iv) express Company Consent to the current transaction

- (K) The following partnership documentation is required :
 - (i) a copy of the partnership agreement, including all applicable amendments thereto
 - (ii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
 - (iii) express Partnership Consent to the current transaction

- (L) The following corporation documentation is required:
 - (i) a copy of the Articles of Incorporation
 - (ii) a copy of the Bylaws, including all applicable Amendments thereto
 - (iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
 - (iv) express Corporate Resolution consenting to the current transaction

- (M) Based upon the Company's review of that certain partnership/operating agreement dated **Not disclosed** for the proposed insured herein, the following requirements must be met:

Any further amendments to said agreement must be submitted to the Company, together with an affidavit from one of the general partners or members stating that it is a true copy, that said partnership or limited liability company is in full force and effect, and that there have been no further amendments to the agreement. This Commitment will then be subject to such further requirements as may be deemed necessary.

- (N) A copy of the complete lease, as referenced in Schedule A, #3 herein, together with any amendments and/or assignments thereto, must be submitted to the Company for review, along with an affidavit executed by the present lessee stating that it is a true copy, that the lease is in full force and effect, and that there have been no further amendments to the lease. This Commitment will then be subject to such further requirements as may be deemed necessary.

- (O) Approval from the Company's Underwriting Department must be obtained for issuance of the policy contemplated herein and any endorsements requested thereunder. This Commitment will then be subject to such further requirements as may be required to obtain such approval.

- (P) Potential additional requirements, if ALTA Extended coverage is contemplated hereunder, and work on the land has commenced prior to close, some or all of the following requirements, and any other requirements which may be deemed necessary, may need to be met:

- (Q) The Company's "Indemnity Agreement I" must be executed by the appropriate parties.

- (R) Financial statements from the appropriate parties must be submitted to the Company for review.

- (S) A copy of the construction contract must be submitted to the Company for review.

- (T) An inspection of the land must be performed by the Company for verification of the phase of construction.

- (U) The Company's "Mechanic's Lien Risk Addendum" form must be completed by a Company employee, based upon information furnished by the appropriate parties involved.

SCHEDULE B

SECTION TWO

EXCEPTIONS

Any policy we issue will have the following exceptions unless they are taken care of to our satisfaction. The printed exceptions and exclusions from the coverage of the policy or policies are set forth in Exhibit A attached. Copies of the policy forms should be read. They are available from the office which issued this Commitment.

1. General and special taxes and assessments for the fiscal year 2017-2018, a lien not yet due or payable.
2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.
3. Rights of the public in and to that portion of the land lying within any road, street and/or highway.
4. Water rights, claims or title to water, whether or not shown by the public records.
5. Rights of parties in possession.

The Following Matters Affect Parcel 1:

6. An easement for pipe lines and incidental purposes, recorded October 2, 1925 in [Book 1136 of Deeds, Page 128](#).
In Favor of: Vista Irrigation District
Affects: as described therein

The location of the easement cannot be determined from record information.

7. An easement for public road and incidental purposes, recorded May 6, 1948 as [Book 2786, Page 349](#) of Official Records.
In Favor of: County of San Diego
Affects: as described therein
8. Abutter's rights of ingress and egress to or from street or highway have been relinquished in the document recorded September 28, 1971 as Instrument No. [220908](#) of Official Records.
9. The terms and provisions contained in the document entitled "Exchange Agreement For Temporary Water Service" recorded September 08, 1980 as Instrument No. [80-289006](#) of Official Records.

The Following Matters Affect Parcels 2 and 3:

10. An easement for public road purposes and incidental purposes, recorded August 22, 1896 in [Book 257 of Deeds, Page 76](#).
In Favor of: The County of San Diego

Affects: as described therein

The location of the easement cannot be determined from record information.

11. An easement for pipe lines and incidental purposes, recorded October 02, 1925 in [Book 1136 of Deeds, Page 128](#).

In Favor of: Vista Irrigation District

Affects: as described therein

The location of the easement cannot be determined from record information.

12. An easement for public road and incidental purposes, recorded April 10, 1947 as Instrument No. [38018, Book 2379, Page 223](#) of Official Records.

In Favor of: County of San Diego

Affects: as described therein

13. An easement for pipelines and appurtenant underground structures and incidental purposes, recorded January 10, 1973 as Instrument No. [73-007886](#) of Official Records.

In Favor of: Vista Irrigation District

Affects: as described therein

14. Abutter's rights of ingress and egress to or from street or highway have been relinquished in the document recorded May 15, 1947 as [Book 2380, Page 435](#) of Official Records.

(Affects Parcel 3)

INFORMATIONAL NOTES

NOTE to proposed insured lender only: No Private transfer fee covenant, as defined in Federal Housing Finance Agency Final Rule 12 CFR Part 1228, that was created and first appears in the Public Records on or after February 8, 2011, encumbers the Title except as follows: None

1. Taxes for proration purposes only for the fiscal year 2016-2017.

First Installment: \$1,472.12, PAID
Second Installment: \$1,472.12, PAID
Tax Rate Area: 04025
APN: 224-260-23-00

(Affects Parcel 1)

2. Taxes for proration purposes only for the fiscal year 2016-2017.

First Installment: \$343.44, PAID
Second Installment: \$343.44, PAID
Tax Rate Area: 04025
APN: 224-260-46-00

(Affects Parcel 2)

3. Taxes for proration purposes only for the fiscal year 2016-2017.

First Installment: \$412.70, PAID
Second Installment: \$412.70, PAID
Tax Rate Area: 04025
APN: 224-260-47-00

(Affects Parcel 3)

4. The property covered by this report is vacant land.

5. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:

None

6. This preliminary report/commitment was prepared based upon an application for a policy of title insurance that identified land by street address or assessor's parcel number only. It is the responsibility of the applicant to determine whether the land referred to herein is in fact the land that is to be described in the policy or policies to be issued.

The map attached, if any, may or may not be a survey of the land depicted hereon. First American Title Insurance Company expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

******To obtain wire instructions for deposit of funds to your escrow file please
contact your Escrow Officer.******

CONDITIONS

1. DEFINITIONS

(a) "Mortgage" means mortgage, deed of trust or other security instrument.

(b) "Public Records" means title records that give constructive notice of matters affecting the title according to the state law where the land is located.

2. LATER DEFECTS

The Exceptions in Schedule B - Section Two may be amended to show any defects, liens or encumbrances that appear for the first time in the public records or are created or attached between the Commitment Date and the date on which all of the Requirements (a) and (c) of Schedule B - Section One are met. We shall have no liability to you because of this amendment.

3. EXISTING DEFECTS

If any defects, liens or encumbrances existing at Commitment Date are not shown in Schedule B, we may amend Schedule B to show them. If we do amend Schedule B to show these defects, liens or encumbrances, we shall be liable to you according to Paragraph 4 below unless you knew of this information and did not tell us about it in writing.

4. LIMITATION OF OUR LIABILITY

Our only obligation is to issue to you the Policy referred to in this Commitment, when you have met its Requirements. If we have any liability to you for any loss you incur because of an error in this Commitment, our liability will be limited to your actual loss caused by your relying on this Commitment when you acted in good faith to:

comply with the Requirements shown in Schedule B - Section One

or

eliminate with our written consent any Exceptions shown in Schedule B - Section Two.

We shall not be liable for more than the Policy Amount shown in Schedule A of this Commitment and our liability is subject to the terms of the Policy form to be issued to you.

5. CLAIMS MUST BE BASED ON THIS COMMITMENT

Any claim, whether or not based on negligence, which you may have against us concerning the title to the land must be based on this commitment and is subject to its terms.



First American Title

Privacy Information We Are Committed to Safeguarding Customer Information

In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability

This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information

Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:

- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information

We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers

Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security

We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site

First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet. In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site. There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships

First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies

Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive. FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values

Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.

Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.

Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.

Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.

Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.

Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

1. CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY - 1990
SCHEDULE B

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notice of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
(a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
(b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
(c) resulting in no loss or damage to the insured claimant;
(d) attaching or created subsequent to Date of Policy; or
(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by their policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

2. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY FORM B - 1970
SCHEDULE OF EXCLUSIONS FROM COVERAGE

1. Any law, ordinance or governmental regulation (including but not limited to building and zoning ordinances) restricting or regulating or prohibiting the occupancy, use or enjoyment of the land, or regulating the character, dimensions or location of any improvement now or hereafter erected on the land, or prohibiting a separation in ownership or a reduction in the dimensions of area of the land, or the effect of any violation of any such law, ordinance or governmental regulation.
2. Rights of eminent domain or governmental rights of police power unless notice of the exercise of such rights appears in the public records at Date of Policy.
3. Defects, liens, encumbrances, adverse claims, or other matters (a) created, suffered, assumed or agreed to by the insured claimant; (b) not known to the Company and not shown by the public records but known to the insured claimant either at Date of Policy or at the date such claimant acquired an estate or interest insured by this policy and not disclosed in writing by the insured claimant to the Company prior to the date such insured claimant became an insured hereunder; (c) resulting in no loss or damage to the insured claimant; (d) attaching or created subsequent to Date of Policy; or (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.

3. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY FORM B - 1970
WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 2 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage by reason of the matters shown in parts one and two following:

Part One

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

**4. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1970
WITH A.L.T.A. ENDORSEMENT FORM 1 COVERAGE
SCHEDULE OF EXCLUSIONS FROM COVERAGE**

1. Any law, ordinance or governmental regulation (including but not limited to building and zoning ordinances) restricting or regulating or prohibiting the occupancy, use or enjoyment of the land, or regulating the character, dimensions or location of any improvement now or hereafter erected on the land, or prohibiting a separation in ownership or a reduction in the dimensions or area of the land, or the effect of any violation of any such law ordinance or governmental regulation.
2. Rights of eminent domain or governmental rights of police power unless notice of the exercise of such rights appears in the public records at Date of Policy.
3. Defects, liens, encumbrances, adverse claims, or other matters (a) created, suffered, assumed or agreed to by the insured claimant, (b) not known to the Company and not shown by the public records but known to the insured claimant either at Date of Policy or at the date such claimant acquired an estate or interest insured by this policy or acquired the insured mortgage and not disclosed in writing by the insured claimant to the Company prior to the date such insured claimant became an insured hereunder, (c) resulting in no loss or damage to the insured claimant; (d) attaching or created subsequent to Date of Policy (except to the extent insurance is afforded herein as to any statutory lien for labor or material or to the extent insurance is afforded herein as to assessments for street improvements under construction or completed at Date of Policy).
4. Unenforceability of the lien of the insured mortgage because of failure of the insured at Date of Policy or of any subsequent owner of the indebtedness to comply with applicable "doing business" laws of the state in which the land is situated.

**5. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1970
WITH REGIONAL EXCEPTIONS**

When the American Land Title Association Lenders Policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy, the exclusions set forth in paragraph 4 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage by reason of the matters shown in parts one and two following:

Part One

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

**6. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1992
WITH A.L.T.A. ENDORSEMENT FORM 1 COVERAGE
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy;
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy (except to the extent that this policy insures the priority of the lien of the insured mortgage over any statutory lien for services, labor or material or the extent insurance is afforded herein as to assessments for street improvements under construction or completed at date of policy); or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any statutory lien for services, labor or materials (or the claim of priority of any statutory lien for services, labor or materials over the lien of the insured mortgage) arising from an improvement or work related to the land which is contracted for and commenced subsequent to Date of Policy and is not financed in whole or in part by proceeds of the indebtedness secured by the insured mortgage which at Date of Policy the insured has advanced or is obligated to advance.
7. Any claim, which arises out of the transaction creating the interest of the mortgagee insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
 - (i) the transaction creating the interest of the insured mortgagee being deemed a fraudulent conveyance or fraudulent transfer; or
 - (ii) the subordination of the interest of the insured mortgagee as a result of the application of the doctrine of equitable subordination; or
 - (iii) the transaction creating the interest of the insured mortgagee being deemed a preferential transfer except where the preferential transfer results from the failure:
 - (a) to timely record the instrument of transfer; or
 - (b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor.

**7. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1992
WITH REGIONAL EXCEPTIONS**

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 6 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

**8. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 1992
EXCLUSIONS FROM COVERAGE**

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1.
 - (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
 - (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters:
 - (a) created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or

- (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.
4. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
- (i) the transaction creating the estate or interest insured by this policy being deemed a fraudulent conveyance or fraudulent transfer; or
 - (ii) the transaction creating the estate or interest insured by this policy being deemed a preferential transfer except where the preferential transfer results from the failure:
 - (a) to timely record the instrument of transfer; or
 - (b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor.

**9. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 1992
WITH REGIONAL EXCEPTIONS**

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 8 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:
Part One:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

**ALTA RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)
EXCLUSIONS**

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
 - (a) and use
 - (b) improvements on the land
 - (c) and division
 - (d) environmental protection

This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.

This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.

2. The right to take the land by condemning it, unless:
 - (a) a notice of exercising the right appears in the public records on the Policy Date
 - (b) the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking
3. Title Risks:
 - (a) that are created, allowed, or agreed to by you
 - (b) that are known to you, but not to us, on the Policy Date -- unless they appeared in the public records
 - (c) that result in no loss to you
 - (d) that first affect your title after the Policy Date -- this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
 - (a) to any land outside the area specifically described and referred to in Item 3 of Schedule A OR
 - (b) in streets, alleys, or waterways that touch your land

This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

11. EAGLE PROTECTION OWNER'S POLICY

**CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE - 1998
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE - 1998**

Covered Risks 14 (Subdivision Law Violation). 15 (Building Permit). 16 (Zoning) and 18 (Encroachment of boundary walls or fences) are subject to Deductible Amounts and Maximum Dollar Limits of Liability

EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes ordinances, laws and regulations concerning:
 - a. building
 - b. zoning
 - c. land use
 - d. improvements on the land
 - e. land division
 - f. environmental protection

This exclusion does not apply to violations or the enforcement of these matters if notice of the violation or enforcement appears in the Public Records at the Policy Date.
This exclusion does not limit the coverage described in Covered Risk 14, 15, 16, 17 or 24.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at the Policy Date.
3. The right to take the Land by condemning it, unless:
 - a. a notice of exercising the right appears in the Public Records at the Policy Date; or
 - b. the taking happened before the Policy Date and is binding on You if You bought the Land without Knowing of the taking.
4. Risks:
 - a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records;
 - b. that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date;
 - c. that result in no loss to You; or
 - d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.d, 22, 23, 24 or 25.
5. Failure to pay value for Your Title.
6. Lack of a right:
 - a. to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
 - b. in streets, alleys, or waterways that touch the Land.

This exclusion does not limit the coverage described in Covered Risk 11 or 18.

12. THIRD GENERATION EAGLE LOAN POLICY AMERICAN LAND TITLE ASSOCIATION EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (1/01/08)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to (i) the occupancy, use, or enjoyment of the Land; (ii) the character, dimensions, or location of any improvement erected on the Land; (iii) the subdivision of land; or (iv) environmental protection; or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
 - (e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.

13. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 2006 EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or

expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

14. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 2006 WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 13 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

15. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 2006 EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection; or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risks 9 and 10); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

**16. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 2006
WITH REGIONAL EXCEPTIONS**

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 15 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

APPENDIX C
**HISTORICAL AERIAL PHOTOGRAPHS/TOPOGRAPHIC MAPS/
DIRECTORY REPORT/SANBORN MAP REPORT**

DRAFT

CCI-72599.1

SWC of Oakwind Lane & N. Centre City Parkway

Escondido, CA 92026

Inquiry Number: 5036939.9

August 31, 2017

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

08/31/17

Site Name:

CCI-72599.1
SWC of Oakwind Lane & N. Ce
Escondido, CA 92026
EDR Inquiry # 5036939.9

Client Name:

EEl, Inc.
2195 Faraday Ave, Suite K
CARLSBAD, CA 92008
Contact: Ryan Merkey



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:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1995	1"=500'	Acquisition Date: October 02, 1995	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: February 24, 1985	USDA
1979	1"=500'	Flight Date: January 27, 1979	EDR Proprietary Landiscor
1970	1"=500'	Flight Date: March 06, 1970	EDR Proprietary Landiscor
1967	1"=500'	Flight Date: May 07, 1967	USGS
1964	1"=500'	Flight Date: April 09, 1964	USDA
1953	1"=500'	Flight Date: April 14, 1953	USDA
1946	1"=500'	Flight Date: December 30, 1946	USGS
1939	1"=500'	Flight Date: April 30, 1939	USDA

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INQUIRY #: 5036939.9

YEAR: 2012

— = 500'





INQUIRY #: 5036939.9

YEAR: 2010

— = 500'





INQUIRY #: 5036939.9

YEAR: 2009

— = 500'





INQUIRY #: 5036939.9

YEAR: 2005

— = 500'





INQUIRY #: 5036939.9

YEAR: 1995

— = 500'





INQUIRY #: 5036939.9

YEAR: 1989

— = 500'





INQUIRY #: 5036939.9

YEAR: 1985

— = 500'



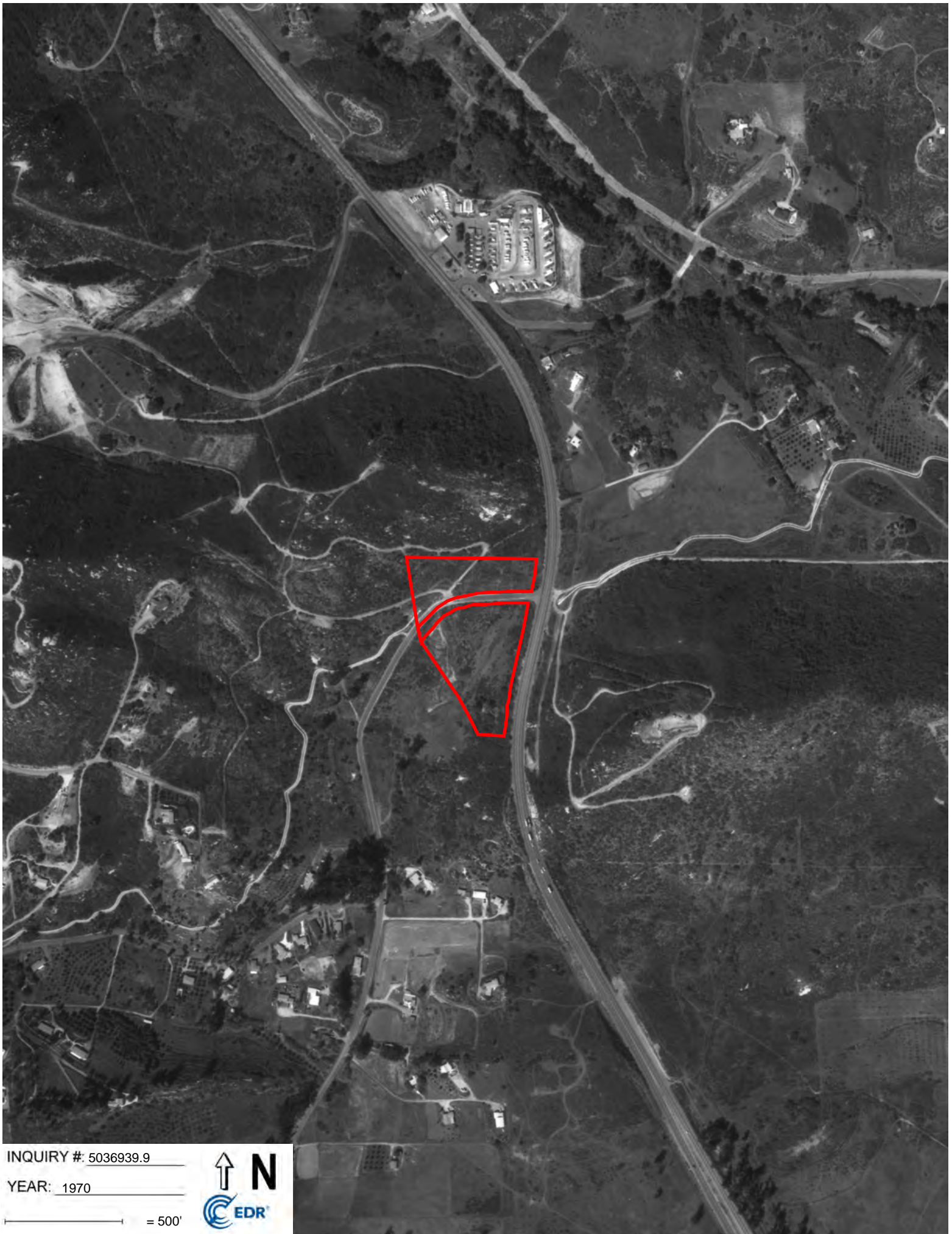


INQUIRY #: 5036939.9

YEAR: 1979

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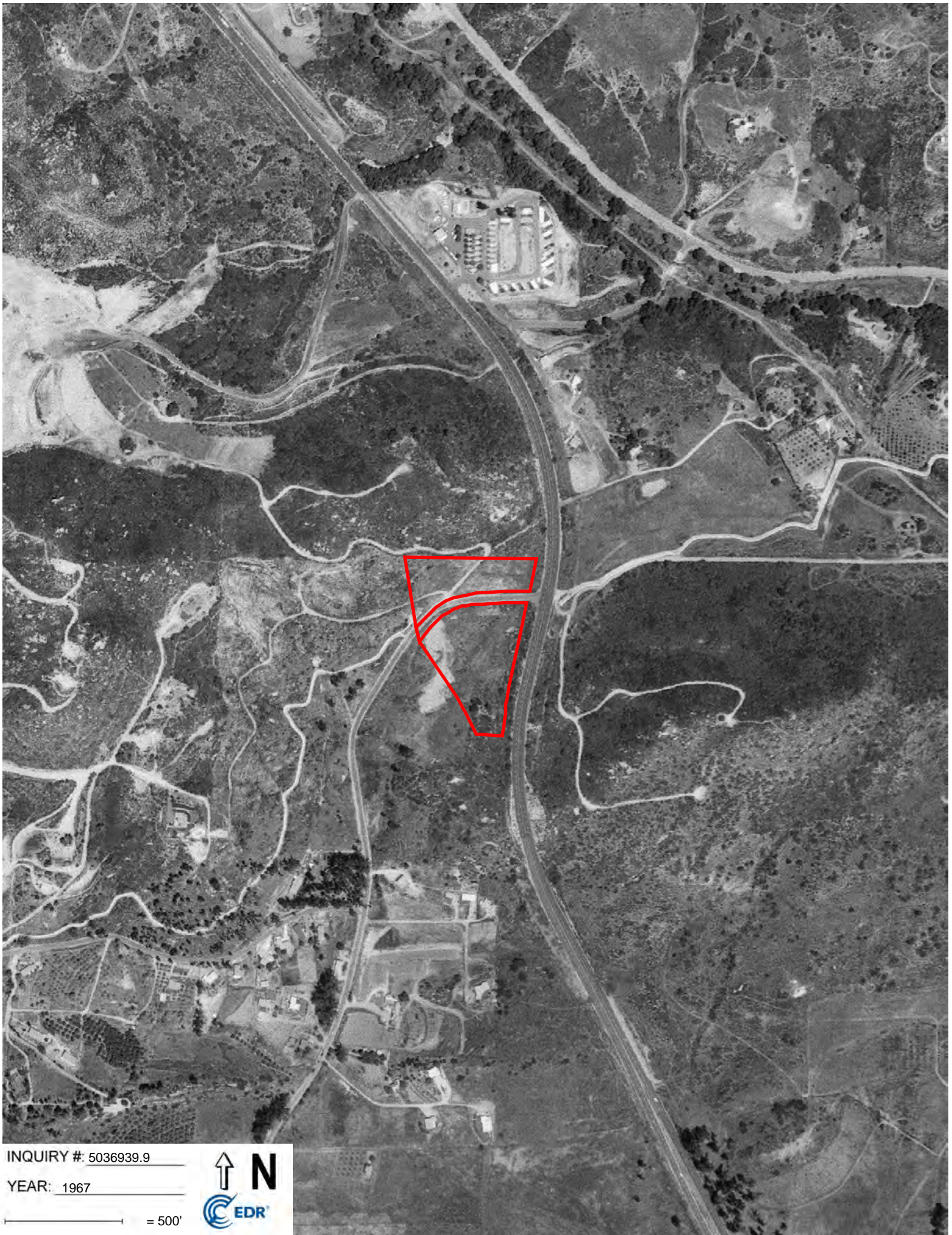


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YEAR: 1970

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INQUIRY #: 5036939.9

YEAR: 1967

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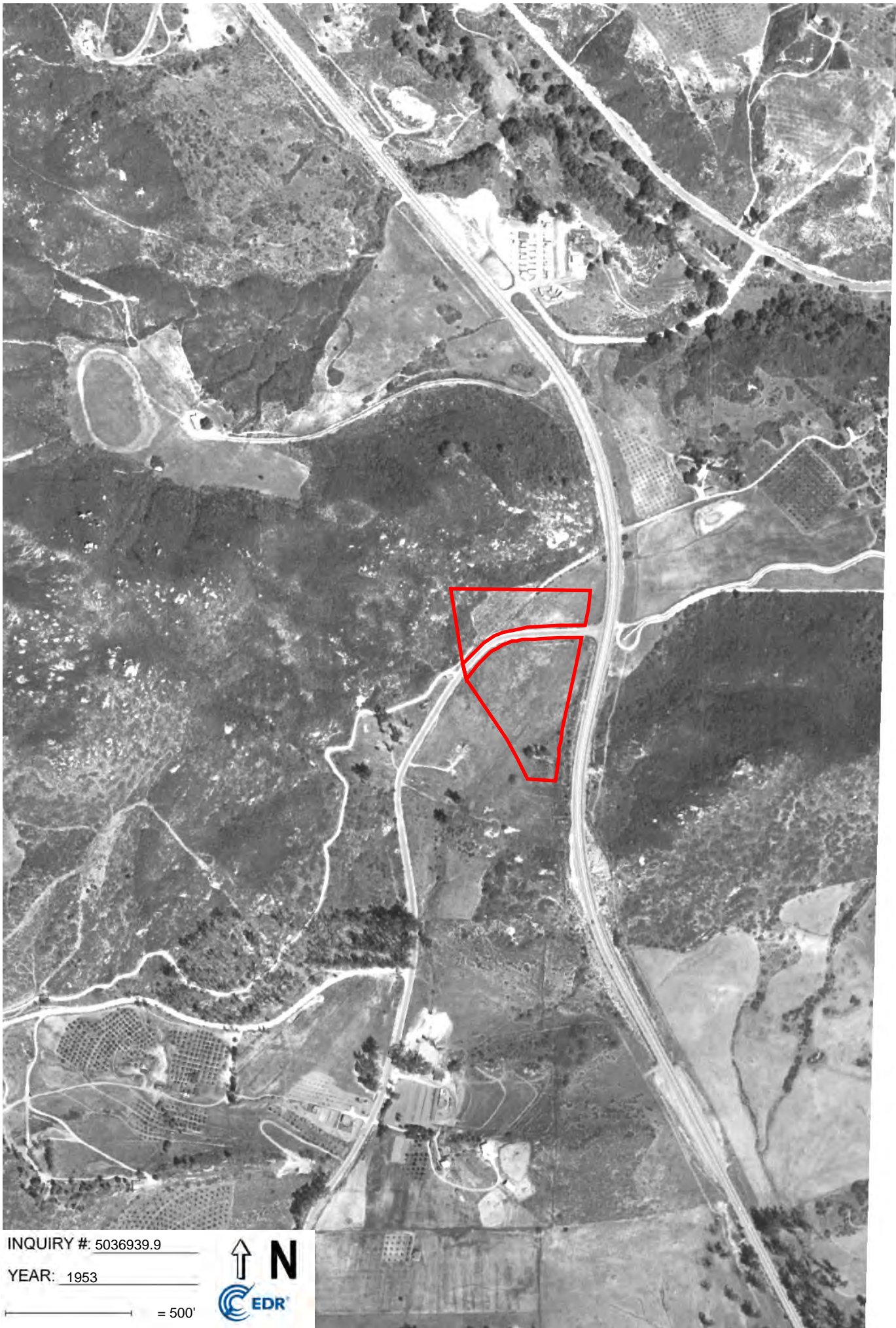


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YEAR: 1964

— = 500'





INQUIRY #: 5036939.9

YEAR: 1953

— = 500'



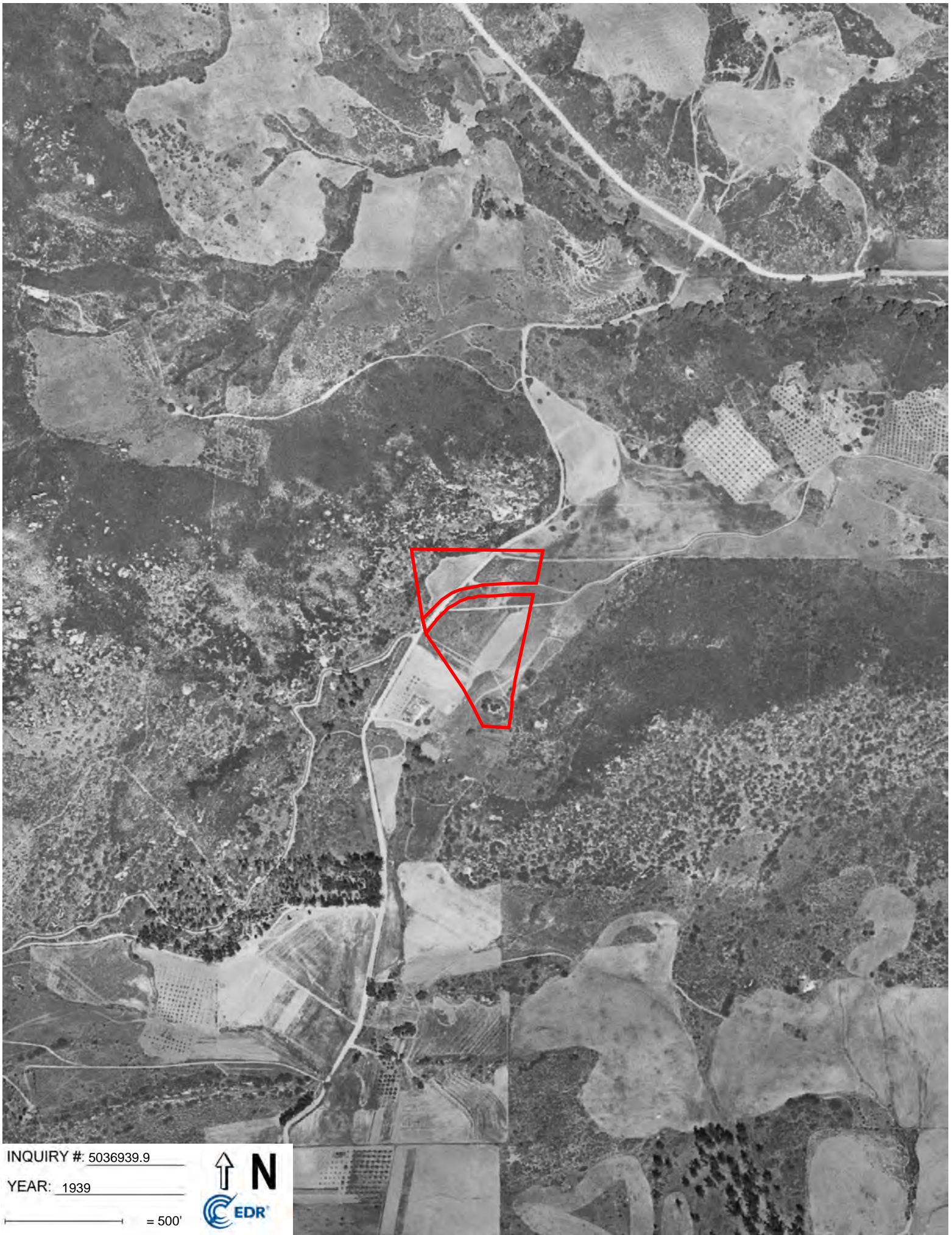


INQUIRY #: 5036939.9

YEAR: 1946

— = 500'





INQUIRY #: 5036939.9

YEAR: 1939

— = 500'



CCI-72599.1

SWC of Oakwind Lane & N. Centre City Parkway

Escondido, CA 92026

Inquiry Number: 5036939.4

August 30, 2017

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

08/30/17

Site Name:

CCI-72599.1
SWC of Oakwind Lane & N. C
Escondido, CA 92026
EDR Inquiry # 5036939.4

Client Name:

EI, Inc.
2195 Faraday Ave, Suite K
CARLSBAD, CA 92008
Contact: Ryan Merkey



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by EI, Inc. 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. EDR's 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:**Coordinates:**

P.O.#	CCI-72599.1	Latitude:	33.166126 33° 9' 58" North
Project:	CCI-72599.1	Longitude:	-117.106321 -117° 6' 23" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	490086.59
		UTM Y Meters:	3669708.97
		Elevation:	878.57' above sea level

Maps Provided:

2012 1893
1996
1975
1968
1949
1948
1947
1901

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



San Marcos
2012
7.5-minute, 24000



Valley Center
2012
7.5-minute, 24000

1996 Source Sheets



San Marcos
1996
7.5-minute, 24000
Aerial Photo Revised 1996



Valley Center
1996
7.5-minute, 24000
Aerial Photo Revised 1996

1975 Source Sheets



Valley Center
1975
7.5-minute, 24000
Aerial Photo Revised 1975

1968 Source Sheets



Valley Center
1968
7.5-minute, 24000
Aerial Photo Revised 1967

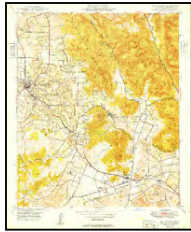


San Marcos
1968
7.5-minute, 24000
Aerial Photo Revised 1967

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1949 Source Sheets



San Marcos
1949
7.5-minute, 24000
Aerial Photo Revised 1946



Valley Center
1949
7.5-minute, 24000
Aerial Photo Revised 1947

1948 Source Sheets



San Marcos
1948
7.5-minute, 24000
Aerial Photo Revised 1946



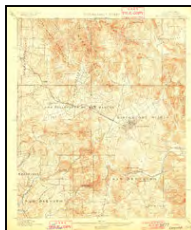
Valley Center
1948
7.5-minute, 24000
Aerial Photo Revised 1947

1947 Source Sheets



ESCONDIDO
1947
15-minute, 50000

1901 Source Sheets

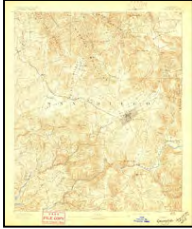


Escondido
1901
15-minute, 62500

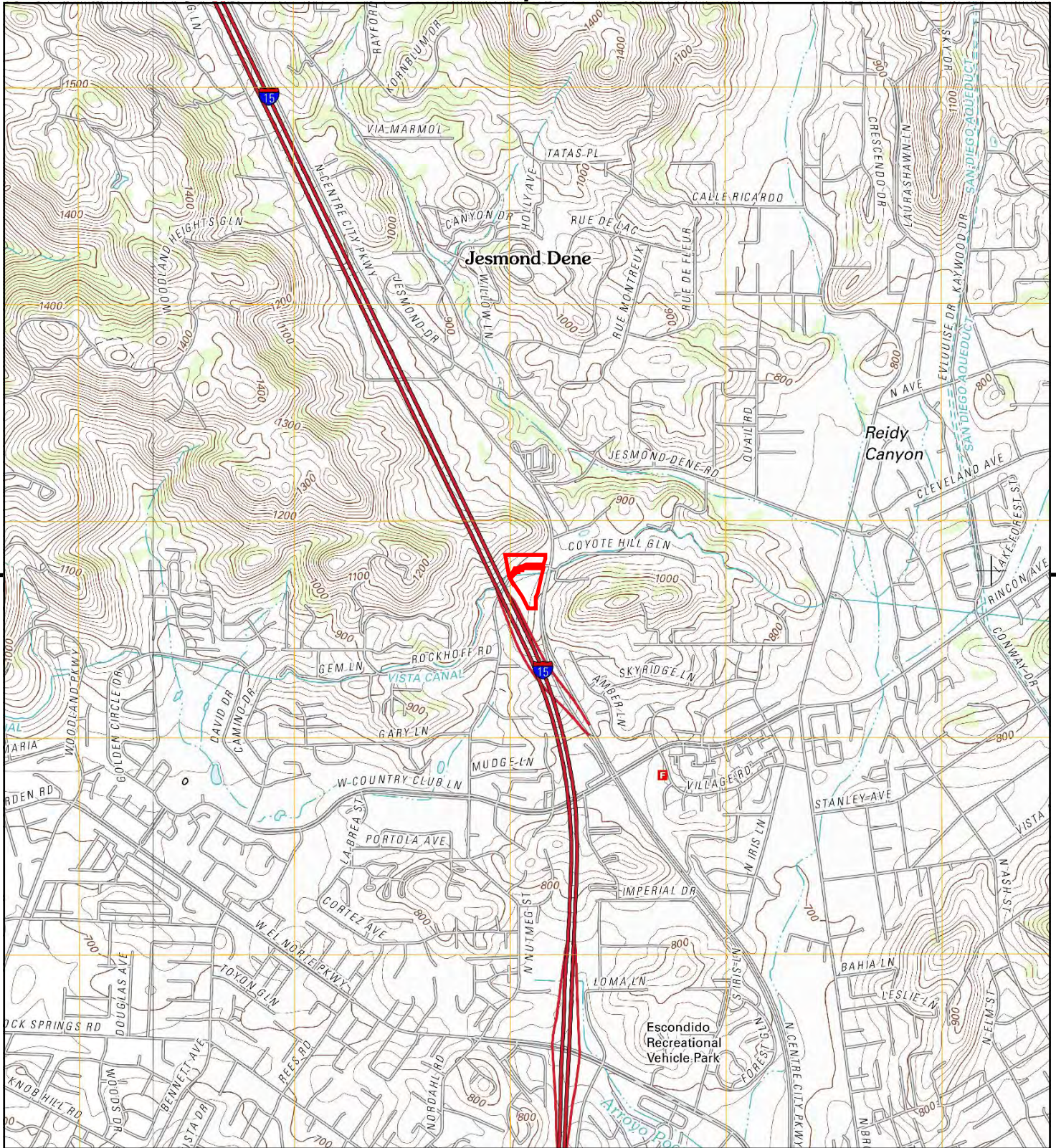
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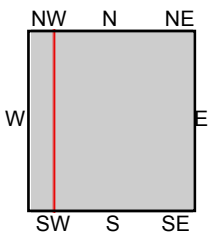
1893 Source Sheets



Escondido
1893
15-minute, 62500



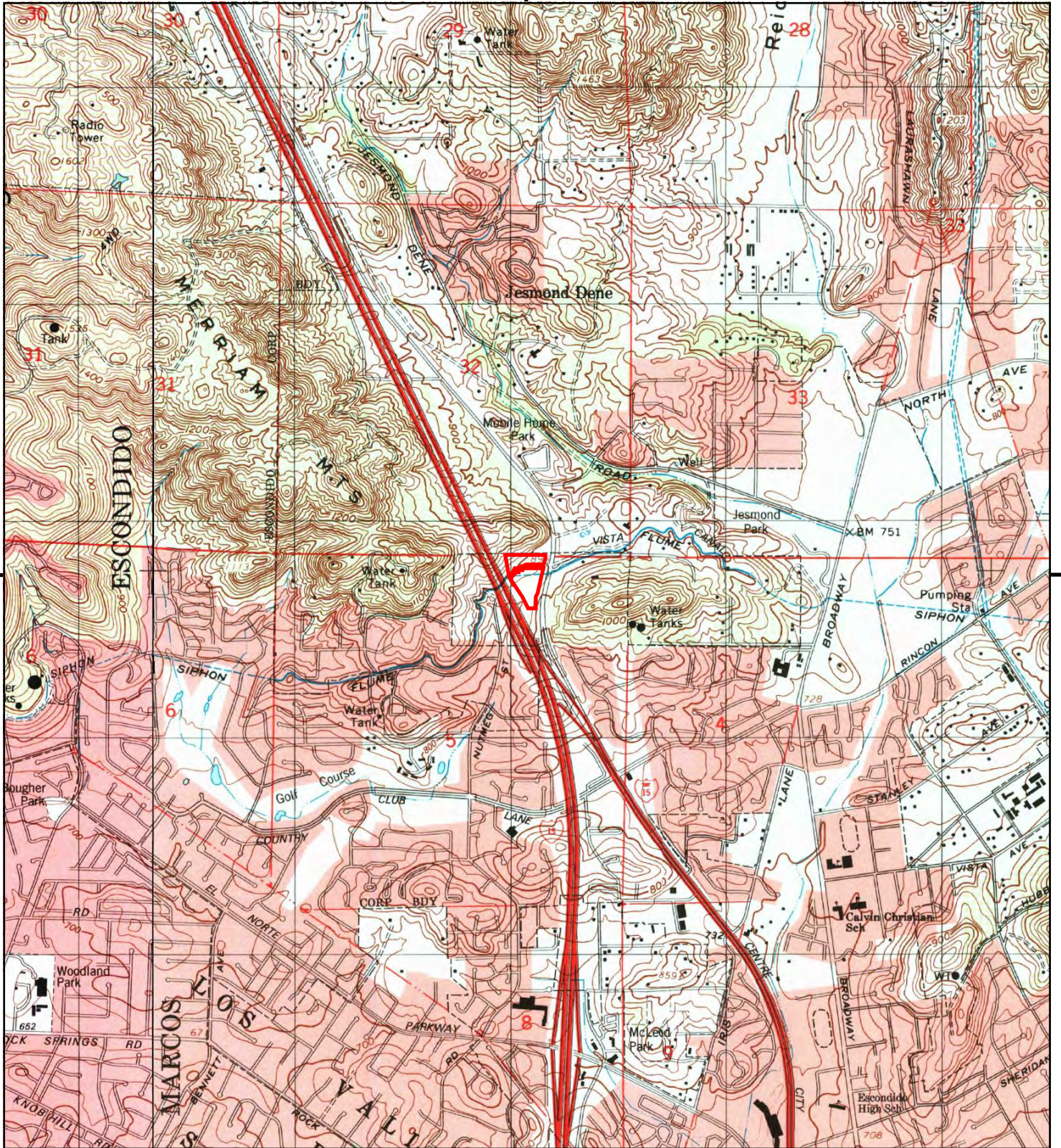
This report includes information from the following map sheet(s).



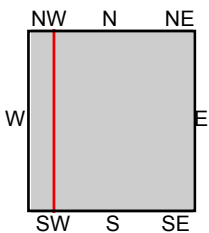
TP, Valley Center, 2012, 7.5-minute
W, San Marcos, 2012, 7.5-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.





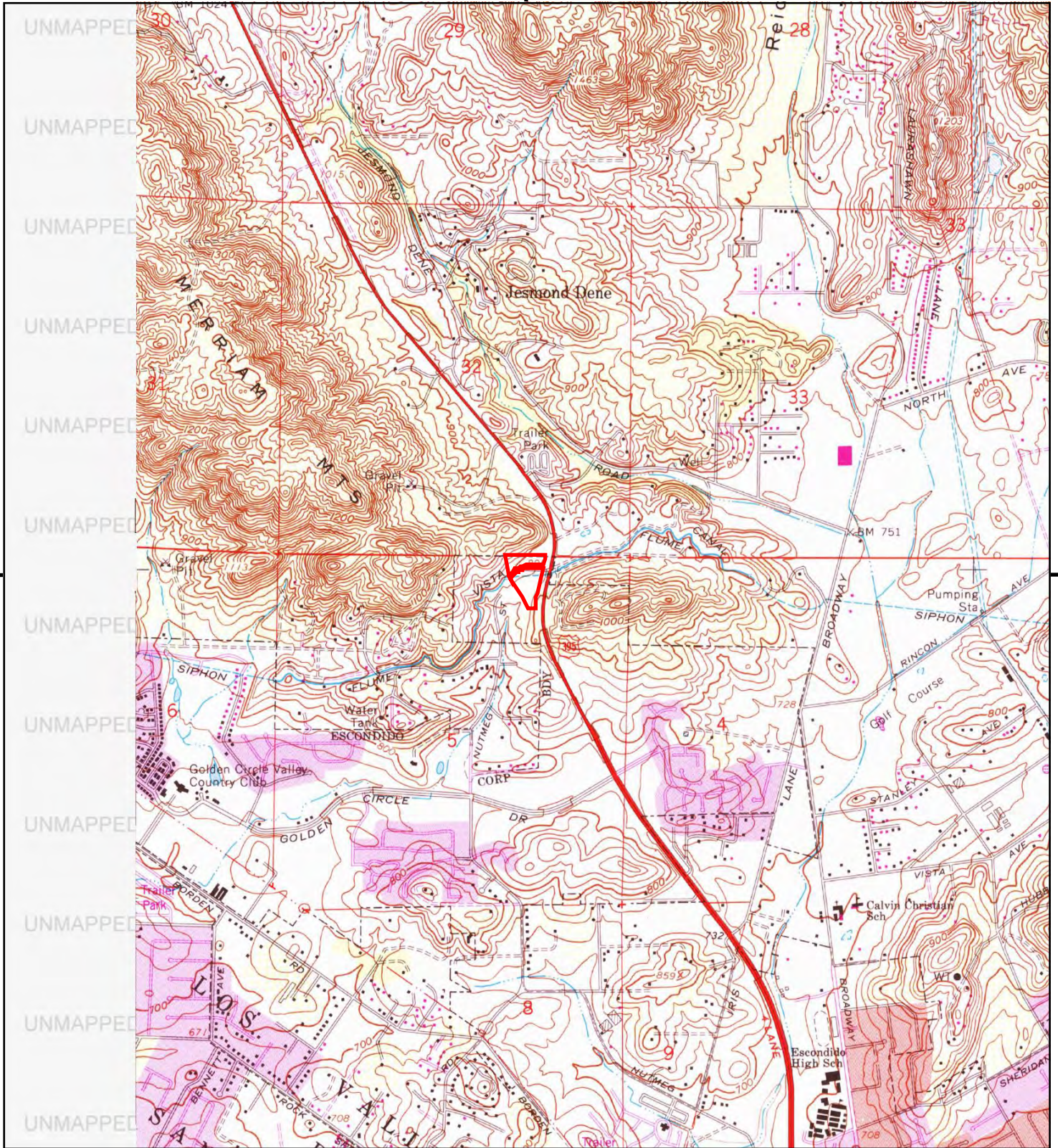
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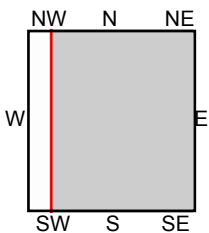
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W, San Marcos, 1996, 7.5-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.





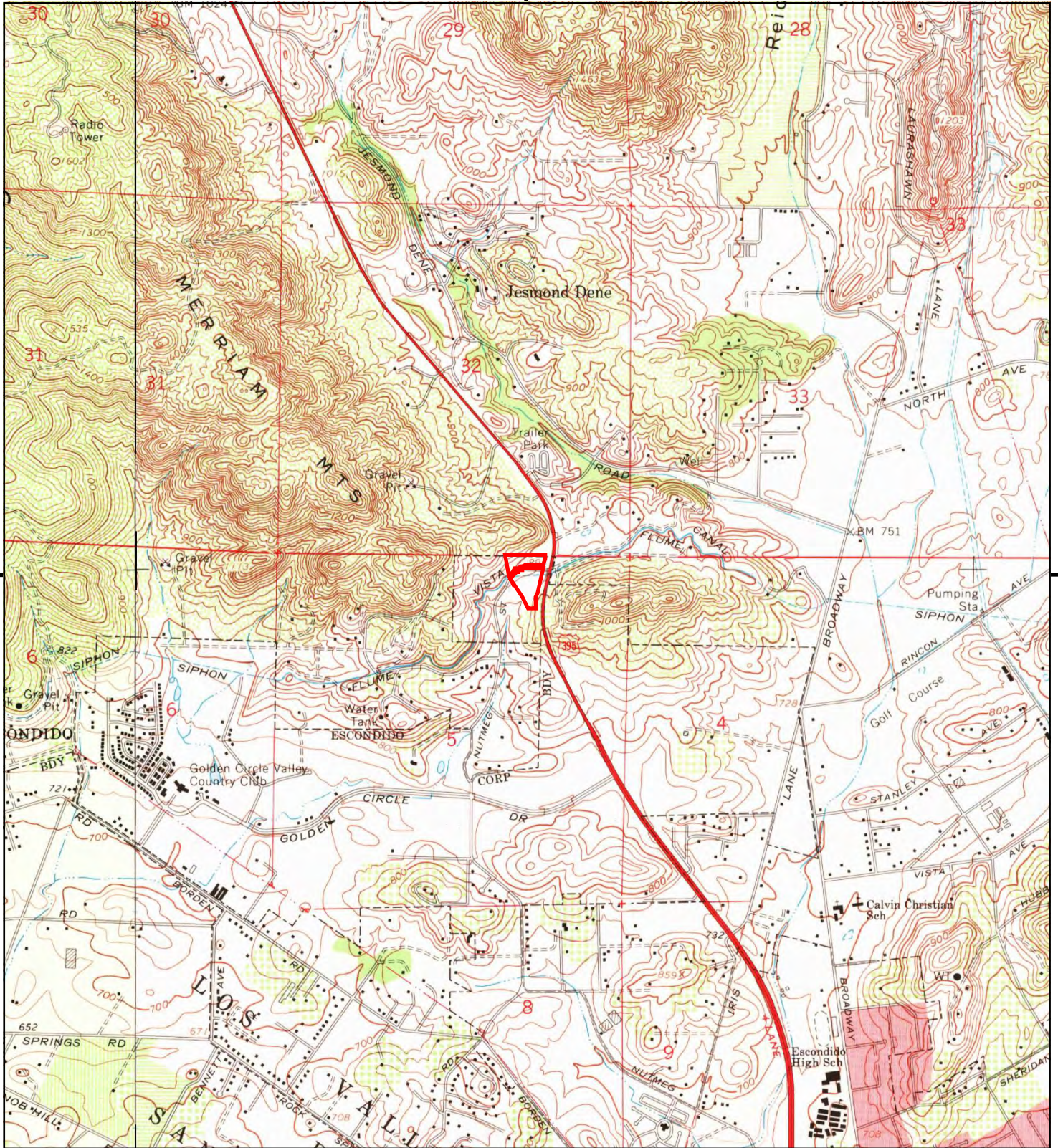
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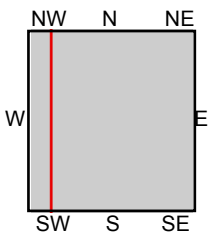
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SITE NAME: CCI-72599.1
 ADDRESS: SWC of Oakwind Lane & N. Centre City F
 Escondido, CA 92026
 CLIENT: EEI, Inc.





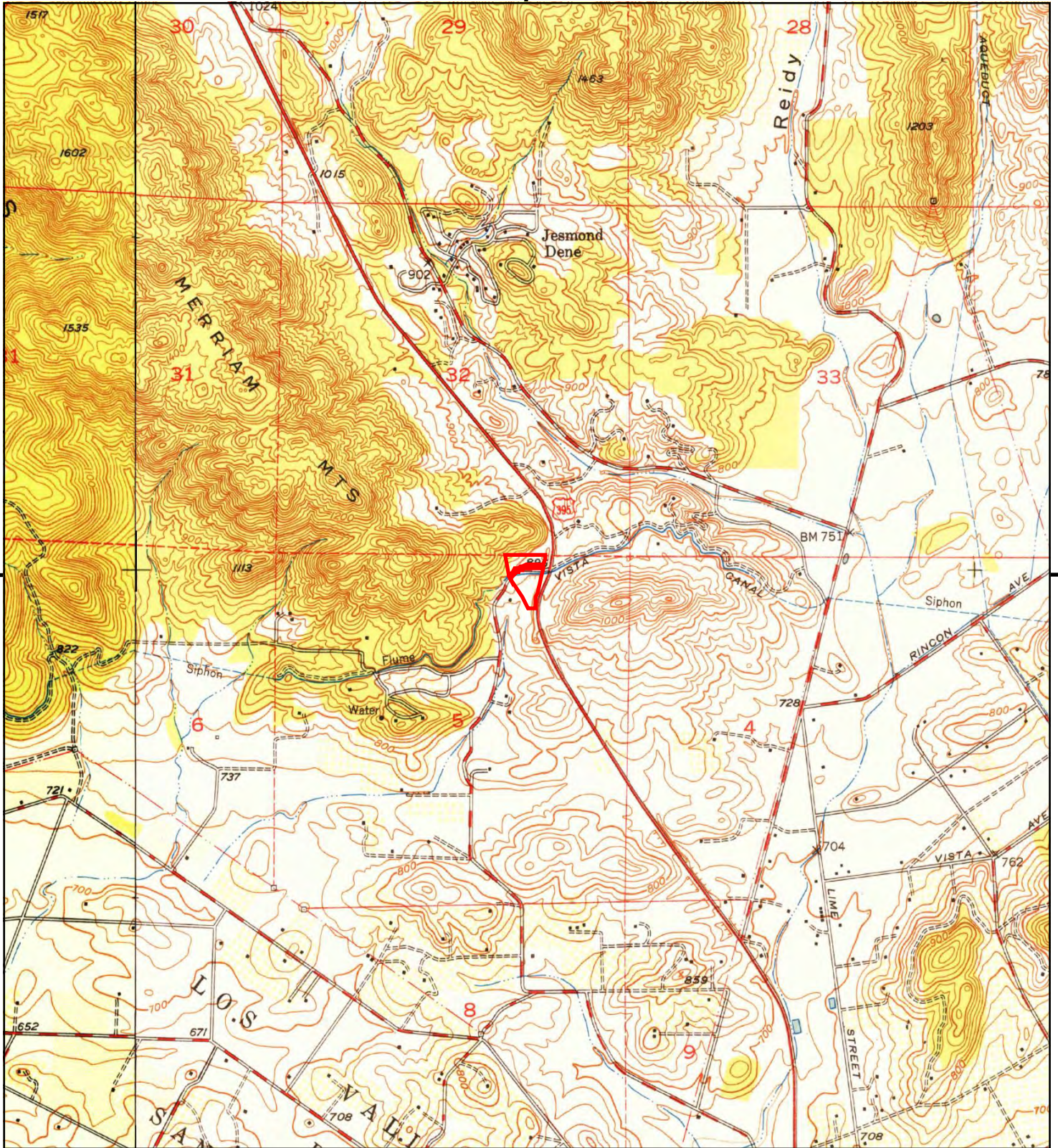
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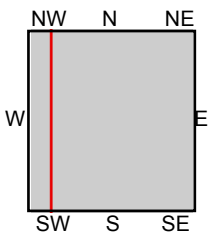
TP, Valley Center, 1968, 7.5-minute
W, San Marcos, 1968, 7.5-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.





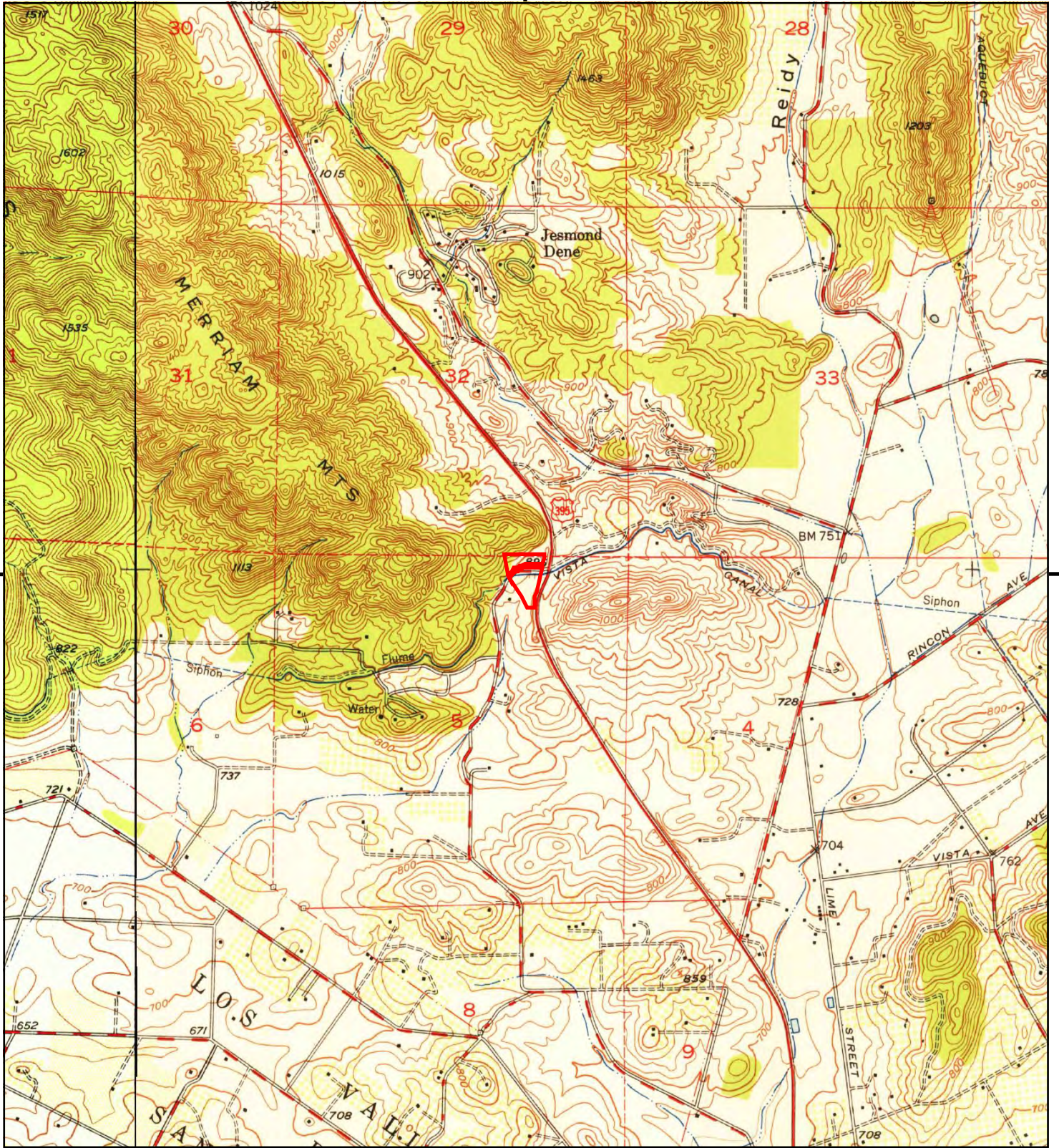
This report includes information from the following map sheet(s).



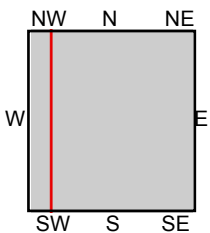
TP, Valley Center, 1949, 7.5-minute
W, San Marcos, 1949, 7.5-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F Escondido, CA 92026
CLIENT: EEI, Inc.





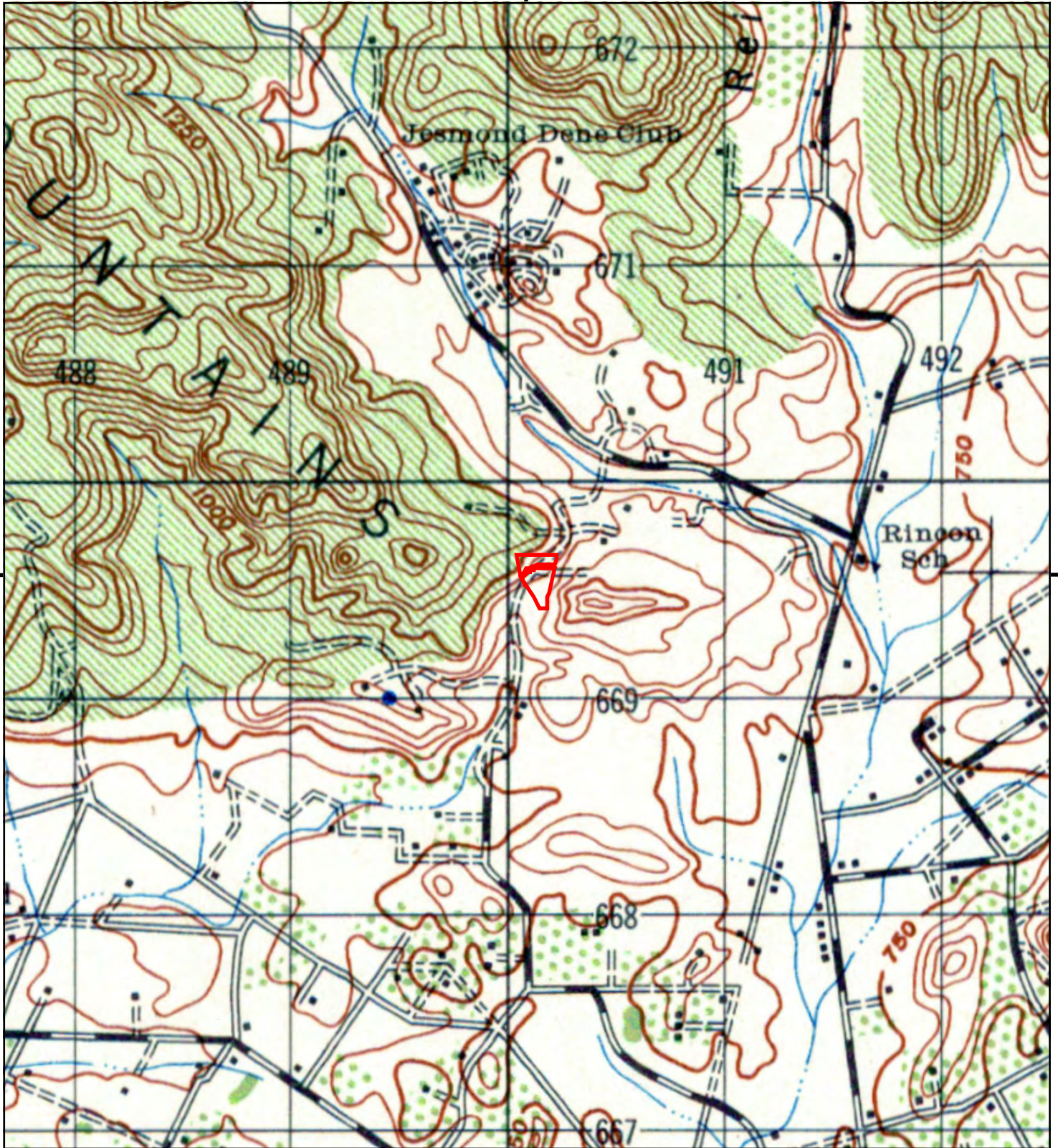
This report includes information from the following map sheet(s).



TP, Valley Center, 1948, 7.5-minute
W, San Marcos, 1948, 7.5-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.





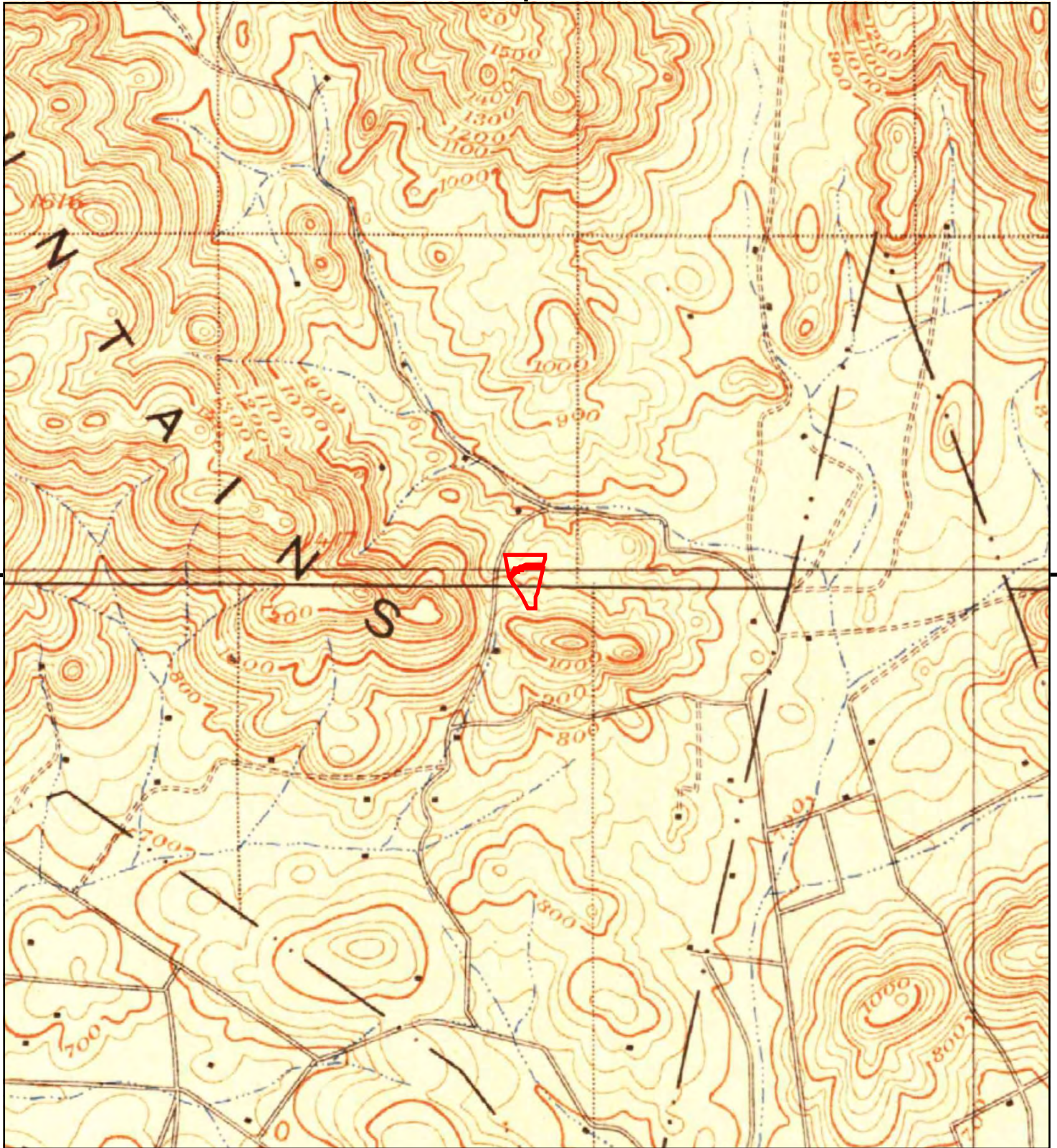
This report includes information from the following map sheet(s).



TP, ESCONDIDO, 1947, 15-minute

SITE NAME: CCI-72599.1
 ADDRESS: SWC of Oakwind Lane & N. Centre City F
 Escondido, CA 92026
 CLIENT: EEI, Inc.





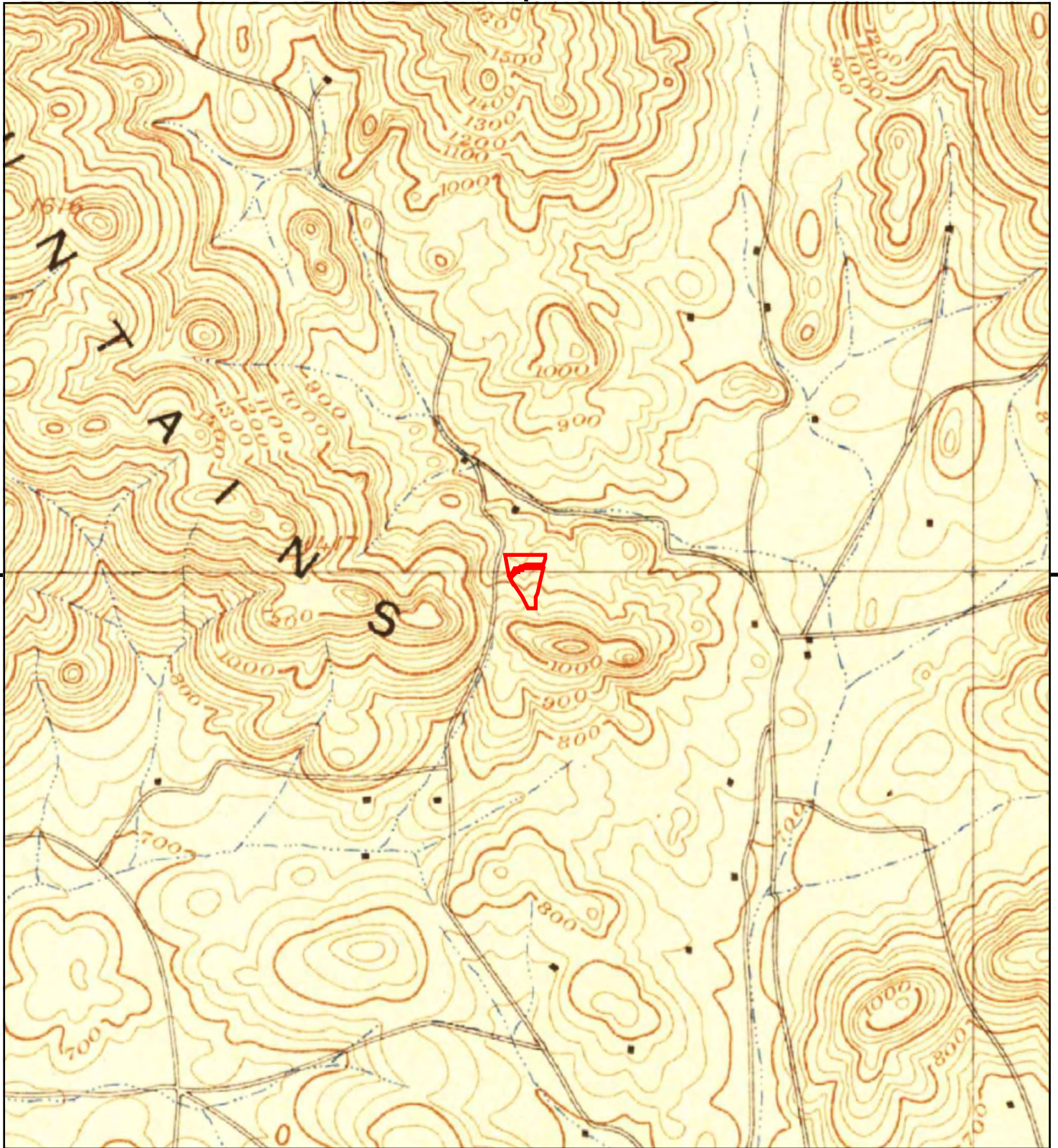
This report includes information from the following map sheet(s).



TP, Escondido, 1901, 15-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.





This report includes information from the following map sheet(s).



TP, Escondido, 1893, 15-minute

SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City F
Escondido, CA 92026
CLIENT: EEI, Inc.



CCI-72599.1

SWC of Oakwind Lane and N. Centre City Parkway
Escondido, CA 92026

Inquiry Number: 5036939.5
August 30, 2017

The EDR-City Directory Abstract

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City Directory Images

Thank you for your business.
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with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract 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 Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1903 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

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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Data by

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
2014	EDR Digital Archive	-	-	-	-
2010	EDR Digital Archive	-	-	-	-
2006	Haines Company, Inc.	-	X	X	X
2000	Haines Company, Inc.	-	-	-	-
1995	PACIFIC BELL WHITE PAGES	-	-	-	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-
1991	PACIFIC BELL WHITE PAGES	-	-	-	-
1989	Pacific Bell	-	-	-	-
1985	PACIFIC BELL WHITE PAGES	-	-	-	-
1984	R. L. Polk & Co.	-	-	-	-
1980	Pacific Telephone	-	-	-	-
1976	Luskey Brothers & Co., Inc.	-	-	-	-

EXECUTIVE SUMMARY

<u>Year</u>	<u>Source</u>	<u>TP</u>	<u>Adjoining</u>	<u>Text Abstract</u>	<u>Source Image</u>
1975	R. L. Polk Co.	-	-	-	-
1971	Community Directory Co.	-	-	-	-
1970	John M. Ducey	-	-	-	-
1966	R. L. Polk Co.	-	-	-	-
1965	Luskey Brothers Co., Inc.	-	-	-	-
1962	Community Directory Co.	-	-	-	-
1961	R. L. Polk & Co.	-	-	-	-
1960	The Pacific Telephone Telegraph Co.	-	-	-	-
1956	R. L. Polk & Co.	-	-	-	-
1955	The Pacific Telephone & Telegraph Co.	-	-	-	-
1952	R. L. Polk Co. of California	-	-	-	-
1950	The Pacific Telephone Telegraph Co.	-	-	-	-
1948	San Diego Directory Co.	-	-	-	-
1945	San Diego Directory Co.	-	-	-	-
1943	San Diego Directory Co.	-	-	-	-
1940	San Diego Directory Co.	-	-	-	-
1938	San Diego Directory Co.	-	-	-	-
1933	San Diego Directory Co.	-	-	-	-
1927	San Diego Directory Co.	-	-	-	-
1921	San Diego Directory Co. Inc.	-	-	-	-
1907	San Diego Directory Co.	-	-	-	-
1903	San Diego Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

SWC of Oakwind Lane and N. Centre City Parkway
Escondido, CA 92026

FINDINGS DETAIL

Target Property research detail.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

COYOTE HILL GLN

10430 COYOTE HILL GLN

<u>Year</u>	<u>Uses</u>	<u>Source</u>	
2006	AGUSTIN Esteban	Haines Company, Inc.	Image pg. A1

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched

SWC of Oakwind Lane and N.
Centre City Parkway

Address Not Identified in Research Source

2014, 2010, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975,
1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945,
1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched

10430 COYOTE HILL GLN

Address Not Identified in Research Source

2014, 2010, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971,
1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943,
1940, 1938, 1933, 1927, 1921, 1907, 1903

Source Page Images Appendix

COYOTE HILL GLN 2006

THE HAINES DIRECTORY 2006

242 COYOTE CT

1785 # BROYLES Michael OO 0
1789 XXXX OO 0
1790 FRAHNS David 760-725-1594 * 6

COYOTE HILL GLN (97) 92026 ESCONDIDO

10430 # ADUSTIN Fabian OO 4
10481 # MILLNER Daniel OO 4
10482 # HIZANO Richard OO 4
10483 # MOORE Steve OO 4
10484 # PEPPLER Jerry OO 4

COYOTE RUN 92082 VALLEY CENTER

30115 # BETTIS John OO 4
30223 # WAHLEY Len 760-749-0344
30250 # CATALANO Robert OO 9

X RABBIT RUN

30314 XXXX OO 0
30330 # HERNANDEZ Felix OO 0
30344 # CULLER Robert 760-294-8586

X STURNELLA WAY

30371 XXXX OO 0
* 0 BUS 7 RES 0 NEW

COYOTER DR 92064 POWAY

6056 # WILSON William OO 0
6076 # HIGH Leslie D Carol 858-443-6651
6085 # FISHER Howard G 858-443-3335

X TARASCAN DR

13166 # JOHNSON Ryan OO 4
13122 # BURGESS Kevin OO 4
13129 # LESSING John P 858-748-6839

X NOKONI DR

13143 # FINCH Jill 858-748-1338
13146 # ORRILL Edward OO 4
13152 # OUKA Rose W 858-748-6219

X ARIKARA DR

13158 # FRIELAND Jeffrey OO 4
* 0 BUS 9 RES 1 NEW

COYOTES WAY 92078 SAN MARCOS

1118 # RUSSELL David 760-474-1149
1121 # BROOKS William J 760-471-6418
1122 # ROBERTS Thomas OO 4

COZUMEL CT 92075 SOLANA BEACH

101 # SOZANALIN George 858-753-2690
101 # SOZANALIN George 858-753-2690
105 # BRANAS Margaree OO 2

COZY CT 92028 FALLBROOK

182 # TUCKER Carl 760-480-0820
1871 # GLOVER T A 760-743-0264
1872 # JEFFREY AVE

X SANCADO TER

804 # GONZALEZ Marcos OO 4
805 XXXX OO 0
812 # ARCHARD Jason OO 4

X BEAR VALLEY PKY

828 # GROSS Larry F 760-728-2492
829 # COMBENZER Louise OO 4
830 # LOPEZ Jose 760-731-2398

COZZENS CT 92122 SAN DIEGO

4310 # REMINGTON 858-493-0655
4313 # EPSTEIN Claudia OO 2
4316 XXXX OO 0

COZZENS ST 92122 SAN DIEGO

5815 # STEWART Timothy OO 4
5816 # STEWART COMPANY INC 858-606-0590
5817 # STEWART COMPANY INC 858-474-7819

SAN DIEGO NORTH

5530 # DAHL Dale OO 8
5535 # HILBROOK Robt A 858-443-1857
5538 # GARCIA Emma 858-443-4910

COZZENS CT

5905 # BURGESS Kevin OO 4
5910 # GARCIA Emma 858-443-4910
5911 # GUERRA Ray M 858-443-3339

COZZENS CT

5917 # GUERRA James 858-443-6552
5918 # GUERRA John 858-443-6553
5919 # GUERRA James 858-443-6553

COZZENS CT

5925 # SMITH Herbert B 858-443-8500
5926 # SMITH Herbert B 858-443-8500
5927 # SMITH Herbert B 858-443-8500

X VALCOMA PL

5928 # SCHROCK Barbara OO 8
5929 # SCHROCK Barbara OO 8
5930 XXXX OO 0

X JANAN WAY

6034 # AMANN E 858-443-5147
6035 # ROBERTSON Thomas 858-443-4202
6042 # HOLT Fredrick 858-443-5781

X BROMFIELD AVE

6126 # HO Dang 858-443-7003
6127 # OTTO Mark OO 4
* 3 BUS 61 RES 3 NEW

CRAIGMARE AVE 92027 ESCONDIDO

1710 # ESQUEVEL Patricia OO 3
1711 # ROOK Lisa OO 0

X LINWOOD ST

2145 # TRAC Lee OO 0
2146 # TAMPOC Guillermo OO 0
2147 # TAMPOC Guillermo 858-275-1641B

X GARSTON ST

2201 # MAKHER Swann B 858-274-7604
2202 # LUNAS Esteban 858-274-1157
2203 # GREGGIO Alfredo OO 0

X GATESHEAD ST

2220 XXXX OO 0
2221 # RODY C 858-274-1751
2222 # MARGUEZ Ram OO 8

X HANFORD PL

2281 # FLORES Roberto M 858-573-2647
2282 # MOURGAN Leonora OO 0
2283 # MOURGAN Leonora OO 0

X FORTON WAY

2271 XXXX OO 0
2272 # EVANS William OO 0
2273 XXXX OO 0

CRANDALL DR 92111 SAN DIEGO

1801 # HIGGINS Michael OO 0
1802 # CRANDALL Robert C 858-965-6745

X LINBROOK DR

1819 # SHARP Ann OO 4
1820 # KELLEY Ann OO 4
1833 # LY Hill OO 4

X COURTNEY DR

1902 XXXX OO 0
1903 # GARCIA Emma 858-969-4290
1904 # TRAN Jacqueline 858-973-1831

X CARDIGAN WAY

2002 # WICKER Scott OO 6
2011 # STALEY John 858-969-4130
2021 # AUGUSTO Elean 858-965-7818

X KARENUE AVE

2032 XXXX OO 4
2033 # STONES Sara Jane 858-969-0463
2042 # NGUYEN Thanh OO 0

X TAIT ST

2102 # STEWART Tom P 858-969-3689
2103 # NGUYEN Thanh OO 0
2104 # TRAN Ly 858-969-4596

X CRANSTON DR 92025 ESCONDIDO

2104 # TRAN Ly 858-969-4596
2105 # GARCIA Emma 858-969-4290
2106 # GARCIA Emma 858-969-4290

X S ESCONDIDO BLVD

2215 # ARVUT Daniel OO 4
2216 # ESCOBAR Cynthia OO 0
2217 # PAUL Dana 760-959-0330

X BROTHERTON RD

2310 # JEFFERSON Marjorie 760-745-6689
2321 # BAUER Gary OO 4
2322 # COJA Jose 760-745-9618

X FROEBEL DR

2323 # COJA Jose 760-745-9618
2324 # GARCIA Emma 858-969-4290
2325 # BROOKS William J 760-471-6418

X BIG BEND WAY

4336 # COLON Roberto 760-231-9002
4346 # WARR Ryan 760-231-4737
4347 # DIVORAN Francisco 760-231-9018

X OLYMPIC WAY

4012 # CHEN Qiao OO 4
4013 # HUI Jia 760-231-7972
4014 # LILIANZ Juan OO 4

X SHANNON RIDGE LN

10683 # VIGOROUS Marc OO 2
10684 # WILLIAMS David OO 2
10685 XXXX OO 0

X CRASH COLT CIR 92081 VISTA

902 # MASTERS Scott 760-728-5227
903 XXXX OO 0
904 # YOUNG Phillip OO 0

WEALTH CODE 1.9

1801 # HIGGINS Michael OO 0
1802 # CRANDALL Robert C 858-965-6745

X LINBROOK DR

1819 # SHARP Ann OO 4
1820 # KELLEY Ann OO 4
1833 # LY Hill OO 4

X COURTNEY DR

1902 XXXX OO 0
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2033 # STONES Sara Jane 858-969-0463
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X TAIT ST

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2103 # NGUYEN Thanh OO 0
2104 # TRAN Ly 858-969-4596

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2106 # GARCIA Emma 858-969-4290

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10684 # WILLIAMS David OO 2
10685 XXXX OO 0

X CRASH COLT CIR 92081 VISTA

902 # MASTERS Scott 760-728-5227
903 XXXX OO 0
904 # YOUNG Phillip OO 0

MACARILLA A

2401 # MACARILLA A 858-300-7890
2402 # MACARILLA A 858-300-7890

X CRANDALL CT

2501 # MEDINA Jose OO 4
2502 # WALKER David W 858-920-5678
2503 # DANN George OO 0

X FLUTON ST

2504 # BARTLEY C 760-403-0522
2505 # BLANCHARD Richard 760-231-1330
2506 XXXX OO 0

X TATLER RD

7025 # PORTER Geo A 760-431-7822
7026 XXXX OO 0
7027 # MIN Bryn OO 4

X CRANSTON CRST 92025 ESCONDIDO

2104 # TRAN Ly 858-969-4596
2105 # GARCIA Emma 858-969-4290
2106 # GARCIA Emma 858-969-4290

X S ESCONDIDO BLVD

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10684 # WILLIAMS David OO 2
10685 XXXX OO 0

X CRASH COLT CIR 92081 VISTA

902 # MASTERS Scott 760-728-5227
903 XXXX OO 0
904 # YOUNG Phillip OO 0

3 FAL Major

228 # FAL Major OO 3
229 # FAL Major OO 3

X CRANDALL CT

2501 # MEDINA Jose OO 4
2502 # WALKER David W 858-920-5678
2503 # DANN George OO 0

X FLUTON ST

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2506 XXXX OO 0

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228 # FAL Major OO 3
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2325 # BROOKS William J 760-471-6418

X BIG BEND WAY

4336 # COLON Roberto 760-231-9002
4346 # WARR Ryan 760-231-4

CCI-72599.1

SWC of Oakwind Lane & N. Centre City Parkway

Escondido, CA 92026

Inquiry Number: 5036939.3

August 30, 2017

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

08/30/17

Site Name:

CCI-72599.1
SWC of Oakwind Lane & N. Ce
Escondido, CA 92026
EDR Inquiry # 5036939.3

Client Name:

EEl, Inc.
2195 Faraday Ave, Suite K
CARLSBAD, CA 92008
Contact: Ryan Merkey



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Certified Sanborn Results:

Certification # 1EA2-400D-A390
PO # CCI-72599.1
Project CCI-72599.1



Sanborn® Library search results

Certification #: 1EA2-400D-A390

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.

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- Library of Congress
- University Publications of America
- EDR Private Collection

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APPENDIX D
ENVIRONMENTAL RECORDS SEARCH

DRAFT

CCI-72599.1

SWC of Oakwind Lane & N. Centre City Parkway
Escondido, CA 92026

Inquiry Number: 5036939.2s
August 30, 2017

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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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) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

SWC OF OAKWIND LANE & N. CENTRE CITY PARKWAY
ESCONDIDO, CA 92026

COORDINATES

Latitude (North): 33.1661260 - 33° 9' 58.05"
Longitude (West): 117.1063210 - 117° 6' 22.75"
Universal Transverse Mercator: Zone 11
UTM X (Meters): 490086.4
UTM Y (Meters): 3669517.2
Elevation: 878 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5640948 VALLEY CENTER, CA
Version Date: 2012

West Map: 5641320 SAN MARCOS, CA
Version Date: 2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140530
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
SWC OF OAKWIND LANE & N. CENTRE CITY PARKWAY
ESCONDIDO, CA 92026

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	BENTON BURN DUMP	END OF STILL WATER G	ENVIROSTOR	Lower	3974, 0.753, West
2	SPRINGTIME/REIDY CRE	2747 NORTH BROADWAY	ENVIROSTOR, SCH	Lower	4955, 0.938, ENE

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
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List

EXECUTIVE SUMMARY

US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

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

State and tribal leaking storage tank lists

SAN DIEGO CO. SAM..... Environmental Case Listing
LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields 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
SWRCY..... Recycler 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

EXECUTIVE SUMMARY

HIST Cal-Sites.....	Historical Calsites Database
SCH.....	School Property Evaluation Program
CDL.....	Clandestine Drug Labs
San Diego Co. HMMD.....	Hazardous Materials Management Division Database
Toxic Pits.....	Toxic Pits Cleanup Act Sites
US CDL.....	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST.....	SWEEPS UST Listing
HIST UST.....	Hazardous Substance Storage Container Database
CA FID UST.....	Facility Inventory Database

Local Land Records

LIENS.....	Environmental Liens Listing
LIENS 2.....	CERCLA Lien Information
DEED.....	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS.....	Hazardous Materials Information Reporting System
CHMIRS.....	California Hazardous Material Incident Report System
LDS.....	Land Disposal Sites Listing
MCS.....	Military Cleanup Sites Listing
SPILLS 90.....	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR.....	RCRA - Non Generators / No Longer Regulated
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

EXECUTIVE SUMMARY

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
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
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
Notify 65	Proposition 65 Records
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historic Gas Stations
EDR Hist Cleaner	EDR Exclusive Historic Dry 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.

EXECUTIVE SUMMARY

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

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 identifies 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.

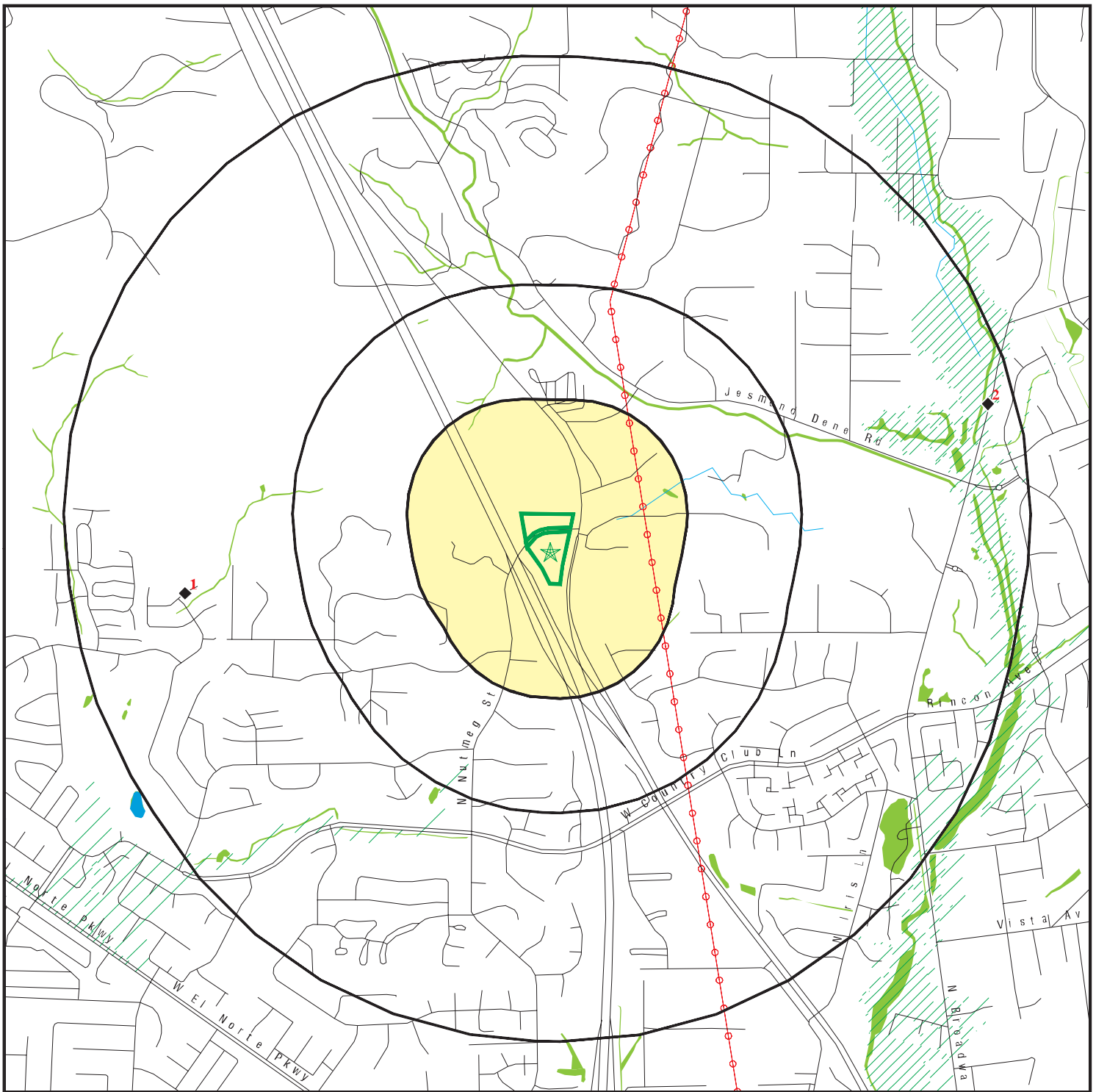
A review of the ENVIROSTOR list, as provided by EDR, and dated 07/31/2017 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BENTON BURN DUMP Facility Id: 37990004 Status: Refer: Other Agency	END OF STILL WATER G	W 1/2 - 1 (0.753 mi.)	1	8
<i>SPRINGTIME/REIDY CRE</i> Facility Id: 37010002 Status: No Further Action	<i>2747 NORTH BROADWAY</i>	<i>ENE 1/2 - 1 (0.938 mi.)</i>	<i>2</i>	<i>9</i>

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5036939.2S



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

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

Areas of Concern

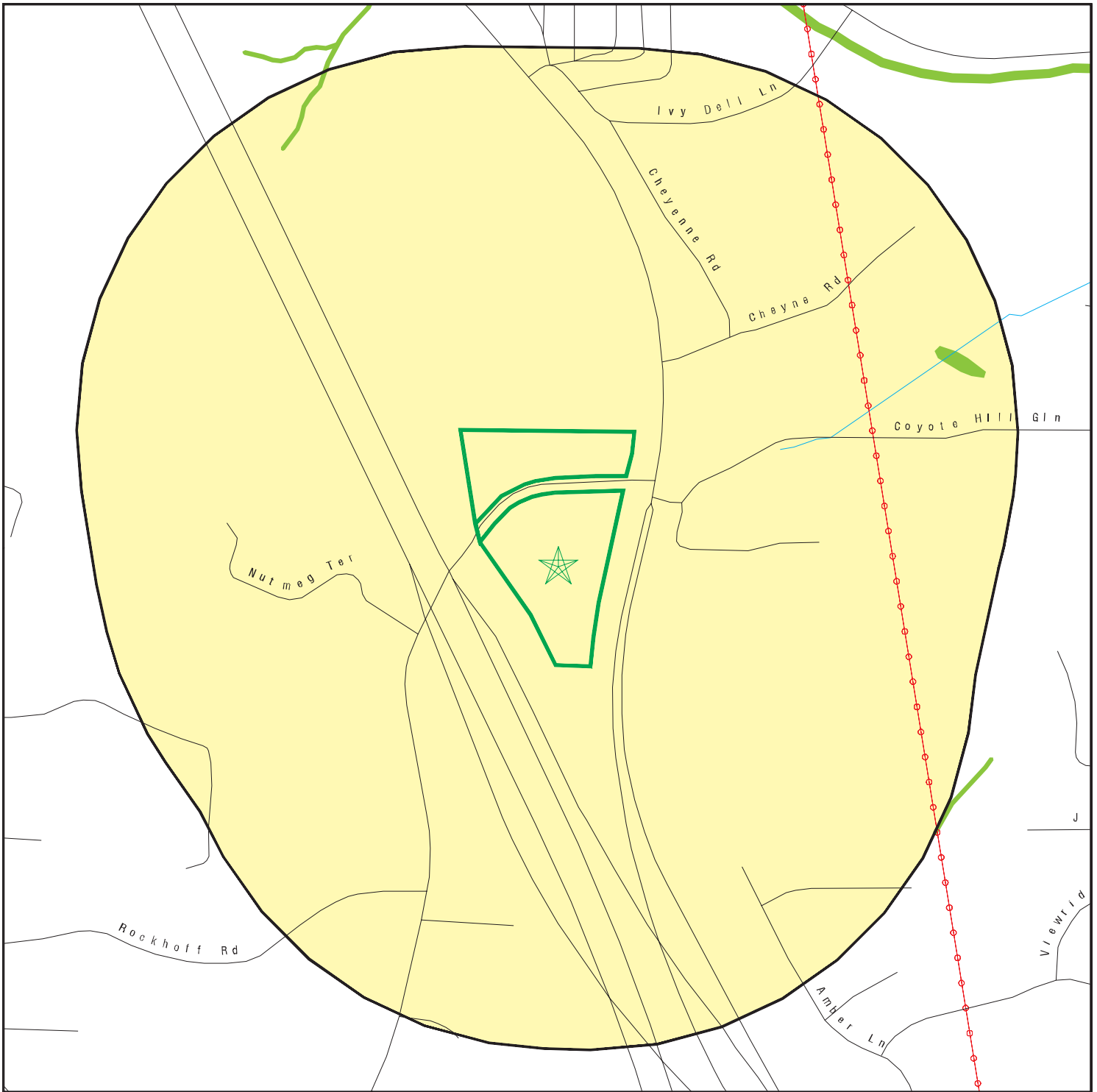









This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.








SITE NAME: CCI-72599.1
 ADDRESS: SWC of Oakwind Lane & N. Centre City Parkway
 Escondido CA 92026
 LAT/LONG: 33.166126 / 117.106321

CLIENT: EEI, Inc.
 CONTACT: Ryan Merkey
 INQUIRY #: 5036939.2s
 DATE: August 30, 2017 1:52 pm

DETAIL MAP - 5036939.2S



-  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
-  Power transmission lines
-  100-year flood zone
-  500-year flood zone
-  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: CCI-72599.1
 ADDRESS: SWC of Oakwind Lane & N. Centre City Parkway
 Escondido CA 92026
 LAT/LONG: 33.166126 / 117.106321

CLIENT: EEI, Inc.
 CONTACT: Ryan Merkey
 INQUIRY #: 5036939.2s
 DATE: August 30, 2017 1:57 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								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL RESPONSE</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i>								
ENVIROSTOR	1.000		0	0	0	2	NR	2
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
SAN DIEGO CO. SAM	0.500		0	0	0	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
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<u>ADDITIONAL ENVIRONMENTAL RECORDS</u>								
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		0	0	0	NR	NR	0
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
San Diego Co. HMMD	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	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
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
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		0	0	NR	NR	NR	0
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	0.001		0	NR	NR	NR	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		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
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	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	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
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
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	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
<u>EDR HIGH RISK HISTORICAL RECORDS</u>								
<i>EDR Exclusive Records</i>								
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
<u>EDR RECOVERED GOVERNMENT ARCHIVES</u>								
<i>Exclusive Recovered Govt. Archives</i>								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	2	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

1
West
1/2-1
0.753 mi.
3974 ft.

**BENTON BURN DUMP
END OF STILL WATER GLEN
ESCONDIDO, CA 92026**

**ENVIROSTOR S105954428
N/A**

**Relative:
Lower**

ENVIROSTOR:

Facility ID: 37990004
Status: Refer: Other Agency
Status Date: 01/09/2006
Site Code: 401058
Site Type: Evaluation
Site Type Detailed: Evaluation
Acres: Not reported
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Not reported
Supervisor: * Greg Holmes
Division Branch: Cleanup Cypress
Assembly: 75
Senate: 38
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: EPA Grant
Latitude: 33.16487
Longitude: -117.1201
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: * WASTE POTENTIALLY CONTAINING DIOXINS Lead
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: BENTON DUMP
Alias Type: Alternate Name
Alias Name: 401058
Alias Type: Project Code (Site Code)
Alias Name: 37990004
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/30/2003
Comments: PA with sampling approved by EPA no further action required.

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

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

2
ENE
1/2-1
0.938 mi.
4955 ft.

SPRINGTIME/REIDY CREEK ELEMENTARY
2747 NORTH BROADWAY
ESCONDIDO, CA 92026

ENVIROSTOR S107737397
SCH N/A

Relative:
Lower

ENVIROSTOR:

Actual:
754 ft.

Facility ID: 37010002
Status: No Further Action
Status Date: 05/12/2000
Site Code: 404016
Site Type: School Investigation
Site Type Detailed: School
Acres: 33
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Not reported
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 75
Senate: 38
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.17257
Longitude: -117.0886
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: DDD DDE DDT Lead Polynuclear aromatic hydrocarbons (PAHs)
Confirmed COC: Polynuclear aromatic hydrocarbons (PAHs Lead
Potential Description: SOIL
Alias Name: ESCONDIDO USD-PROP. SPRINGTIME/REIDY/VCA
Alias Type: Alternate Name
Alias Name: SPRINGTIME/REIDY CREEK ELEM. SCHOOL
Alias Type: Alternate Name
Alias Name: 404016
Alias Type: Project Code (Site Code)
Alias Name: 37010002
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: 01/10/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/21/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2000
Comments: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SPRINGTIME/REIDY CREEK ELEMENTARY (Continued)

S107737397

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 02/02/2000
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

SCH:

Facility ID: 37010002
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 33
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404016
Assembly: 75
Senate: 38
Special Program Status: Not reported
Status: No Further Action
Status Date: 05/12/2000
Restricted Use: NO
Funding: School District
Latitude: 33.17257
Longitude: -117.0886
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: DDD, DDE, DDT, Lead, Polynuclear aromatic hydrocarbons (PAHs)
Confirmed COC: Polynuclear aromatic hydrocarbons (PAHs, Lead
Potential Description: SOIL
Alias Name: ESCONDIDO USD-PROP. SPRINGTIME/REIDY/VCA
Alias Type: Alternate Name
Alias Name: SPRINGTIME/REIDY CREEK ELEM. SCHOOL
Alias Type: Alternate Name
Alias Name: 404016
Alias Type: Project Code (Site Code)
Alias Name: 37010002
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SPRINGTIME/REIDY CREEK ELEMENTARY (Continued)

S107737397

Completed Document Type: Environmental Oversight Agreement
Completed Date: 01/10/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/21/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 02/02/2000
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

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NO SITES FOUND					

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: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	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: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	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	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/16/2017
	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: 11/07/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2017	Telephone: 703-603-8704
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 92	Next Scheduled EDR Contact: 10/16/2017
	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: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/21/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/28/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 10/30/2017
	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: 12/12/2016	Source: EPA
Date Data Arrived at EDR: 12/28/2016	Telephone: 800-424-9346
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	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: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	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: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - 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). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Varies

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: 12/28/2016	Source: Department of the Navy
Date Data Arrived at EDR: 01/04/2017	Telephone: 843-820-7326
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 08/10/2017
Number of Days to Update: 93	Next Scheduled EDR Contact: 11/27/2017
	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: 02/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/28/2017	Telephone: 703-603-0695
Date Made Active in Reports: 06/09/2017	Last EDR Contact: 05/31/2017
Number of Days to Update: 101	Next Scheduled EDR Contact: 09/11/2017
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

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: 02/13/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/28/2017	Telephone: 703-603-0695
Date Made Active in Reports: 06/09/2017	Last EDR Contact: 05/31/2017
Number of Days to Update: 101	Next Scheduled EDR Contact: 09/11/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/28/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Annually

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: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
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 identifies 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: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
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 inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/13/2017
Date Data Arrived at EDR: 02/15/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/17/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 08/01/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/14/2011
	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: 06/12/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: see region list
Date Made Active in Reports: 08/22/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Quarterly

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	Source: California Regional Water Quality Control Board San Diego Region (9)
Date Data Arrived at EDR: 04/23/2001	Telephone: 858-637-5595
Date Made Active in Reports: 05/21/2001	Last EDR Contact: 09/26/2011
Number of Days to Update: 28	Next Scheduled EDR Contact: 01/09/2012
	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	Source: California Regional Water Quality Control Board Santa Ana Region (8)
Date Data Arrived at EDR: 02/15/2005	Telephone: 909-782-4496
Date Made Active in Reports: 03/28/2005	Last EDR Contact: 08/15/2011
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: Varies

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	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	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	Source: California Regional Water Quality Control Board Lahontan Region (6)
Date Data Arrived at EDR: 09/10/2003	Telephone: 530-542-5572
Date Made Active in Reports: 10/07/2003	Last EDR Contact: 09/12/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 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 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 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: Quarterly

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

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/01/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/08/2017
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: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	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: 11/14/2016	Source: EPA, Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-7439
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	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: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6271
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

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: 10/06/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3372
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

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: 11/14/2016	Source: EPA Region 1
Date Data Arrived at EDR: 01/26/2017	Telephone: 617-918-1313
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

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: 06/12/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/23/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 70	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: Quarterly

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: Semi-Annually

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: Varies

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: Semi-Annually

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: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: Semi-Annually

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: Annually

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: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/14/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/12/2017
Date Data Arrived at EDR: 06/14/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 70

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/14/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 06/21/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

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: 01/14/2017	Source: EPA Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-6136
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	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: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	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: 10/14/2016	Source: EPA Region 4
Date Data Arrived at EDR: 01/27/2017	Telephone: 404-562-9424
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/28/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

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: 11/14/2016	Source: EPA, Region 1
Date Data Arrived at EDR: 01/26/2017	Telephone: 617-918-1313
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	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: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 10/06/2016	Source: EPA Region 9
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3368
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

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: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6137
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Quarterly

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: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-7591
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Semi-Annually

State and tribal voluntary cleanup sites

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	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 06/27/2017
Number of Days to Update: 142	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

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: 07/31/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 08/01/2017	Telephone: 916-323-3400
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 08/01/2017
Number of Days to Update: 14	Next Scheduled EDR Contact: 11/13/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields 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: 01/03/2017
Date Data Arrived at EDR: 01/04/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 06/28/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Varies

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: 03/02/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/20/2017
Next Scheduled EDR Contact: 10/02/2017
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: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/13/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/14/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 05/31/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 76

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
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: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

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: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: No Update Planned

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

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 Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/29/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

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: 02/09/2017
Date Data Arrived at EDR: 03/08/2017
Date Made Active in Reports: 06/09/2017
Number of Days to Update: 93

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 07/31/2017
Date Data Arrived at EDR: 08/01/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 14

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
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: 12/31/2016
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 54

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/14/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Varies

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: 02/09/2017
Date Data Arrived at EDR: 03/08/2017
Date Made Active in Reports: 06/09/2017
Number of Days to Update: 93

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/31/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: Quarterly

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
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

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: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/02/2017
Next Scheduled EDR Contact: 09/18/2017
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: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/26/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 06/05/2017	Source: DTSC and SWRCB
Date Data Arrived at EDR: 06/06/2017	Telephone: 916-323-3400
Date Made Active in Reports: 08/10/2017	Last EDR Contact: 06/06/2017
Number of Days to Update: 65	Next Scheduled EDR Contact: 09/18/2017
	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: 12/28/2016	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/28/2016	Telephone: 202-366-4555
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 06/28/2017
Number of Days to Update: 37	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Annually

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: 12/06/2016	Source: Office of Emergency Services
Date Data Arrived at EDR: 01/25/2017	Telephone: 916-845-8400
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 07/26/2017
Number of Days to Update: 105	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

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: 06/12/2017	Source: State Water Quality Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/18/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 65	Next Scheduled EDR Contact: 09/25/2017
	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: 06/12/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 08/22/2017	Last EDR Contact: 06/14/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	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: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 08/11/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Varies

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: 01/31/2015	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 07/08/2015	Telephone: 202-528-4285
Date Made Active in Reports: 10/13/2015	Last EDR Contact: 08/25/2017
Number of Days to Update: 97	Next Scheduled EDR Contact: 12/04/2017
	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	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/12/2017
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/23/2017
	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: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/14/2017
Number of Days to Update: 339	Next Scheduled EDR Contact: 10/23/2017
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 08/18/2017
Next Scheduled EDR Contact: 11/27/2017
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: 02/13/2017
Date Data Arrived at EDR: 02/15/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/11/2017
Next Scheduled EDR Contact: 10/09/2017
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: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
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: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 11/20/2017
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: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/21/2017
Next Scheduled EDR Contact: 10/02/2017
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2017
Next Scheduled EDR Contact: 12/04/2017
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: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/28/2017
Next Scheduled EDR Contact: 11/08/2017
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: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/18/2017
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: 02/01/2017
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 08/08/2017
Number of Days to Update: 3	Next Scheduled EDR Contact: 11/20/2017
	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: 01/20/2016	Source: EPA
Date Data Arrived at EDR: 04/28/2016	Telephone: 202-566-0500
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 04/10/2017
Number of Days to Update: 127	Next Scheduled EDR Contact: 07/24/2017
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 07/28/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/23/2017
	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	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

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	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

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: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 08/01/2017
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/20/2017
	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: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 06/05/2017
Number of Days to Update: 76	Next Scheduled EDR Contact: 09/18/2017
	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: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 06/05/2017
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/18/2017
	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: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/28/2017
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/08/2017
	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: 01/04/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/06/2017	Telephone: 202-343-9775
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 07/12/2017
Number of Days to Update: 35	Next Scheduled EDR Contact: 10/16/2017
	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	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/01/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

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: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/21/2017
Next Scheduled EDR Contact: 10/09/2017
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: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/25/2017
Next Scheduled EDR Contact: 12/04/2017
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: 07/11/2017
Next Scheduled EDR Contact: 10/23/2017
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: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/22/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/07/2017
Next Scheduled EDR Contact: 10/16/2017
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 1931 and 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: 08/11/2017
Next Scheduled EDR Contact: 10/09/2017
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: 08/11/2017
Next Scheduled EDR Contact: 10/09/2017
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: 02/08/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 38

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/31/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: Semi-Annually

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/31/2017
Next Scheduled EDR Contact: 09/11/2017
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: 06/02/2017
Next Scheduled EDR Contact: 09/11/2017
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: 03/14/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 21

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/25/2017
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: 04/04/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 35

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/07/2017
Next Scheduled EDR Contact: 09/18/2017
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: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/19/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2017	Telephone: 202-564-2280
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 06/07/2017
Number of Days to Update: 52	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Quarterly

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: 02/22/2017	Source: EPA
Date Data Arrived at EDR: 02/22/2017	Telephone: 800-385-6164
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 08/17/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 12/04/2017
	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	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	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: 12/28/2016	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 12/28/2016	Telephone: 916-323-3400
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 06/28/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/09/2017
	Data Release Frequency: Quarterly

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: 03/09/2017	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 04/11/2017	Telephone: 916-327-4498
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 07/13/2017
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015	Source: California Air Resources Board
Date Data Arrived at EDR: 03/21/2017	Telephone: 916-322-2990
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 06/23/2017
Number of Days to Update: 147	Next Scheduled EDR Contact: 10/02/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 05/01/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 05/03/2017	Telephone: 916-445-9379
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 08/18/2017
Number of Days to Update: 104	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 06/05/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 06/09/2017	Telephone: 916-255-3628
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 07/21/2017
Number of Days to Update: 67	Next Scheduled EDR Contact: 10/30/2017
	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: 05/16/2017	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 05/19/2017	Telephone: 916-341-6066
Date Made Active in Reports: 08/15/2017	Last EDR Contact: 08/10/2017
Number of Days to Update: 88	Next Scheduled EDR Contact: 11/27/2017
	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: 12/31/2015	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 10/12/2016	Telephone: 916-255-1136
Date Made Active in Reports: 12/15/2016	Last EDR Contact: 07/12/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/23/2017
	Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirositor.

Date of Government Version: 05/22/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/24/2017	Telephone: 877-786-9427
Date Made Active in Reports: 08/18/2017	Last EDR Contact: 08/22/2017
Number of Days to Update: 86	Next Scheduled EDR Contact: 12/04/2017
	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	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/22/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/24/2017	Telephone: 916-323-3400
Date Made Active in Reports: 08/18/2017	Last EDR Contact: 08/22/2017
Number of Days to Update: 86	Next Scheduled EDR Contact: 12/04/2017
	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: 04/11/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/13/2017	Telephone: 916-440-7145
Date Made Active in Reports: 04/26/2017	Last EDR Contact: 07/12/2017
Number of Days to Update: 13	Next Scheduled EDR Contact: 10/23/2017
	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: 09/12/2016	Source: Department of Conservation
Date Data Arrived at EDR: 09/14/2016	Telephone: 916-322-1080
Date Made Active in Reports: 10/14/2016	Last EDR Contact: 06/14/2017
Number of Days to Update: 30	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Varies

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: 05/25/2017	Source: Department of Public Health
Date Data Arrived at EDR: 06/06/2017	Telephone: 916-558-1784
Date Made Active in Reports: 08/23/2017	Last EDR Contact: 06/06/2017
Number of Days to Update: 78	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/15/2016	Telephone: 916-445-9379
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 08/17/2017
Number of Days to Update: 107	Next Scheduled EDR Contact: 11/27/2017
	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: 06/05/2017	Source: Department of Pesticide Regulation
Date Data Arrived at EDR: 06/07/2017	Telephone: 916-445-4038
Date Made Active in Reports: 08/25/2017	Last EDR Contact: 06/07/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/13/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/14/2017
Next Scheduled EDR Contact: 09/25/2017
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: 12/16/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 70

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/16/2017
Next Scheduled EDR Contact: 10/02/2017
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: 01/20/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/14/2017
Next Scheduled EDR Contact: 09/25/2017
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 board's review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/14/2017
Next Scheduled EDR Contact: 10/23/2017
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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

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: 06/27/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 Historic Gas 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 Historic Dry 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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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:

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: 04/10/2017
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 31

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/07/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/07/2017
Date Data Arrived at EDR: 07/11/2017
Date Made Active in Reports: 08/23/2017
Number of Days to Update: 43

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/07/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 06/20/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 49

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/16/2017
Next Scheduled EDR Contact: 09/18/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 08/21/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 04/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 104

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/27/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List Cupa facility list.

Date of Government Version: 02/23/2017
Date Data Arrived at EDR: 02/24/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 77

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/26/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 58

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List Cupa Facility list

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 05/04/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 92

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List CUPA facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/19/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 50

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/31/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

FRESNO COUNTY:

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: 06/30/2017
Date Data Arrived at EDR: 07/05/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 30

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 06/29/2017
Next Scheduled EDR Contact: 10/16/2017
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 111

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/20/2017
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 57

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 101

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list.

Date of Government Version: 06/08/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 56

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 02/07/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

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: 03/06/2017
Date Data Arrived at EDR: 03/07/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 71

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 05/11/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 90

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/13/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 101

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009	Source: EPA Region 9
Date Data Arrived at EDR: 03/31/2009	Telephone: 415-972-3178
Date Made Active in Reports: 10/23/2009	Last EDR Contact: 06/16/2017
Number of Days to Update: 206	Next Scheduled EDR Contact: 10/02/2017
	Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/18/2017	Source: Department of Public Works
Date Data Arrived at EDR: 04/25/2017	Telephone: 626-458-3517
Date Made Active in Reports: 08/18/2017	Last EDR Contact: 07/07/2017
Number of Days to Update: 115	Next Scheduled EDR Contact: 10/23/2017
	Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/17/2017	Source: La County Department of Public Works
Date Data Arrived at EDR: 04/18/2017	Telephone: 818-458-5185
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 07/18/2017
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016	Source: Engineering & Construction Division
Date Data Arrived at EDR: 01/26/2016	Telephone: 213-473-7869
Date Made Active in Reports: 03/22/2016	Last EDR Contact: 07/13/2017
Number of Days to Update: 56	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016	Source: Community Health Services
Date Data Arrived at EDR: 04/06/2016	Telephone: 323-890-7806
Date Made Active in Reports: 06/13/2016	Last EDR Contact: 07/17/2017
Number of Days to Update: 68	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/17/2017	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 01/18/2017	Telephone: 310-524-2236
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 07/13/2017
Number of Days to Update: 112	Next Scheduled EDR Contact: 10/30/2017
	Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 03/10/2017	Telephone: 562-570-2563
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 07/21/2017
Number of Days to Update: 54	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/10/2017
Date Data Arrived at EDR: 01/13/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 110

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/07/2017
Next Scheduled EDR Contact: 10/23/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

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: 06/01/2017
Date Data Arrived at EDR: 06/02/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 63

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 03/31/2017
Date Data Arrived at EDR: 04/06/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 27

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 06/29/2017
Next Scheduled EDR Contact: 10/16/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/22/2017
Date Data Arrived at EDR: 02/23/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 02/21/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 76

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/08/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/22/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 47

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

NAPA COUNTY:

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: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 05/31/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 05/08/2017
Date Data Arrived at EDR: 05/09/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 92

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/27/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 05/11/2017
Date Made Active in Reports: 08/18/2017
Number of Days to Update: 99

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/06/2017	Source: Health Care Agency
Date Data Arrived at EDR: 02/07/2017	Telephone: 714-834-3446
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 08/09/2017
Number of Days to Update: 85	Next Scheduled EDR Contact: 11/20/2017
	Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/02/2017	Source: Placer County Health and Human Services
Date Data Arrived at EDR: 06/06/2017	Telephone: 530-745-2363
Date Made Active in Reports: 08/22/2017	Last EDR Contact: 06/02/2017
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/18/2017
	Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 06/19/2017	Source: Plumas County Environmental Health
Date Data Arrived at EDR: 07/05/2017	Telephone: 530-283-6355
Date Made Active in Reports: 08/09/2017	Last EDR Contact: 07/21/2017
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/08/2017
	Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/18/2017	Source: Department of Environmental Health
Date Data Arrived at EDR: 04/20/2017	Telephone: 951-358-5055
Date Made Active in Reports: 04/21/2017	Last EDR Contact: 06/19/2017
Number of Days to Update: 1	Next Scheduled EDR Contact: 10/02/2017
	Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/19/2017	Source: Department of Environmental Health
Date Data Arrived at EDR: 01/25/2017	Telephone: 951-358-5055
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 06/19/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 10/02/2017
	Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/06/2017
Date Data Arrived at EDR: 04/04/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 127

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/06/2017
Next Scheduled EDR Contact: 10/16/2017
Data Release Frequency: Quarterly

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: 05/03/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/06/2017
Next Scheduled EDR Contact: 10/16/2017
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 105

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

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: 05/30/2017
Date Data Arrived at EDR: 06/01/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 85

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

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: 06/05/2017
Date Data Arrived at EDR: 06/07/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 69

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/07/2017
Next Scheduled EDR Contact: 09/18/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

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: 06/05/2017
Next Scheduled EDR Contact: 09/18/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversight 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: 08/07/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/03/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 109

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 03/21/2017
Date Data Arrived at EDR: 03/23/2017
Date Made Active in Reports: 05/09/2017
Number of Days to Update: 47

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/16/2017
Next Scheduled EDR Contact: 10/02/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/05/2017
Date Data Arrived at EDR: 06/16/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 54

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 33

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 02/22/2017
Date Data Arrived at EDR: 02/23/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 89

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/07/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

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

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: 08/24/2017
Next Scheduled EDR Contact: 12/11/2017
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/04/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 80

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

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: 80

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SHASTA COUNTY:

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: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 63

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 08/29/2017
Number of Days to Update: 69

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/09/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List

Cupa Facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 06/27/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 43

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/21/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/05/2017
Date Data Arrived at EDR: 07/06/2017
Date Made Active in Reports: 08/22/2017
Number of Days to Update: 47

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/21/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 05/10/2017
Date Data Arrived at EDR: 05/16/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 85

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 06/02/2017
Date Data Arrived at EDR: 06/06/2017
Date Made Active in Reports: 08/25/2017
Number of Days to Update: 80

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 06/02/2017
Next Scheduled EDR Contact: 09/18/2017
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List

Cupa facilities

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 05/08/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 93

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/21/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

TULARE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa program facilities

Date of Government Version: 01/05/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 104

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/20/2017
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 04/27/2017
Date Data Arrived at EDR: 04/27/2017
Date Made Active in Reports: 08/10/2017
Number of Days to Update: 105

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

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: 12/27/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 103

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

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: 06/29/2017
Next Scheduled EDR Contact: 10/16/2017
Data Release Frequency: Annually

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: 08/10/2017
Next Scheduled EDR Contact: 11/27/2017
Data Release Frequency: Quarterly

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: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/24/2017
Next Scheduled EDR Contact: 11/08/2017
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2017	Source: Environmental Health Division
Date Data Arrived at EDR: 03/15/2017	Telephone: 805-654-2813
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 08/24/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 09/25/2017
	Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/29/2017	Source: Yolo County Department of Health
Date Data Arrived at EDR: 07/05/2017	Telephone: 530-666-8646
Date Made Active in Reports: 08/25/2017	Last EDR Contact: 06/29/2017
Number of Days to Update: 51	Next Scheduled EDR Contact: 10/16/2017
	Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 01/30/2017	Source: Yuba County Environmental Health Department
Date Data Arrived at EDR: 01/31/2017	Telephone: 530-749-7523
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 07/27/2017
Number of Days to Update: 112	Next Scheduled EDR Contact: 11/13/2017
	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: 07/30/2013	Source: Department of Energy & Environmental Protection
Date Data Arrived at EDR: 08/19/2013	Telephone: 860-424-3375
Date Made Active in Reports: 10/03/2013	Last EDR Contact: 08/18/2017
Number of Days to Update: 45	Next Scheduled EDR Contact: 11/27/2017
	Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016	Source: Department of Environmental Protection
Date Data Arrived at EDR: 04/11/2017	Telephone: N/A
Date Made Active in Reports: 07/27/2017	Last EDR Contact: 07/10/2017
Number of Days to Update: 107	Next Scheduled EDR Contact: 10/23/2017
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 01/30/2017
Date Data Arrived at EDR: 02/01/2017
Date Made Active in Reports: 02/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/03/2017
Next Scheduled EDR Contact: 11/13/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/17/2017
Next Scheduled EDR Contact: 10/30/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/21/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/12/2017
Next Scheduled EDR Contact: 09/25/2017
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

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 PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 & Game

Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CCI-72599.1
SWC OF OAKWIND LANE & N. CENTRE CITY PARKWAY
ESCONDIDO, CA 92026

TARGET PROPERTY COORDINATES

Latitude (North):	33.166126 - 33° 9' 58.05"
Longitude (West):	117.106321 - 117° 6' 22.76"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	490086.4
UTM Y (Meters):	3669517.2
Elevation:	878 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640948 VALLEY CENTER, CA
Version Date:	2012
West Map:	5641320 SAN MARCOS, 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 principal 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).

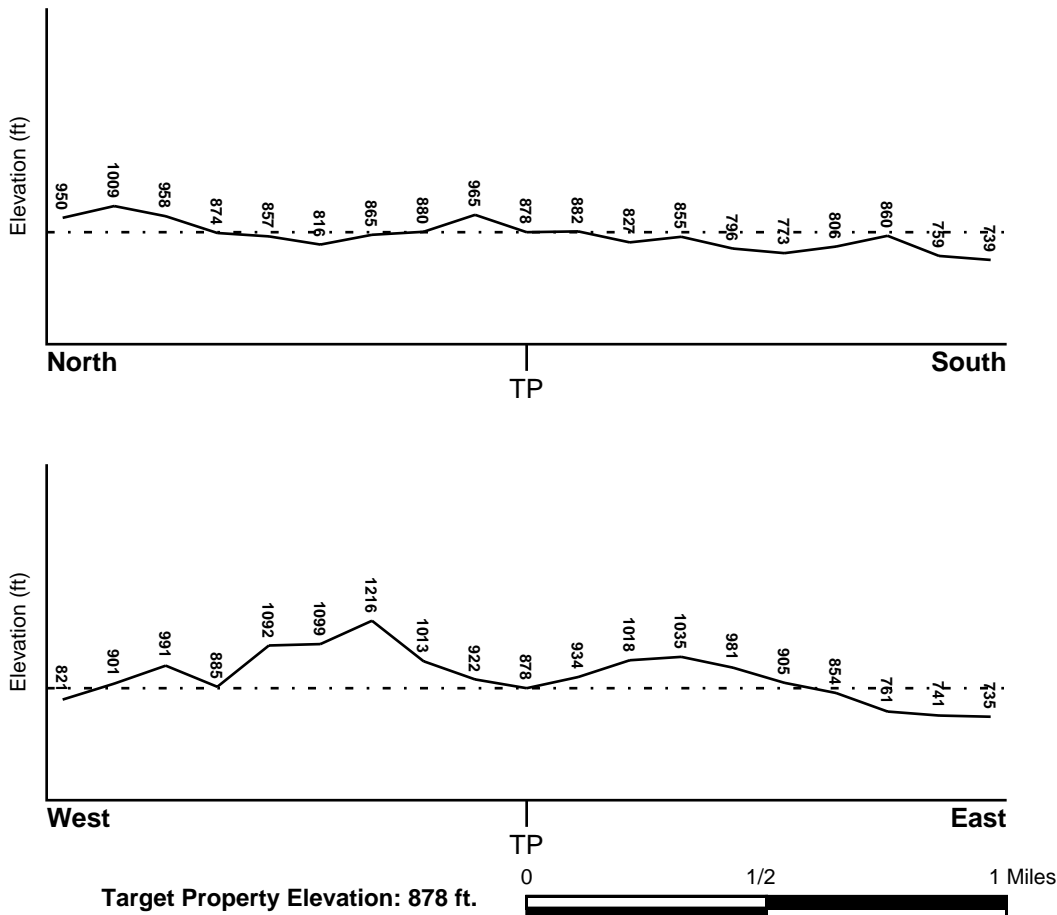
TOPOGRAPHIC INFORMATION

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 ESE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



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

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06073C0811G	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06073C0812G	FEMA FIRM Flood data
06073C0813G	FEMA FIRM Flood data
06073C0814G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
VALLEY CENTER	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.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

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

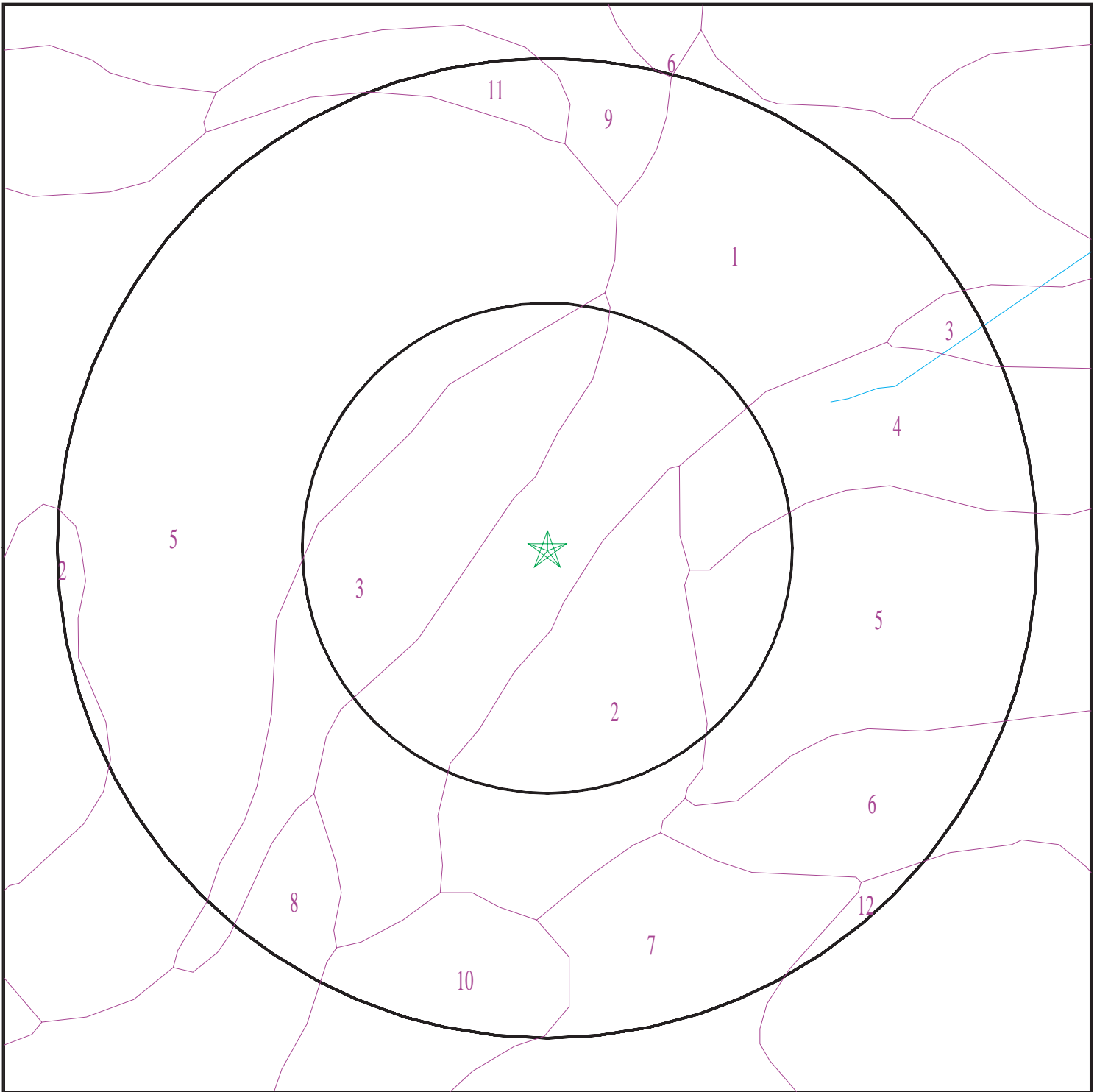
Era: Mesozoic
System: Lower Jurassic and Upper Triassic
Series: Lower Mesozoic
Code: IMze (*decoded above as Era, System & Series*)

GEOLOGIC AGE IDENTIFICATION

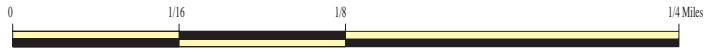
Category: Eugeosynclinal Deposits

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 - 5036939.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: CCI-72599.1
ADDRESS: SWC of Oakwind Lane & N. Centre City Parkway
Escondido CA 92026
LAT/LONG: 33.166126 / 117.106321

CLIENT: EEI, Inc.
CONTACT: Ryan Merkey
INQUIRY #: 5036939.2s
DATE: August 30, 2017 1:59 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: RAMONA

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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		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: 6.5 Min: 5.6
2	9 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: CIENEBA

Soil Surface Texture: coarse 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: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 5 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse 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: 6 Min: 5.6
2	7 inches	11 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: VISTA

Soil Surface Texture: coarse 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

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1
2	18 inches	35 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1
3	35 inches	38 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: FALLBROOK

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

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 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: 6.5 Min: 6.1
2	5 inches	11 inches	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: 7.3 Min: 6.1
3	11 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
4	27 inches	46 inches	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: 7.3 Min: 6.1
5	46 inches	51 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 5

Soil Component Name: CIENEBA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 5 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse 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: 6 Min: 5.6
2	7 inches	11 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: VISTA

Soil Surface Texture: coarse 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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	coarse 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: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	14 inches	29 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1
3	29 inches	33 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 7

Soil Component Name: ESCONDIDO

Soil Surface Texture: very fine 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: Moderate

Depth to Bedrock Min: > 74 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	5 inches	29 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
3	29 inches	33 inches	unweathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 8

Soil Component Name: VISTA

Soil Surface Texture: coarse 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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	18 inches	coarse 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: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	18 inches	35 inches	coarse 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: 7.3 Min: 6.1
3	35 inches	38 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 9

Soil Component Name: RAMONA

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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		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: 6.5 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	9 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

Soil Map ID: 10

Soil Component Name: HUERHUERO

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6 Min: 5.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	11 inches	55 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.4
3	55 inches	72 inches	stratified 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, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

Soil Map ID: 11

Soil Component Name: VISTA

Soil Surface Texture: coarse 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: > 5 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	12 inches	coarse 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: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	12 inches	27 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1
3	27 inches	31 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 12

Soil Component Name: VISTA

Soil Surface Texture: coarse 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							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	14 inches	29 inches	coarse 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: 7.3 Min: 6.1
3	29 inches	33 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

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

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

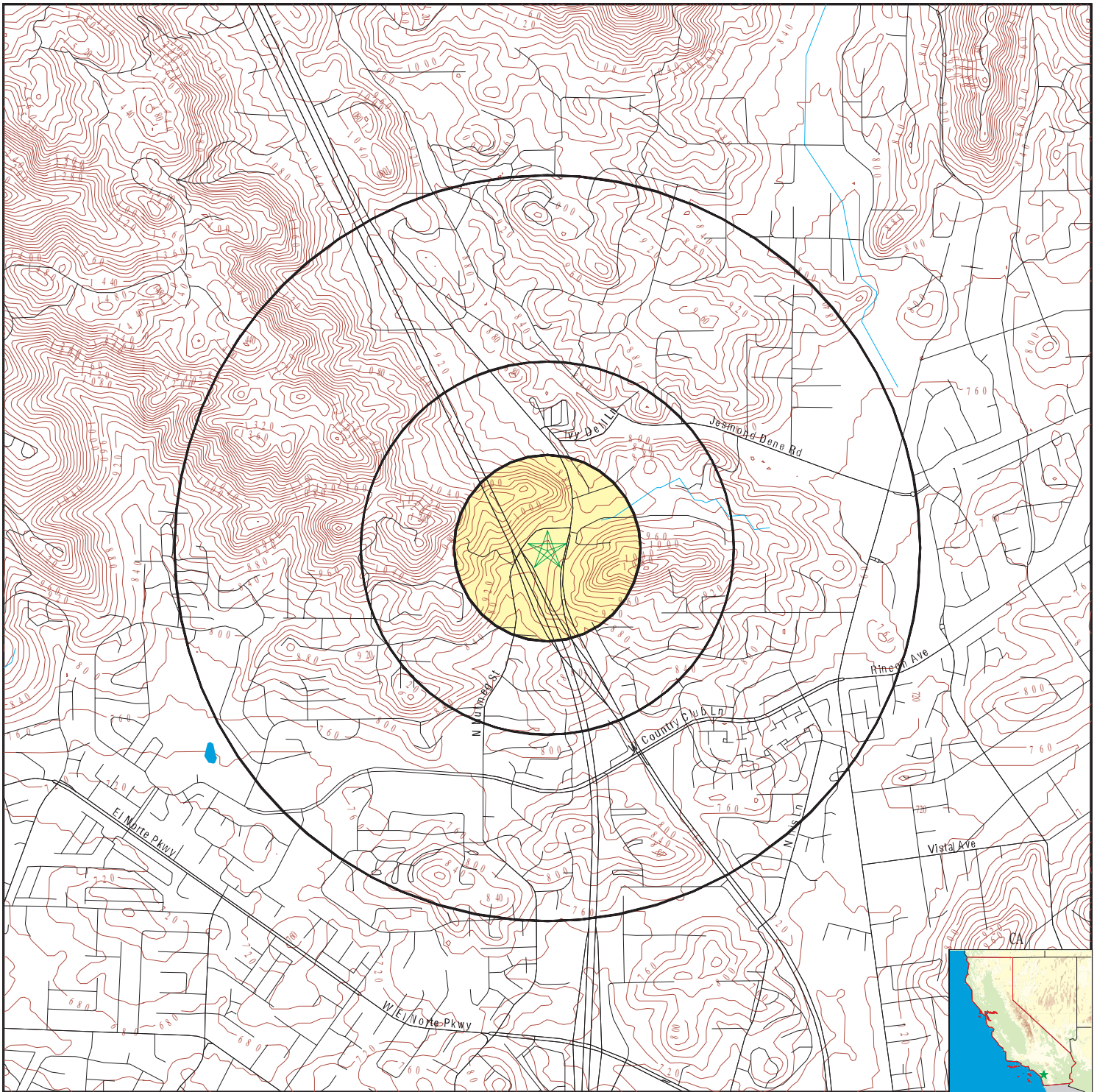
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		









Note: PWS System location is not always the same as well location.






STATE DATABASE WELL INFORMATION

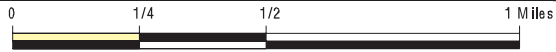
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5036939.2s



-  County Boundary
-  Major Roads
-  Contour Lines
-  Earthquake Fault Lines
-  Earthquake epicenter, Richter 5 or greater
-  Water Wells
-  Public Water Supply Wells
-  Cluster of Multiple Icons

-  Groundwater Flow Direction
-  Indeterminate Groundwater Flow at Location
-  Groundwater Flow Varies at Location
-  Closest Hydrogeological Data
-  Oil, gas or related wells



SITE NAME: CCI-72599.1
 ADDRESS: SWC of Oakwind Lane & N. Centre City Parkway
 Escondido CA 92026
 LAT/LONG: 33.166126 / 117.106321

CLIENT: EEI, Inc.
 CONTACT: Ryan Merkey
 INQUIRY #: 5036939.2s
 DATE: August 30, 2017 1:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92026	22	1

Federal EPA Radon Zone for SAN DIEGO County: 3

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level \geq 2 pCi/L and \leq 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92026

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 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 & Game

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: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

RADON

State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

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.

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.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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

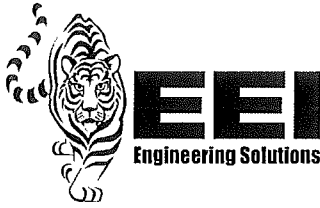
California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX E
USER PROVIDED INFORMATION

DRAFT



OWNER/LANDLORD/OCCUPANT INTERVIEW QUESTIONS

Project Name: EEI Project CCI-72599.1/6.87-Acres of Undeveloped Land APNs 224-260-23-00, 224-260-46-00, and 224-260-47-00

Project Address: SW of Oakwind Lane and N. Centre City Parkway, Escondido, CA 92026

1. What is/are the Current Use(s) of the Property, to the best of your knowledge? *Vacant land.*

2. What was/were the Past Use(s) of the Property, to the best of your knowledge? *Vacant land.*

3. Are there now or were there ever present any aboveground storage tanks, underground storage tanks or vent pipes, fill pipes or accessways indicating underground storage tanks? *No.*

4. Are there any areas of the site with strong, pungent, or noxious odors? *None.*

5. Are there any areas of standing surface water, including Pools or sumps? *None.*

6. Are there any Hazardous Substances and/or Petroleum Product Containers currently stored on site? *None.*

7. Are there any unlabelled Drums or any Unidentified Substance Containers stored on the property? *None.*

8. Is there any Electrical or hydraulic equipment known to contain PCBs or likely to contain PCBs? *None.*

9. Do you know of any spills or other chemical releases that have taken place at the property? *None to our knowledge.*

10. Do you know of any environmental cleanups that have taken place at the property? *None to our knowledge.*

11. Are you aware of any deed restrictions or other activity or land use restrictions that have been placed on the property as a result of an environmental issue? *None to our knowledge.*

12. Are you aware of any environmental liens, unresolved notices of violation, or litigation related to a contamination issue at the property? *None to our knowledge.*

13. Are you aware of any previous assessments conducted at the subject property? *County VAP letter (see attached).*

Preparer:

Name:

Arie de Jong

Address:

807 E. Mission Rd. San Marcos, CA 92069

Signature:



Date:

9/12/13



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION

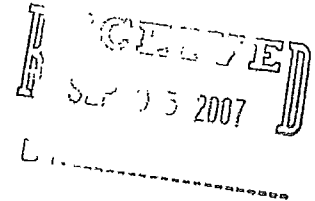
P.O. BOX 129261, SAN DIEGO, CA 92112-9261
619-338-2222/FAX 619-338-2315/1-800-253-9933

www.sdcounty.ca.gov/deh/lwq

JACK MILLER
ASSISTANT DIRECTOR

September 4, 2007

Mr. Mark Lemire
Mr. Arie De Jong
ADJ Holdings, LLC
c/o Hilltop Group, Inc.
807 E. Mission Road
Escondido, CA 92069



Dear Mr. Lemire and Mr. De Jong:

VOLUNTARY ASSISTANCE PROGRAM, FILEH39704-001
UNDEVELOPED PROPERTY
2401 NUTMEG STREET, ESCONDIDO, CA 92026

The Department of Environmental Health (DEH), Site Assessment and Mitigation Program (SAM), reviewed the environmental investigation report related to the above-referenced property, prepared by Construction Testing & Engineering, Inc., dated June 5, 2007. The report summarizes the soil characterization activities performed at the above-referenced location. Provided that the information presented to DEH/SAM was complete, accurate, and representative of existing site conditions, **this agency concurs that the investigation goals established for the subject site have been met.**

Please be advised that this letter does not relieve the responsible party of any liability under the California Health and Safety Code or the Porter Cologne Water Quality Control Act. If previously unidentified contamination is discovered which may affect public health, safety and/or water quality, additional site assessment and cleanup may be necessary.

Changes in the *proposed residential* use of the above site may require reevaluation to determine if the change will pose a risk to public health.

Thank you for selecting the Department of Environmental Health as your lead agency to assist you with the progress of your environmental project. Please contact Danny Martinez of the Site Assessment and Mitigation Program, at (619) 338-2456, if you require additional assistance.

Sincerely,

GEORGE McCANDLESS, Program Manager
Supervising Environmental Health Specialist
Site Assessment and Mitigation Program

GM:DM:kd

Enclosure

cc: John Anderson, Regional Water Quality Control Board

WP/H39704-001-807VAPCLO

"Environmental and public health through leadership, partnership and science"

Case Closure Summary
Non-LOP or Voluntary Assistance Program

I. AGENCY INFORMATION

DATE: SEPTEMBER 4, 2007

Agency Name: County of San Diego, Environmental Health, SAM	Address: P.O. Box 129261
City/State/ZIP: San Diego, CA 92112-9261	Phone: (619) 338-2222 FAX: (619) 338-2377
DEH Staff Person: DANNY MARTINEZ	Title: ENVIRONMENTAL HEALTH SPECIALIST

II. CASE INFORMATION

Case No. H39704-001	RWQCB Case No.	
Site Name: UNDEVELOPED PROPERTY	Site Address: 2401 NUTMEG STREET, ESCONDIDO, CA 92026	
Property Owner: ARIE De JONG ADJ HOLDINGS, LLC C/O HILLTOP GROUP, LLC 807 E MISSION RD. ESCONDIDO, CA 92069		
Responsible/Requesting Parties	Address	Phone Number
MARK LEMIRE HILLTOP GROUP, LLC	807 E MISSION RD. ESCONDIDO, CA 92069	760-744-9040
Type of Case: NON-TANK CASE		
Agency notification of DEH Oversight: DTSC: 2/27/2007 RWQCB: 2/27/2007		

III. SITE CHARACTERIZATION AND/OR INFORMATION

Purpose of Investigation: TO DETERMINE IF UNDOCUMENTED FILL WILL POSE A RISK TO HUMANS OR THE ENVIRONMENT IF LEFT ONSITE.	Substances Investigated: PETROLEUM HYDROCARBONS HEAVY METALS		
Site Characterization complete? YES			
Monitoring Wells Installed? NO	Total Number: 0	Proper Screened Interval? NA	Number of decommissioned wells: 0
Range of groundwater levels on the site? 6 - 16.5 (ESTIMATED)		Groundwater Flow Direction: WEST (ESTIMATED)	
Most Sensitive Current Use: Existing Beneficial Groundwater Use: MUN, AGR, IND Existing Beneficial Surface Water Use: MUN, AGR, REC1, REC2 and Potential: IND			
Are Drinking Water Wells Affected? NO	RWQCB Basin Number: 904.62-Escondido Hydrologic Sub Area		
Is Surface Water Affected? NO	Nearest Surface Water name: ADJACENT TO VISTA CANAL		
Off-Site Beneficial Use Impacts (addresses/locations): NO			
TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal)	Date
NO			

Non-LOP - Underground Storage Tank Oversight handled outside the LOP
Non-Tank - Voluntary Assistance Program

Case Closure Summary Non-LOP or Voluntary Assistance Program

III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued)

H39704-001

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS

SOIL	MAXIMUM	REMAINING
Gasoline	< 5 mg/kg	< 5 mg/kg
Diesel	= 11.3 mg/kg	= 11.3 mg/kg
TPH Extended	= 114.9 mg/kg	= 114.9 mg/kg
Benzene	= 0.12 mg/kg	= 0.12 mg/kg
Acetone	= 0.001 mg/kg	= 0.001 mg/kg
Antimony	= 0.76 mg/kg	= 0.76 mg/kg
Arsenic	= 9.73 mg/kg	= 9.73 mg/kg
Barium	= 185 mg/kg	= 185 mg/kg
Beryllium	= 0.55 mg/kg	= 0.55 mg/kg
Cadmium	< 0.5 mg/kg	< 0.5 mg/kg
Chromium	= 40.6 mg/kg	= 40.6 mg/kg
Copper	= 22.4 mg/kg	= 22.4 mg/kg
Lead	= 7.14 mg/kg	= 7.14 mg/kg
Mercury	< 0.08 mg/kg	< 0.08 mg/kg
Nickel	= 20.2 mg/kg	= 20.2 mg/kg
Selenium	< 0.75 mg/kg	< 0.75 mg/kg
Silver	= 0.55 mg/kg	= 0.55 mg/kg
Thallium	< 0.75 mg/kg	< 0.75 mg/kg
Zinc	= 53.7 mg/kg	= 53.7 mg/kg

Comments:

This case was entered into the Voluntary Assistance Program by the developer so that the County of San Diego, Department of Environmental Health (DEH) could provide regulatory oversight for the characterization of undocumented fill dumped on this property allegedly without the property owner's consent. The purpose of this oversight was to determine if the undocumented fill may remain on site when property is developed without posing additional risk to human health or the environment. The Regional Water Quality Control Board has been notified of the situation, and has no objections with case closure.

During a geotechnical investigation, conducted on this site as part of the redevelopment of this property for residential use, the consultant discovered an estimated 8500 cubic yards of fill from an undocumented source. Selected geotechnical soil samples were collected from various areas on the property. Laboratory analysis of the samples showed low concentrations of metals and petroleum hydrocarbon contamination and the consultant recommended additional sampling of the fill. To adequately characterize the undocumented fill, soil samples were collected using computer generated random coordinate pattern and analyzed for petroleum hydrocarbons and California heavy metals. The lab analysis results indicate all contaminant concentrations are below the EPA Region 9 Preliminary Remediation Goals throughout the property. A health risk assessment was performed using CalTOX Multimedia Exposure Model. The results of the risk assessment indicate no additional health risks from exposure to the soil.

From the data collected during the soil characterization, the consultant states that the undocumented fill will not pose a threat to humans or the environment and may remain in place if the land is developed for residential use. DEH concurs with the consultant conclusions.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES

Does corrective action protect public health for current land use? YES

Case review based on current/proposed use as: -EMPTY LOT /PROPOSED RESIDENTIAL

Are there other issues DEH needs to follow up on: NO

Site Management Requirements:

Any contaminated soil excavated as part of subsurface construction work must be managed in accordance with the legal requirements at that time.

Should corrective action be reviewed if land use changes? YES

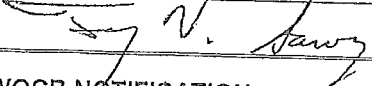
List Enforcement Actions Taken: NONE

List Enforcement Actions Rescinded: NONE

Case Closure Summary
Non-LOP or Voluntary Assistance Program

V. LOCAL AGENCY REPRESENTATIVE DATA

H39704-001

Name: TONY SAWYER	Title: HYDROGEOLOGIST
Signature: 	Date: 9-4-07

VI. RWQCB NOTIFICATION

Date Submitted to RWQCB:	RWQCB Response: NA - VAP	
RWQCB Staff Name: NA	Title:	Date:

VII. ADDITIONAL COMMENTS, DATA, ETC.

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.
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ASTM E1527-13
USER SPECIFIC QUESTIONNAIRE

Project Name: EEI Project CCI-72599.1/6.87-Acres of Undeveloped Land APNs 224-260-23-00, 224-260-46-00, and 224-260-47-00

Project Address: SW of Oakwind Lane and N. Centre City Parkway, Escondido, CA 92026

In order to comply with the ASTM E1527-13 Standard and qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *user* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The *user* should provide the following information to the *environmental professional*. Failure to conduct these inquiries could result in a determination that "*all appropriate inquiries*" is not complete. Please provide the following information (if available). Your answers will be incorporated into the final Phase I ESA under the section "User-supplied Information."

(1.) Environmental cleanup liens that are filed or recorded against the property (40 CFR 312.25).

Did a search of *recorded land title records* (or judicial records where appropriate, see NOTE below) identify any environmental liens filed or recorded against the *property* under federal, tribal, state or local law? (NOTE - In certain jurisdictions, federal, tribal, state, or local statutes, or regulations specify that environmental liens and AULs be filed in judicial records rather than in land title records. In such cases judicial records must be searched for environmental liens and AULs. *None to our knowledge.*

(2.) Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).

Did a search of *recorded land title records* (or judicial records where appropriate, see NOTE above) identify any AULs, such as *engineering controls*, land use restrictions, or *institutional controls* that are in place at the *property* and/or have been filed or recorded against the *property* under federal, tribal, state or local law? *None to our knowledge.*

(3.) Specialized knowledge or experience of the person seeking to qualify for the Landowner Liability Protections (LLP - 40 CFR 312.28).

As the *user* of this *ESA* do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business? (self-explanatory). *The site was previously owned by Mr. DeJong of San Marcos. To our knowledge there has been no known occupation of the vacant land or chemicals used on site.*

(4.) Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).

Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*? *Yes, the purchase price reasonably reflects the fair market value of the property.*

(5.) Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).

Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *user*,

(a.) Do you know the past uses of the *property*? *As far as all available records the site has been vacant and unused.*

(b.) Do you know of specific chemicals that are present or once were present at the *property*? *No known chemicals are present or have been used at the site.*

(c.) Do you know of spills or other chemical releases that have taken place at the *property*? *No known spills or other chemical releases are known to have taken place at the site.*

(d.) Do you know of any environmental cleanups that have taken place at the *property*? *No known environmental cleanups have taken place at the site.*

(6.) The degree of obviousness of the presence of likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

As the *user* of this *ESA*, based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property*? *No obvious indicators exist that would point to the presence or likely presence of contamination.*

In addition, certain information should be collected, if available, and provided to the *environmental professional* selected to conduct the Phase I. This information is intended to assist the *environmental professional* but is not necessarily required to qualify for one of the *LLPs*. The information includes:

(a) the reason why the Phase I is required. *It is our estimation that the City of Escondido will require the Phase I study as evidence for a ND or MND.*

(b) the type of *property* and type of *property* transaction, for example, sale, purchase, exchange, etc., *The property is vacant land zoned commercial. The property was sold.*

(c) the complete and correct address for the *property* (a map or other documentation showing *property* location and boundaries is helpful), *The property APN's are as follows; 224-260-23, 224-260-46, and 224-260-47.*

(d) the scope of services desired for the Phase I (including whether any parties to the *property* transaction may have a required standard scope of services on whether any considerations beyond the requirements of Practice E 1527 are to be considered), *Standard scope of services.*

(e) identification of all parties who will rely on the Phase I *report, City of Escondido, CCI, John R. Martin JMI.*

(f) identification of the site contact and how the contact can be reached, *Jason Greminger jason.greminger@cciconnect.com, and Jim Simmons jim.simmons@cciconnect.com. 760-471-2365 (office).*

(g) any special terms and conditions which must be agreed upon by the *environmental professional, and standard terms and agreements.*

(h) any other knowledge or experience with the *property* that may be pertinent to the *environmental professional* (for example, copies of any available prior *environmental site assessment reports*, documents, correspondence, etc., concerning the *property* and its environmental condition). *See attached.*

Preparer:

Name: Jason Greminger

Address: 160 Industrial St. Suite 200, San Marcos, CA 92078

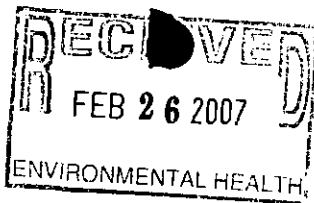
Signature: 

Date: 7/5/17

APPENDIX F
CSDDEH PROVIDED INFORMATION

DRAFT

P.O. BOX 129261
SAN DIEGO, CA 92112-9261
ATTN: NASSER SIONIT
(619) 338-2239
(619) 338-2315 (FAX)
WEB SITE: www.co.san-diego.ca.us/deh/lwq/sam



Check #22460
FOR OFFICE USE:
Date Received 2-26-07
Submittal Fee Paid \$230.00
Establishment # H39704-001

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH

VOLUNTARY ASSISTANCE PROGRAM
APPLICATION FOR ASSISTANCE

(PLEASE READ BOTH PAGES OF THIS APPLICATION PRIOR TO COMPLETION)

w/2 RPTS (4 copies each)
LD 2-26
MB 3-16

on 2-26

A. Site Name Undeveloped Property Assessors Parcel Number 224-260-23
Site Address 2401 North Nutmeg Street Escondido CA 92026
Street City State Zip Code

B. Property Owner Mr. Arie de Jong, ADJ Holdings, LLC
Mailing Address C/O: Hilltop Group, Inc., 807 E. Mission Rd, Escondido, CA 92069
Street City State Zip Code
Contact Person Mr. Mark Lemire / Arie de Jong Telephone (760) 744-9040

C. Application Submitted By:
Contact Person Mr. Mark Lemire Telephone (760) 744-9040
Company Name Hilltop Group, Inc.
Mailing Address 807 E. Mission Rd, San Marcos, CA 92069
Street City State Zip Code
Note: Applicant is responsible for payment to the County. Invoices will be sent to the applicant at this address unless other arrangements are made.

D. Brief Project Description Fill of unknown origin was placed on the property. Laboratory testing of two samples collected for geotechnical purposes indicated the presence of petroleum hydrocarbon compounds at low concentrations and Arsenic at concentrations above preliminary remediation goals. Attached transmittal provides background, including maps, photographic mosaic, analytical results, and reports.
Type of Assistance Requested Review and input toward site assessment and characterization, corrective action plan, and regulatory case closure.

I accept the application requirements and project review conditions listed on Page 2 of 2 and I agree to pay all costs associated with DEH staff time and services within 30 days of receiving an invoice.

Arie de Jong
Original Signature of Applicant

Arie de Jong
Printed Name

2-19-07
Date

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH

VOLUNTARY ASSISTANCE PROGRAM

The Voluntary Assistance Program is designed to provide the applicant with staff consultation, project review, and public health assessment pertaining to properties suspected or known to be contaminated with hazardous substances. California Health and Safety Code Sections 101480-101490 authorize the County Department of Environmental Health (DEH) to enter into voluntary agreements for the oversight of remedial action at sites contaminated by wastes.

The DEH staff will review and manage all projects in accordance with applicable regulatory requirements, industry practices, and the current version of the DEH Site Assessment and Mitigation Manual. Our goal throughout project review is the protection of human health, water resources and the environment. Upon completion of a project, DEH will issue a letter addressing the applicant's specific project goals. Open lines of communication between DEH and the applicant provide the best opportunities for expedient review and successful project resolution.

Application Requirements

- Sections A, B, C, and D must be completed on the "Application for Assistance" form (Page 1 of 2), along with the applicant's original signature.
- Fully describe your project and your specific request(s) for DEH review and written response (Section D). As necessary, include a cover letter to clarify your project needs.
- Submit all relevant documentation/reports with the application. All documents containing geologic and/or contaminant migration interpretations must be signed by an experienced professional with the appropriate California registration or certification.
- An initial fee of \$230, payable to the County of San Diego, is required at the time of application submittal. This fee covers two (2) hours of staff review time. Staff time in excess of two hours will be invoiced to applicant and must be paid within 30 days of receipt of the invoice. The staff billing rate is currently \$115/hour. Staff assistance will not be provided on delinquent accounts.

Project Review Conditions

- Within five (5) workdays of DEH receipt of your complete application, the project is identified by a DEH Case No. and assigned to a DEH project manager.
- The DEH will notify the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) that the project has been submitted for DEH review.
- A copy of all written DEH correspondence will be sent to the applicant and forwarded to the legal property owner. Project files will be available for public review.
- DEH has the option of referring the project to the DTSC or RWQCB at any time during the project review process. If the applicant ceases work, or requests DEH to cease work, on a project prior to resolving site contamination issues, then DEH would refer the project to the appropriate agency and/or identify the project as unresolved in the DEH database.



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION

JACK MILLER
ASSISTANT DIRECTOR

P.O. BOX 129261, SAN DIEGO, CA 92112-9261
619-338-2222/FAX 619-338-2315/1-800-253-9933

www.sdcounty.ca.gov/deh/lwq

September 4, 2007

Mr. Mark Lemire
Mr. Arie De Jong
ADJ Holdings, LLC
c/o Hilltop Group, Inc.
807 E. Mission Road
Escondido, CA 92069

Dear Mr. Lemire and Mr. De Jong:

VOLUNTARY ASSISTANCE PROGRAM, FILEH39704-001
UNDEVELOPED PROPERTY
2401 NUTMEG STREET, ESCONDIDO, CA 92026

The Department of Environmental Health (DEH), Site Assessment and Mitigation Program (SAM), reviewed the environmental investigation report related to the above-referenced property, prepared by Construction Testing & Engineering, Inc., dated June 5, 2007. The report summarizes the soil characterization activities performed at the above-referenced location. Provided that the information presented to DEH/SAM was complete, accurate, and representative of existing site conditions, **this agency concurs that the investigation goals established for the subject site have been met.**

Please be advised that this letter does not relieve the responsible party of any liability under the California Health and Safety Code or the Porter Cologne Water Quality Control Act. If previously unidentified contamination is discovered which may affect public health, safety and/or water quality, additional site assessment and cleanup may be necessary.

Changes in the *proposed residential* use of the above site may require reevaluation to determine if the change will pose a risk to public health.

Thank you for selecting the Department of Environmental Health as your lead agency to assist you with the progress of your environmental project. Please contact Danny Martinez of the Site Assessment and Mitigation Program, at (619) 338-2456, if you require additional assistance.

Sincerely,

GEORGE McCANDLESS, Program Manager
Supervising Environmental Health Specialist
Site Assessment and Mitigation Program

GM:DM:kd

Enclosure

cc: John Anderson, Regional Water Quality Control Board

WP/H39704-001-807VAPCLO

Case Closure Summary

Non-LOP or Voluntary Assistance Program

I. AGENCY INFORMATION

DATE: SEPTEMBER 4, 2007

Agency Name: County of San Diego, Environmental Health, SAM	Address: P.O. Box 129261
City/State/ZIP: San Diego, CA 92112-9261	Phone: (619) 338-2222 FAX: (619) 338-2377
DEH Staff Person: DANNY MARTINEZ	Title: ENVIRONMENTAL HEALTH SPECIALIST

II. CASE INFORMATION

Case No. H39704-001	RWQCB Case No.	
Site Name: UNDEVELOPED PROPERTY	Site Address: 2401 NUTMEG STREET, ESCONDIDO, CA 92026	
Property Owner: ARIE De JONG ADJ HOLDINGS, LLC C/O HILLTOP GROUP, LLC 807 E MISSION RD. ESCONDIDO, CA 92069		
Responsible/Requesting Parties	Address	Phone Number
MARK LEMIRE HILLTOP GROUP, LLC	807 E MISSION RD. ESCONDIDO, CA 92069	760-744-9040
Type of Case: NON-TANK CASE		
Agency notification of DEH Oversight: DTSC: 2/27/2007		RWQCB: 2/27/2007

III. SITE CHARACTERIZATION AND/OR INFORMATION

Purpose of Investigation: TO DETERMINE IF UNDOCUMENTED FILL WILL POSE A RISK TO HUMANS OR THE ENVIRONMENT IF LEFT ONSITE.	Substances Investigated: PETROLEUM HYDROCARBONS HEAVY METALS		
Site Characterization complete? YES			
Monitoring Wells Installed? NO	Total Number: 0	Proper Screened Interval? NA	Number of decommissioned wells: 0
Range of groundwater levels on the site? 6 - 16.5 (ESTIMATED)		Groundwater Flow Direction: WEST (ESTIMATED)	
Most Sensitive Current Use: Existing Beneficial Groundwater Use: MUN, AGR, IND Existing Beneficial Surface Water Use: MUN, AGR, REC1, REC2 and Potential: IND			
Are Drinking Water Wells Affected? NO		RWQCB Basin Number: 904.62-Escondido Hydrologic Sub Area	
Is Surface Water Affected? NO		Nearest Surface Water name: ADJACENT TO VISTA CANAL	
Off-Site Beneficial Use Impacts (addresses/locations): NO			
TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal)	Date
NO			

Non-LOP - Underground Storage Tank Oversight handled outside the LOP
 Non-Tank - Voluntary Assistance Program

Case Closure Summary Non-LOP or Voluntary Assistance Program

III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued)

H39704-001

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS	MAXIMUM	REMAINING
SOIL		
Gasoline	< 5 mg/kg	< 5 mg/kg
Diesel	= 11.3 mg/kg	= 11.3 mg/kg
TPH Extended	= 114.9 mg/kg	= 114.9 mg/kg
Benzene	= 0.12 mg/kg	= 0.12 mg/kg
Acetone	= 0.001 mg/kg	= 0.001 mg/kg
Antimony	= 0.76 mg/kg	= 0.76 mg/kg
Arsenic	= 9.73 mg/kg	= 9.73 mg/kg
Barium	= 185 mg/kg	= 185 mg/kg
Beryllium	= 0.55 mg/kg	= 0.55 mg/kg
Cadmium	< 0.5 mg/kg	< 0.5 mg/kg
Chromium	= 40.6 mg/kg	= 40.6 mg/kg
Copper	= 22.4 mg/kg	= 22.4 mg/kg
Lead	= 7.14 mg/kg	= 7.14 mg/kg
Mercury	< 0.08 mg/kg	< 0.08 mg/kg
Nickel	= 20.2 mg/kg	= 20.2 mg/kg
Selenium	< 0.75 mg/kg	< 0.75 mg/kg
Silver	= 0.55 mg/kg	= 0.55 mg/kg
Thallium	< 0.75 mg/kg	< 0.75 mg/kg
Zinc	= 53.7 mg/kg	= 53.7 mg/kg

Comments:

This case was entered into the Voluntary Assistance Program by the developer so that the County of San Diego, Department of Environmental Health (DEH) could provide regulatory oversight for the characterization of undocumented fill dumped on this property allegedly without the property owner's consent. The purpose of this oversight was to determine if the undocumented fill may remain on site when property is developed without posing additional risk to human health or the environment. The Regional Water Quality Control Board has been notified of the situation, and has no objections with case closure.

During a geotechnical investigation, conducted on this site as part of the redevelopment of this property for residential use, the consultant discovered an estimated 8500 cubic yards of fill from an undocumented source. Selected geotechnical soil samples were collected from various areas on the property. Laboratory analysis of the samples showed low concentrations of metals and petroleum hydrocarbon contamination and the consultant recommended additional sampling of the fill. To adequately characterize the undocumented fill, soil samples were collected using computer generated random coordinate pattern and analyzed for petroleum hydrocarbons and California heavy metals. The lab analysis results indicate all contaminant concentrations are below the EPA Region 9 Preliminary Remediation Goals throughout the property. A health risk assessment was performed using CalTOX Multimedia Exposure Model. The results of the risk assessment indicate no additional health risks from exposure to the soil.

From the data collected during the soil characterization, the consultant states that the undocumented fill will not pose a threat to humans or the environment and may remain in place if the land is developed for residential use. DEH concurs with the consultant conclusions.

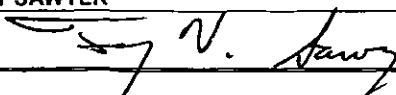
IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? YES
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? YES
Does corrective action protect public health for current land use? YES Case review based on current/proposed use as: -EMPTY LOT /PROPOSED RESIDENTIAL
Are there other issues DEH needs to follow up on: NO
Site Management Requirements: Any contaminated soil excavated as part of subsurface construction work must be managed in accordance with the legal requirements at that time.
Should corrective action be reviewed if land use changes? YES
List Enforcement Actions Taken: NONE
List Enforcement Actions Rescinded: NONE

Case Closure Summary
Non-LOP or Voluntary Assistance Program

V. LOCAL AGENCY REPRESENTATIVE DATA

H39704-001

Name: TONY SAWYER	Title: HYDROGEOLOGIST
Signature: 	Date: 9-4-07

VI. RWQCB NOTIFICATION

Date Submitted to RWQCB:	RWQCB Response: NA - VAP	
RWQCB Staff Name: NA	Title:	Date:

VII. ADDITIONAL COMMENTS, DATA, ETC.

--

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.

Martinez, Danny

From: Bob Morris [BMorris@waterboards.ca.gov]
Sent: Wednesday, August 29, 2007 3:06 PM
To: Martinez, Danny
Subject: FW: Nutmeg Street, Escondido Site, RE: 2401 Nutmeg VAP#H39704-001 RWQCB soil reuse permit waiver

Danny

We have no objections to the County issuing a no further action letter without qualification. Our issue was a formality in that the property owner or hauler did not do the proper paperwork to get our authorization for the transfer of the soil. We defer to the County on the site assessment.

I hope this helps resolve the issue and appreciate being notified of the situation.

Bob Morris
858-467-2962
bmorris@waterboards.ca.gov

>>> "Martinez, Danny" <Danny.Martinez@sdcounty.ca.gov> 8/29/2007 1:31 PM >>>
Mr. Morris:

The County of San Diego, Site Assessment and Mitigation Program has been overseeing case H39704-001 under the Voluntary Assistance Program. We are ready to issue a no further action letter for this case, because the levels of contamination are low and pose no threat to human health or the environment.

Sometime in July, we requested that CTE, the consultant for this case, contact your staff to inquire about a soil reuse waiver. We were informed by the consultant that they contacted you.

Below I have enclosed your email dated July 23, 2007. In this email, you state that there is an open violation recorded on this property. I am contacting you to inquire if the Regional Water Quality Control Board has any objections with SAM issuing a no further action letter without a qualification referencing the violation mentioned in your email.

Please respond to this email at your earliest convenience so we may issue the no further action letter as soon as possible.

Thank you for your assistance,

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

-----Original Message-----

From: Bob Morris [mailto:bmorris@waterboards.ca.gov]
Sent: Monday, July 23, 2007 8:36 AM
To: greg@cte-inc.net; Beatrice Griffey
Subject: RE: Nutmeg Street, Escondido Site

Bea and Greg

The disposal/reuse of contaminated soil at the site is a violation of California Water Code Section 13260, because it was done without waste

discharge requirements. We will be recording it as such. We do not issue after-the-fact WDRs for illicit discharges. Current and future property owners face the possibility of future enforcement action if the site becomes a priority for us. My advice is to continue under the County's program and cleanup the soils to the levels prescribe in the WDRs.

Bob Morris
Senior WRCE
Land Disposal Program

Bob Morris
858-467-2962
bmorris@waterboards.ca.gov
>>> Beatrice Griffey 07/23/07 6:51 AM >>>

Greg,
The RWQCB 9 Soil Reuse General WDR (Order No. R9-2002-0342) contains a discharge prohibition for waste oil that based on the SA Report is present in the soil at the Site. Hence, the Site can not be enrolled under the General WDR. Thanks,

Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100
San Diego, California 92123
email: BGriffey@waterboards.ca.gov,
Phone: (858) 467-2728
Fax: (858) 571-6972

>>> "Greg Rzonca" <greg@cte-inc.net> 7/20/2007 4:49 PM >>>
Beatrice,

Thank you for your prompt response.

As I understand your email message a soil reuse waiver is not required by the RWQCB for this site.

Regards,

Greg

-----Original Message-----

From: Beatrice Griffey [mailto:BGriffey@waterboards.ca.gov]
Sent: Friday, July 20, 2007 3:33 PM
To: greg@cte-inc.net
Cc: Bob Morris
Subject: Nutmeg Street, Escondido Site

Greg: I have discussed with my supervisor the Site (located at 2401 Nutmeg Street, Escondido) involving the discharge of petroleum contaminated soil during mid year 2006. In an email from you dated June 29, 2007 you pose the following question, "Is an on site soil reuse waiver required by the RWQCB for this site?" I have preliminary reviewed the Site Assessment Report for the Site (dated June 5, 2007, SA Report) that indicates the soil disposed of at the Site is in part contaminated with waste oil, refer to SA Report Table 6.3.1. RWQCB Order R9-2002-0342 (General WDR for the Disposal and/or Reuse of Petroleum Fuel Contaminated Soil (FCS) in the San Diego Region) contains a waste oil discharge prohibition, refer to Order Item B 3. Hence, the RWQCB Order is not applicable to the Site.

Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100

Martinez, Danny

From: Greg Rzonca [greg@cte-inc.net]
Sent: Thursday, July 26, 2007 3:44 PM
To: Martinez, Danny
Cc: 'Mark Lemire'
Subject: RE: Nutmeg Street, Escondido Site, RE: 2401 Nutmeg VAP #H39704-001 RWQCB soil reuse permit waiver

Hi Danny,

Please hang on (do not issue the NFA) until this is discussed with the owners representatives.

Thanks,

Greg

-----Original Message-----

From: Martinez, Danny [mailto:Danny.Martinez@sdcounty.ca.gov]
Sent: Thursday, July 26, 2007 10:59 AM
To: Greg Rzonca; Dr. Mark L. Lemire
Subject: RE: Nutmeg Street, Escondido Site, RE: 2401 Nutmeg VAP #H39704-001 RWQCB soil reuse permit waiver
Importance: High

Greg/Mark:

Thanks for getting back to me regarding SAM's concerns about a soil reuse waiver. After reviewing the communication trail below, SAM advises you of the following:

SAM can provide you a no further action letter and closure summary because there is no risk associated with the fill. However, because the RWQCB has officially stated that you are in violation of the CA Water Code, there will be a clause stating something like "the water board has unresolved issues with the "illicit discharge" of the undocumented fill on this property and they should be contacted regarding this issue".

If this is not acceptable, please contact the water board to see how you could rectify this violation.

Please discuss this issue, and let me know how you wish to proceed.

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

-----Original Message-----

From: Greg Rzonca [mailto:greg@cte-inc.net]
Sent: Monday, July 23, 2007 9:17 AM
To: Martinez, Danny
Cc: dan@cte-inc.net; 'Dr. Mark L. Lemire'; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tlovato@hilltopgroupinc.com; 'Keith Carlson'; 'Bob Morris'; 'Beatrice Griffey'
Subject: FW: Nutmeg Street, Escondido Site, RE: 2401 Nutmeg VAP #H39704-001 RWQCB soil reuse permit waiver

Hi Danny,

It appears the RWQCB does not require soil reuse permit waiver for the Nutmeg VAP #H39704-001 site. Please read the email string from the RWQCB below as background for issue of a closure letter for VAP #H39704.

Please let us know of your intent and date for issue of the closure letter.

Regards,

Greg

-----Original Message-----

From: Bob Morris [mailto:bmorris@waterboards.ca.gov]
Sent: Monday, July 23, 2007 8:36 AM
To: greg@cte-inc.net; Beatrice Griffey
Subject: RE: Nutmeg Street, Escondido Site

Bea and Greg

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Bob Morris
Senior WRCE
Land Disposal Program

Bob Morris
858-467-2962
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>>> Beatrice Griffey 07/23/07 6:51 AM >>>

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Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100
San Diego, California 92123
email: BGriffey@waterboards.ca.gov,
Phone: (858) 467-2728
Fax: (858) 571-6972

>>> "Greg Rzonca" <greg@cte-inc.net> 7/20/2007 4:49 PM >>>
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Regards,

Greg

-----Original Message-----

From: Beatrice Griffey [mailto:BGriffey@waterboards.ca.gov]
Sent: Friday, July 20, 2007 3:33 PM
To: greg@cte-inc.net
Cc: Bob Morris
Subject: Nutmeg Street, Escondido Site

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Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100
San Diego, California 92123
email: BGriffey@waterboards.ca.gov,
Phone: (858) 467-2728
Fax: (858) 571-6972

Martinez, Danny

From: Beatrice Griffey [BGriffey@waterboards.ca.gov]
Sent: Monday, July 09, 2007 10:57 AM
To: greg@cte-inc.net
Cc: kipcarl@cox.net; Shibley1@cox.net; dan@cte-inc.net; mlemire@hilltopgroupinc.com; rgittings@hilltopgroupinc.com; Tiovato@hilltopgroupinc.com; Martinez, Danny; Bob Morris
Subject: RE: On site soil reuse waiver

Greg,

At your earliest convenience, please submit to me via email an electronic version of the SA Report. Assuming the SA Report contains all the necessary information, I should be able to get back to you regarding this matter by early next week. I hope that meets your needs.

Sincerely,

>>> "Greg Rzonca" <greg@cte-inc.net> 7/9/2007 8:31 AM >>>

Beatrice,

Probably best to submit the Site Assessment Report (SAR) which provides pertinent information including analytical data, maps etc., and is the latest document developed.

Questions.

Would the SAR be submitted to you? If not, who would be the recipient?

Would an electronic (PDF) submittal of the SAR via email be sufficient?
Would save time and conserve paper.

What would the time frame be for the RWQCB determination be?

Greg

-----Original Message-----

From: Beatrice Griffey [mailto:BGriffey@waterboards.ca.gov]
Sent: Friday, July 06, 2007 3:55 PM
To: greg@cte-inc.net
Cc: Bob Morris
Subject: Re: On site soil reuse waiver

Greg:

To enable the RWQCB to answer the questions posed in your June 29, 2007 email, we need for you to submit to us all the available information regarding the nature and extent of the waste, and the characteristics of the site. If you have any questions, please feel free to contact me. Sincerely,

Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100
San Diego, California 92123
email: BGriffey@waterboards.ca.gov,
Phone: (858) 467-2728
Fax: (858) 571-6972

Beatrice Griffey, M.Sc., PG
Engineering Geologist
San Diego Regional Water Quality Control Board
Land Discharge Unit
9174 Sky Park Court, Suite 100
San Diego, California 92123
email: BGriffey@waterboards.ca.gov,

Phone: (858) 467-2728
Fax: (858) 571-6972

>>> "Greg Rzonca" <greg@cte-inc.net> 6/29/2007 9:21 AM >>>

Robert Morris

This email follows my voice mail message to you.

Construction Testing & Engineering, Inc. (CTE) has an environmental project on Nutmeg Street in north Escondido where approximately 8,500 cubic yards were placed from an unknown offsite source in mid Year 2006.

CTE understands the City of Escondido, RWQCB (for surface water run off), and fish and game agencies became interested/involved in the site.

Subsequently, the site entered the DEH VAP program to address potential subsurface environmental impacts. Soil sampling and site characterization including a risk assessment have been performed under the auspices of the VAP.

Understand from verbal and electronic communication with the DEH that they are sufficiently satisfied with the environmental characterization as to issue a no further action letter.

However, they will not issue the NFA until they receive notification from the RWQCB that an on site soil reuse letter is not required for this site.

Questions to you are:

- * Is an on site soil reuse waiver required by the RWQCB for this site? (given the information above)
- * Is further clarification required by the RWQCB? Is so what would it be?

I can be contacted via email response or cell phone number below (better than office phone).

Regards,

Greg Rzonca

Greg Rzonca

Construction Testing & Engineering, Inc.
Phone: 760.746.4955
Cellular: 760-481-5168
Facsimile: 760.746.9806

Martinez, Danny

From: Martinez, Danny
Sent: Friday, June 29, 2007 9:40 AM
To: 'Greg Rzonca'; BMorris@waterboards.ca.gov
Cc: 'Dr. Mark L. Lemire'; dan@cte-inc.net; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tlovato@hilltopgroupinc.com; 'Keith Carlson'
Subject: RE: On site soil reuse waiver

Rosena Chery
760 8394536

Greg:

Thank you for cc'ing me in the email to the RWQCB.

As soon as Mr. Morris responds to your email, the DEH will issue a concurrence/ closure summary. If you have any questions or concerns, please do not hesitate to contact me at the number below.

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

NOTE:

This email will be incorporated into the case file and become part of the public record.

From: Greg Rzonca [mailto:greg@cte-inc.net]
Sent: Friday, June 29, 2007 9:21 AM
To: BMorris@waterboards.ca.gov
Cc: 'Dr. Mark L. Lemire'; dan@cte-inc.net; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tlovato@hilltopgroupinc.com; 'Keith Carlson'; Martinez, Danny
Subject: On site soil reuse waiver

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However, they will not issue the NFA until they receive notification from the RWQCB that an on site soil reuse letter is not required for this site.

Questions to you are:

6/29/2007

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- Is further clarification required by the RWQCB? Is so what would it be?

I can be contacted via email response or cell phone number below (better than office phone).

Regards,

Greg Rzonca



Greg Rzonca

Construction Testing & Engineering, Inc.
Phone: 760.746.4955
Cellular: 760-481-5168
Facsimile: 760.746.9806

Martinez, Danny

From: Greg Rzonca [greg@cte-inc.net]
Sent: Friday, June 29, 2007 9:21 AM
To: BMorris@waterboards.ca.gov
Cc: 'Dr. Mark L. Lemire'; dan@cte-inc.net; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tlovato@hilltopgroupinc.com; 'Keith Carlson'; Martinez, Danny
Subject: On site soil reuse waiver

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Regards,

Greg Rzonca



Greg Rzonca

Construction Testing & Engineering, Inc.
Phone: 760.746.4955
Cellular: 760-481-5168
Facsimile: 760.746.9806

6/29/2007

Martinez, Danny

From: Martinez, Danny
Sent: Wednesday, June 27, 2007 11:15 AM
To: 'Greg Rzonca'
Subject: RE: 2401 Nutmeg VAP #H39704-001

In response to your email, I would like to make one clarification.

DEH does not approve the reuse of import soil as we do not have the authority to do so. We concur with your report that the soil is sufficiently clean to use onsite.

As you correctly stated, you are required to contact the RWQCB to inquire if an onsite soil reuse waiver from them is required.

We will release the closure/NFA document after you submit verification to DEH, that a waiver or permit will not be required by the RWQCB.

Thanks

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

From: Greg Rzonca [mailto:greg@cte-inc.net]
Sent: Wednesday, June 27, 2007 11:05 AM
To: Martinez, Danny
Cc: 'Dr. Mark L. Lemire'; dan@cte-inc.net; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tiovato@hilltopgroupinc.com; 'Keith Carlson'
Subject: 2401 Nutmeg VAP #H39704-001

Hi Danny,

This follows our telephone conversation this AM and is intended to confirm my understanding of case status based upon our conversation.

Understand that the DEH has approved use of the import soil material at the site contingent upon notification and/or concurrence with the Regional Water Quality Control Board (RWQCB) that an on site soil waste reuse waiver is not required (by the RWQCB).

The DEH will not release a no further action letter until they receive notice of the project status with the RWQCB with respect to the on site soil waste reuse waiver.

Understand that the DEH requirement of notification to the RWQCB is due to the unknown source for the import fill soil.

The contact person with the RWQCB for this issue is John Odermatt until this coming Friday after which Robert Morris (858.467.2962) will be the lead. I will contact Robert Morris and discuss the site with him. The discussion will likely be followed by a certified letter to the RWQCB outlining our scope of work, results and findings. The letter would indicate that should the RWQCB not respond in 30 days the matter will assumed to be closed with them, and we will request the DEH to issue the no further action letter.

Please provide any comments you may have regarding my understanding of the project status.

Regards,

6/27/2007

Greg



Greg Rzonca

Construction Testing & Engineering, Inc.
Phone: 760.746.4955
Cellular: 760-481-5168
Facsimile: 760.746.9806

Martinez, Danny

From: Greg Rzonca [greg@cte-inc.net]
Sent: Wednesday, June 27, 2007 11:05 AM
To: Martinez, Danny
Cc: 'Dr. Mark L. Lemire'; dan@cte-inc.net; 'David R. Shibley'; rgittings@hilltopgroupinc.com; Tlovato@hilltopgroupinc.com; 'Keith Carlson'
Subject: 2401 Nutmeg VAP #H39704-001

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Understand that the DEH has approved use of the import soil material at the site contingent upon notification and/or concurrence with the Regional Water Quality Control Board (RWQCB) that an on site soil waste reuse waiver is not required (by the RWQCB).

The DEH will not release a no further action letter until they receive notice of the project status with the RWQCB with respect to the on site soil waste reuse waiver.

Understand that the DEH requirement of notification to the RWQCB is due to the unknown source for the import fill soil.

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Please provide any comments you may have regarding my understanding of the project status.

Regards,

Greg



Greg Rzonca

Construction Testing & Engineering, Inc.
Phone: 760.746.4955
Cellular: 760-481-5168
Facsimile: 760.746.9806

Martinez, Danny

From: Dr. Mark L. Lemire [mlemire@hilltopgroupinc.com]
Sent: Friday, June 22, 2007 11:42 AM
To: Martinez, Danny
Cc: 'David R. Shibley'; 'Greg Rzonca'; Tlovato@hilltopgroupinc.com; rgittings@hilltopgroupinc.com
Subject: RE: Soil testing, 2401 Nutmeg

Danny,

Thank-you for your preliminary comments and overview of the Nutmeg site. I understand that there are outstanding invoices to be paid. I am unaware of any unpaid bills from your department as I am not the one paying the bills. If you could give me itemization of those charges/fees, then I will make sure they get paid as soon as possible so a clearance document can be issued.

Thanks again for your help in this matter.

Mark L. Lemire
Engineering Consultant
760-468-2734

-----Original Message-----

From: Martinez, Danny [mailto:Danny.Martinez@sdcounty.ca.gov]
Sent: Friday, June 22, 2007 10:35 AM
To: Shannon Werneke; shibley1@cox.net; mlemire@hilltopgroupinc.com
Subject: Soil testing, 2401 Nutmeg

To all concerned:

I have received the report for the soil testing at the above site. I reviewed it today and will discuss it with my hydrogeologist next week. Looks good so far, and remediation will most likely not be required. I cannot make that statement official until I review with HYDRO. If he concurs, I will begin closure procedures and within 30 days will be issuing a closure document and no further action letter.

Mr. Lemire: Be advised that our policy does not allow us to release the final closure document and letter until all outstanding invoices are paid in full. Your quickest option will be to come in personally and pay for the final invoice. Otherwise, it could take an additional 30-60 days to finalize your account and release the closure..

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

Martinez, Danny

From: Martinez, Danny
Sent: Friday, June 22, 2007 10:53 AM
To: 'Shannon Werneke'
Cc: Barbara Redlitz; Jonathan Brindle; Rozanne Cherry; Steve Nelson
Subject: RE: Soil testing, 2401 Nutmeg

Shannon:

You are welcome, I cannot promise that the case will be finalized by July 11, 2007 (that is just a little over two weeks away). Closure documents take several hours (over a couple days) to prepare. Then they must be reviewed by three other people, each of whom make comments and proposed changes, then I make the changes and prepared the final documents. The problem is that vacations are coming up in the summer, so delays are inevitable. If it helps I can send you an email saying that although the final document may take a while, there will be no need for remediation. Of course, I would have to have this approved by my supervisor. Just let me know how you wish me to proceed.

Have a great weekend...

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456

-----Original Message-----

From: Shannon Werneke [mailto:Swerneke@ci.escondido.ca.us]
Sent: Friday, June 22, 2007 10:40 AM
To: Martinez, Danny
Cc: Barbara Redlitz; Jonathan Brindle; Rozanne Cherry; Steve Nelson
Subject: Re: Soil testing, 2401 Nutmeg

Danny-

Thank you very much for your expedited review of the site assessment report for 2401 Nutmeg. This will be helpful information for the upcoming City Council hearing on 7/11/07.

Shannon Werneke
Assistant Planner II, City of Escondido
201 N. Broadway
Escondido, CA 92025
Ph: (760) 839-4548/ Fax: (760) 839-4313
swerneke@escondido.org

>>> "Martinez, Danny" <Danny.Martinez@sdcounty.ca.gov> 6/22/2007 10:34 AM >>>

To all concerned:

I have received the report for the soil testing at the above site. I reviewed it today and will discuss it with my hydrogeologist next week. Looks good so far, and remediation will most likely not be required. I cannot make that statement official until I review with HYDRO. If he concurs, I will begin closure procedures and within 30 days will be issuing a closure document and no further action letter.

Mr. Lemire: Be advised that our policy does not allow us to release the final closure document and letter until all outstanding invoices are paid in full. Your quickest option will be to come in personally and pay for the final invoice. Otherwise, it could take an additional 30-60 days to finalize your account and release the closure..

Danny Martinez, Environmental Health Specialist
COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
SITE ASSESSMENT AND MITIGATION PROGRAM
(619) 338-2456



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION

P.O. BOX 128281, SAN DIEGO, CA 92112-9261
619-338-2222/FAX 619-338-2315/1-800-253-9933

www.sdcounty.ca.gov/deh/lwq

JACK MILLER
ASSISTANT DIRECTOR

May 2, 2007

Mr. Mark Lemire
Hilltop Group, Inc.
807 E. Mission Rd.
San Marcos, CA 92069

Dear Mr. Lemire:

VOLUNTARY ASSISTANCE PROGRAM CASE H39704-001
UNDEVELOPED PROPERTY
2401 NORTH NUTMEG STREET, ESCONDIDO, CA 92026
WORKPLAN CONCURRENCE

Staff of the County of San Diego, Site Assessment and Mitigation Program (SAM), reviewed the *WORKPLAN*, prepared by Construction Testing and Engineering, Inc. (CTE), and dated April 16, 2007.

CTE proposes to characterize 8,500 cubic yards of "undocumented fill" that is suspected of being contaminated, as determined by previously analyzed soil samples. Using computer generated random coordinates, six sample locations were selected from within the footprint of the fill material. The samples collected will be analyzed for arsenic and evaluated using the Toxicity Characteristic Leaching Procedure (TCLP).

SAM concurs with the number of samples and sample locations. However, SAM **does not** concur with the proposed analyses for the following reasons:

- TCLP is a United States Environmental Protection Agency (EPA) procedure used to characterize hazardous waste for out-of-state disposal. TCLP is not an acceptable methodology to characterize soil for leaching potential in California. As discussed in the SAM Manual, the accepted procedures for characterizing soils with metal contents are the Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) methods.
- The fill is from an unknown source. Your consultant has stated that the samples analyzed in 2006 **are not** representative of the fill material. Data shows that metals and petroleum hydrocarbons are present in the fill material. As a result, you must investigate what concentrations of all metals are present in the fill to determine the next course of action.

Consequently, SAM requests the following:

- Run TTLC on all samples for all Title 22 metals,
- Run STLC on all samples, where the TTLC value is greater than 10 % of the STLC lower limit,
- Analyze all samples for TPH using EPA Method 8015,
- Analyze the two samples with the highest TPH concentrations for VOCs using EPA method 8260B,
- Submit a site assessment report that includes all the items in the SAM Manual Site Assessment Checklist.

After SAM reviews the report; you will be advised if additional assessment or remediation is necessary. If the fill is found to be contaminated, and left onsite, you will be required to notify the Regional Water Quality Control Board to seek guidance or obtain a soil reuse waiver.

If you have any questions regarding this letter or the case in general, please call me at (619) 338-2456.

Sincerely,



DANNY MARTINEZ, Environmental Health Specialist
Site Assessment and Mitigation Program

DM:kd

cc: Gregory F Rzonca, CET

Martinez, Danny

From: Martinez, Danny
Sent: Thursday, April 26, 2007 10:31 AM
To: 'Shannon Werneke'
Subject: RE: 2401 Nutmeg, CASE H39704-001

Actually looking at it today. I have pushed ahead of other projects, since its an issue with you guys.

I will respond in writing by either:

- 1) concurring with their recommendation
- 2) concurring with their recommendation with changes or conditions
- 3) not concurring with their recommendations

As far as remediation... This issue will not be addressed until after we determine if there is a problem. First we assess to find the problem, then we determine what to do. Be advised that even if the soil is contaminated, if there is no threat to human health or the environment, there will be no need to remediate.

After my letter is finalized I will email you the unsigned copy.

Danny Martinez, Environmental Health Specialist
Land and Water Quality
(619) 338-2456

-----Original Message-----

From: Shannon Werneke [mailto:Swerneke@ci.escondido.ca.us]
Sent: Thursday, April 26, 2007 10:11 AM
To: Martinez, Danny
Subject: 2401 Nutmeg, CASE H39704-001

Danny-

I received a copy of the Work Plan for 2401 Nutmeg this week. Can you please confirm for me that the owner submitted the Work Plan to DEH for your review?

Also, I have not read through the report but I wanted to let you know that our recommendation to City Council is that the fill be removed. If the fill is contaminated and needs remediation, at some point, we'd like to get recommendations as to what sort of remediation would be needed to remove the fill from the site. The owner wants to retain the fill so their focus will be on what needs to be done to keep it there (whether it be to cap it, treat it onsite, etc). Would VAP offer the applicant options as to how to treat the soil (if it stays or is removed)? Basically, I just wanted to give you the heads-up that the we (City staff) will ultimately need to know what needs to be done to remove the fill from the site (assuming it's contaminated and needs remediation). I don't know if that's something that needs to be addressed in the work plan or not but it needs to be a consideration since City Council may require that the fill be removed.

I understand that you will now review the Work Plan and then offer comments (if any) correct? And if you have no comments, they can begin the testing? What is your timing for review of the Work Plan?

Thanks for your assistance.

Shannon Werneke
Assistant Planner II, City of Escondido
201 N. Broadway
Escondido, CA 92025
Ph: (760) 839-4548/ Fax: (760) 839-4313



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION

JACK MILLER
ASSISTANT DIRECTOR

P.O. BOX 129261, SAN DIEGO, CA 92112-9261
619-338-2222/FAX 619-338-2315/1-800-253-9933

www.sdcounty.ca.gov/deh/lwq

March 15, 2007

Mr. Mark Lemire
Hilltop Group, Inc.
807 E. Mission Rd.
San Marcos, CA 92069

Dear Mr. Lemire:

VOLUNTARY ASSISTANCE PROGRAM CASE H39704-001
UNDEVELOPED PROPERTY
2401 NORTH NUTMEG STREET, ESCONDIDO, CA 92026

Staff of the County of San Diego, Site Assessment and Mitigation Program (SAM), reviewed the *Letter of Transmittal*, and accompanying *Limited Geotechnical Investigation*, prepared by Construction Testing and Engineering, Inc. (CTE), on February 14, 2007.

In late 2006, CTE was contracted to conduct geotechnical work on the property listed above, in preparation for redevelopment. During the investigation, approximately 8,500 cubic yards of "undocumented fill" was found on the parcel. The report states that the property owner is not aware of where this soil came from. Upon conducting laboratory analysis of soil samples collected from this fill, detectable concentration of petroleum hydrocarbon and metals were found in the soil. CTE recommends that a site assessment be conducted to determine the extent of the contamination in the fill, and if the soil can be used on site or if it must be disposed of offsite.

SAM concurs with your consultant's recommendation. Please submit a workplan that describes the work to be conducted. A sufficient number of samples must be collected to determine the lateral and vertical extent of the fill, and adequately characterize the contamination.

Please be advised, that if the fill is found to be contaminated and left onsite, you will be required to notify the Regional Water Quality Control Board to seek guidance or obtain a soil reuse waiver. Additionally, if certain CA metals are detected, you may be required to dispose of the soil offsite even if it is within background concentrations.

If you have any questions regarding this letter or the case in general, please call me at (619)338-2456.

Sincerely,



DANNY MARTINEZ, Environmental Health Specialist
Site Assessment and Mitigation Program

DM:kd

cc: Gregory F Rzonca, CET Environmental Services

WP/H39704-001-307VAP



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 122261, SAN DIEGO, CA 92112-0261
(619) 338-2222 FAX (619) 338-2377
1-800-253-8933

*Danny:
For your VAP File
H39704-001
[Signature]*

SB 1248 NOTIFICATION

February 27, 2007

NUMBER OF PAGES: 2

FAX TO:

✓ John Anderson Senior Engineering Geologist Fax 858-571-6972
San Diego RWQCB Tel 858-467-2975

Greg Holmes Unit Chief, Cleanup Operations Fax 714-484-5438
Southern California DTSC, Cypress Office Tel 714-484-5461

FROM:

Nasser Sionit VAP Coordinator Fax 619-338-2377
Dept. Environmental Health Tel 619-338-2239

The County of San Diego, Department of Environmental Health (DEH) proposes to enter into a Remedial Action Agreement with the Responsible Parties/Applicants on sites listed below. Pursuant to the Health and Safety Code 101480-101490, the following information is provided as notification to your agency. A copy of the following application(s) is attached.

<u>DEH File No:</u>	<u>Site Name & Address</u>	<u>Any Known Regulatory Involvement at Site?</u>
H39704-001	Undeveloped property, 2401 N. Nutmeg St., Escondido	

[Signature] _____ RWQCB/DTSC _____ 3/2/07
Signature (Circle one) Date

**Please sign to acknowledge receipt and fax to Nasser Sionit at (619) 338-2377.
Thank you.**



County of San Diego

GARY W. ERBECK
DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
LAND AND WATER QUALITY DIVISION
P.O. BOX 128261, SAN DIEGO, CA 92112-8261
(619) 338-2222 FAX (619) 338-2377
1-800-263-9033

SB 1248 NOTIFICATION

February 27, 2007

NUMBER OF PAGES: 2

FAX TO:

John Anderson	Senior Engineering Geologist San Diego RWQCB	Fax 858-571-6972 Tel 858-467-2975
✓ Greg Holmes	Unit Chief, Cleanup Operations Southern California DTSC, Cypress Office	Fax 714-484-5438 Tel 714-484-5461

FROM:

Nasser Sionit	VAP Coordinator Dept. Environmental Health	Fax 619-338-2377 Tel 619-338-2239
---------------	---	--------------------------------------

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H39704-001	Undeveloped property, 2401 N. Nutmeg St., Escondido	

Greg Holmes RWQCB/DTSC 3/1/07
 Signature (Circle one) Date

Please sign to acknowledge receipt and fax to Nasser Sionit at (619) 338-2377. Thank you.

Signature only indicates receipt of notification

RECORD OF MEETING/TELEPHONE CONVERSATION

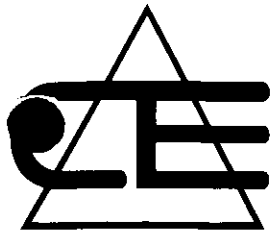
H# 39709 001

DATE _____ TIME _____

PHONE NO. (760) 839 4548

PERSON CALLING/CALLED Sharon Werneke from City of Escondido. Discussed the VAP Request of SAM procedures w/ tonight. Sent her a copy of the letter & links to SAM web. I explained all questions at great length ~ 25 minutes

SIGNED _____



CONSTRUCTION TESTING & ENGINEERING, INC.

SAN DIEGO, CA
1441 Montiel Road
Suite 115
Escondido, CA 92026
(760) 746-4955
(760) 746-9806 FAX

RIVERSIDE, CA
12155 Magnolia Ave.
Suite 6C
Riverside, CA 92503
(951) 352-6701
(951) 352-6705 FAX

VENTURA, CA
1645 Pacific Ave.
Suite 107
Oxnard, CA 93033
(805) 486-6475
(805) 486-9016 FAX

TRACY, CA
242 W. Larch
Suite F
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SITE ASSESSMENT REPORT

VACANT LAND
2401 NUTMEG STREET
(APN 224-260-23)
ESCONDIDO, CALIFORNIA
DEH VAP CASE H39704-001

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1.0 INTRODUCTION

In accordance with authorization of our proposal dated May 5, 2007 (CTE Number E-0275), Construction Testing & Engineering, Inc. (CTE) has prepared this Site Assessment Report for the subject site. The Site Assessment Report is prepared after submittal of the CTE document entitled "Workplan" dated April 16, 2007 and corresponding issue of the County of San Diego, Department of Environmental Health (DEH) letter (in part) entitled "Workplan Concurrence" dated April 27, 2007. The DEH Workplan Concurrence provided several comments regarding the content and extent of this Site Assessment Report.

2.0 NARRATIVE DISCUSSION

2.1 Purpose

The purpose of the Site Assessment Report is to evaluate the existence and extent (if present) of constituents potentially impacting human health and the environment. The intent of this Site Assessment Report is to present field work and laboratory analyses performed subsequent to the issue of the April 27, 2007 DEH concurrence letter, and provide analyses and conclusions based upon that information.

2.2 Illustrations and Attachments

Illustrations and Attachments included with this report include the following:

- Figures
 - Figure 1, Site Index Map
 - Figure 2, Interpolated Post-Grading Contours and Sampling Locations
 - Figure 3, Geologic Map
 - Figure 4, Cross Section A-A'

- Attachments
 - Relevant site and contact information as Appendix A
 - Laboratory Analytical Results (excerpt from CTE, November 27, 2006) and for May 15, 2007 sampling as Appendix B.
 - Exploration Logs (excerpt from CTE, November 13, 2006) and for May 15, 2007 sampling as Appendix C.
 - CalTOX spreadsheets are in Appendix D.
 - Chromatographs are in Appendix E

2.3 Site Description and Location

The project is located at the southwest corner of the intersection of North Nutmeg Street and North Centre City Parkway in Escondido, California. Interstate Highway I-15 bounds the west margin of the site. Land in the vicinity of the site is undeveloped or scattered low density (rural) residential. The site is vacant and, at the time of our May 15, 2007 soil sampling activities, covered with plastic sheeting. Vegetation outside the plastic covered area included grass, low brush, and oak trees. The site slopes at a relatively low gradient (less than estimated 10 percent) to the southwest where a catch basin is located. Site elevation is approximately 865 to 890 feet above mean sea level (msl). Reference to City of Escondido 2006 topographic maps indicates that Undocumented Fill was placed in a shallow swale that drained to the southwest toward the catch basin, which collects and conveys surface water off site.

2.4 Background and Future Use

We understand fill soil was imported to the site in the middle of Year 2006. The source of the fill is unknown to CTE. Additionally, permits from pertinent regulatory agencies were not secured for placement of the fill soil. CTE performed a geotechnical investigation (CTE report dated November 13, 2006) of the site, which included the excavation of 13 test pits to a maximum depth of 17 feet. Locations of the test pits are shown on Figure 3, and the test pit logs are attached as Exploration

Logs with this report in Appendix C. A limited Phase II environmental site assessment (CTE report dated November 27, 2006) was prepared to present the results of laboratory tests performed on selected samples originally obtained for geotechnical purposes. Laboratory test results detected the presence of petroleum fuel hydrocarbon constituents and Title 22 metals. The analyzed samples were collected for geotechnical purposes, which did not utilize accepted environmental sampling techniques. Consequently, the laboratory tests may have included artifacts associated with the geotechnical sampling. The site was accepted into the County of San Diego Voluntary Assessment Program (VAP), who concurred (with comments) with the CTE Workplan, dated April 27, 2007.

The site is currently undeveloped. We understand the project site is zoned as Residential Estate (R.E.) according to the City of Escondido Planning Department.

2.5 Project Organization

The property owner is ADJ Holdings, LLC and is represented by Mr. Mark Lemire of the Hilltop Group, Inc. who has retained CTE to perform environmental evaluations of the Undocumented Fill. The CTE Principal in Charge of the project is Mr. Dan Math, R.C.E., and the CTE Project Manager is Mr. Gregory Rzonca, C.E.G.

2.6 Regulatory Environmental Involvement

Following is a description of regulatory involvement of the site from an environmental perspective as understood by CTE. The City of Escondido has requested the property owner to arrange for environmental characterization and disposition of the Undocumented Fill. We understand the City of Escondido has contacted the Regional Water Quality Control Board regarding surface water run off from the site. Additionally, the State of California Department(s) of Fish and Game and

Department of Fish and Wildlife have provided comments about impacts to native habitat due to placement of the Undocumented Fill. The property owner requested entry of the site into the County of San Diego Department of Environmental Health (DEH) Voluntary Assistance Program (VAP) to gain environmental regulatory review and closure. Entry of the site into the VAP was granted by the DEH letter dated March 15, 2007 (VAP Case H39704-001). The City of Escondido has directed the Undocumented Fill be covered by plastic sheeting. The purpose of the plastic sheeting is to minimize the potential for leaching of contaminants (should they be present) into underlying soil and groundwater, and as protection from off site soil conveyance by surface water run off.

3.0 GEOLOGY

3.1 General Physiographic Setting

The site lies in the northeastern inland area of San Diego County. This area is generally recognized as comprising foothills of the Peninsular Ranges. Terrain locally consists of alluvial valleys situated between northwest trending bedrock peaks and ridges. The geologic basement throughout much of this area is generally described as "granitic" rock of the southern California Batholith.

3.2 Site Geologic Conditions

Based on mapping compiled by Kennedy (1999), near surface geologic units consist of the Cretaceous Merriam Mountain Monzogranite that is covered by near surface soil deposits. Our subsurface explorations to prepare the document entitled "Limited Geotechnical Investigation" dated November 13, 2006 indicates the Merriam Mountain Monzogranite at the site is overlain in turn by Quaternary Older Alluvium, Colluvium, and Undocumented Fill. The Geologic Map, Figure 3 shows the location and distribution of our mapped surface geology and field explorations, and Cross

Section A-A' is provided as Figure 4 to depict subsurface conditions. Following is a brief description of site geologic materials.

3.2.1 Quaternary Undocumented Fill

Undocumented Fill was encountered in all subsurface geotechnical explorations and extended to a maximum depth of at least six feet below the ground surface (fbg). These materials were observed to consist dominantly of loose, dry, light brown, silty fine to coarse grained sand with some clay, gravels and cobbles. The Undocumented Fill commonly contained construction debris such as geogrid fabric, twine, plastic, screws, pipes, asphalt fragments, etc. A layer near the bottom of the Undocumented Fill was up to approximately 12 inches thick and contained numerous vegetation fragments including stems, branches, leaves and roots. It did not appear native soil underlying the fill was processed by scarification or moisture conditioning prior to fill placement.

3.2.2 Quaternary Colluvium

Geotechnical Test Pits TP-2, TP-3 and TP-4 excavated within the south and central portions of the site encountered materials assigned as Quaternary Colluvium. The Colluvium was up to approximately two feet thick, and is described as loose to dense, dry, light to dark brown, silty, fine to coarse-grained sand with roots and a trace of clay.

3.2.3 Quaternary Older Alluvium

Quaternary Older Alluvium materials were found in all geotechnical test pits except TP-1 and TP-12. Maximum depth of the Older Alluvium encountered by geotechnical Test Pit

TP-2 was 16 feet. The Older Alluvium generally consisted of loose to medium dense, red to orange-brown silty fine to coarse grained sand with trace a clay.

3.2.4 Cretaceous Merriam Mountain Monzogranite

Crystalline bedrock was encountered in geotechnical Test Pits TP-2, TP-4, TP-5 and TP-6. The encountered bedrock depths ranged from approximately 3.75 feet to 16 feet in geotechnical Test Pits TP-5 and TP-2, respectively. The Merriam Mountain Monzogranite encountered was dense to very dense, dry to moist, off white mottled orange to olive, clayey to silty sand.

3.3 Groundwater

The site is located in the Escondido hydrologic subarea of the Carlsbad Hydrologic Unit of the Regional Water Quality Control Board, San Diego Region 9 according to the Regional Water Quality Control Board, Water Quality Control Plan for the San Diego Basin (September 8, 1994). Beneficial uses for the Escondido hydrologic subarea include municipal, agricultural and industrial purposes. Reference to Wolfenden (1989) indicates the site is underlain by non-water bearing crystalline rocks.

Groundwater was encountered in geotechnical Test Pits TP-2, TP-9 and TP-12 at depths of 16, 5 and 6 feet below the ground surface, respectively. Groundwater was observed to occur proximal to the upper portion of the granitic bedrock. Review of available historic topographic maps indicates the water occurred below ground at a natural southwest flowing drainage that was covered by the Undocumented Fill. Repairs to apparent water leaks associated with the Vista Canal water siphon on the north margin of the site were observed by CTE. The site is located in an area of non water

bearing crystalline bedrock; consequently, it is believed the siphon is leaking and developing the observed groundwater.

4.0 FIELD EXPLORATION

4.1 Soil Sampling Methodology

Six soil samples for environmental purposes were collected at the approximate locations recommended by the CTE Workplan dated April 16, 2007. The sample locations were located by reference to Figure 2 of the Workplan entitled "Interpolated Post-Grading Contours" in combination with hand compass and tape measurements from the property margins. The sample locations are shown on Figures 2 and 3 of this Site Assessment Report. Depths of the soil samples collected for this Site Assessment Report are depicted on Figure 3.

4.2 Soil Sampling Technique

The existing plastic sheeting was cut to expose the underlying soil surface, and a hand auger was used to drill to the approximate sampling depth shown on Table 3.4.2 of the Workplan dated April 16, 2007. A split spoon sampler was driven by slide hammer to the approximate sampling depth shown on Table 3.4.2, and the split spoon sample was extracted from the drill hole. The borings were backfilled with bentonite chips to the ground surface and the plastic sheeting was patched to cover the (previously) exposed soil. The excavated soils were placed in a 55 gallon drum seated on a wood pallet and covered with plastic sheeting. The drum was labeled as containing non hazardous waste and remains on site for disposition with the fill mass.

Following procedures were used for collecting soil samples with a split spoon sampler:

- A new unused stainless steel sample tube was placed in sample barrel after the sample tube and sample barrel were washed and double rinsed.
- The sampler was assembled by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top of the sampler.
- The sampler was placed in a perpendicular position on the sample material.
- A slide hammer was used to drive the sample tube to near the bottom of the head piece.
- The sampler was withdrawn from the sample hole and opened by unscrewing the bit and head and splitting the barrel.
- An Encore sampling device was utilized to extract samples from the sample tube. The samples were to be analyzed to detect the presence of total recoverable petroleum hydrocarbons and volatile organic compounds. The sample tube ends were then sealed with Teflon caps. Each sample set on a per boring basis were individually placed in appropriately labeled Ziplock sample bags.
- The samples were placed in a protective container (ice chest).
- Chain of Custody documentation was prepared prior to transport to the CTE Escondido office for subsequent pick up by the laboratory for analyses.

4.3 Decontamination Procedures

The sampler and sample tube were decontaminated prior to sampling. Decontamination procedures included a single wash with non phosphate soap followed by a rinse in potable water that was in turn rinsed with distilled water. All equipment placed in contact with potentially contaminated soil or water was decontaminated. Disposable equipment intended for one-time use was not decontaminated, but was packaged for disposal. Decontamination occurred prior to and after each use of a piece of equipment. All sampling devices used, including trowels and augers, were washed and rinsed.

Equipment was decontaminated in a designated area on plastic sheeting, and bulky equipment was stored on plastic sheeting in uncontaminated areas. Cleaned small equipment was stored in plastic bags. Materials to be stored more than a few hours were covered.

4.4 Sample Containers, Preservation and Storage

Encore samples were taken from the ends of sample tubes. Both ends of the sample tube were then sealed by Teflon caps. The samples designated for analyses by EPA Method 8015B and EPA Method 8260B were placed in a Ziplock bag and the sample remaining in the capped stainless steel sample tube was also placed in a (separate) Ziplock at each boring location. The samples were placed on ice in a cooler for transport to CTE's Escondido office for pick up by the laboratory.

4.5 Disposal of Residual Materials

In the process of collecting environmental samples at the Nutmeg site during the site investigation, the sampling team generated different types of investigation derived waste (IDW) that include the following:

- Soil cuttings from soil borings
- Contaminated personal protective equipment (PPE)
- Decontamination fluids

The IDW was handled as described in the follows:

- Used PPE and disposable equipment were double bagged and placed in a municipal refuse dumpster. These wastes were not considered hazardous and can be sent to a municipal landfill. Any PPE and disposable equipment that was disposed of which could still be reused was rendered inoperable before disposal in the refuse dumpster.
- Decontamination fluids generated in the sampling event consisted of deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid was sufficiently low to allow disposal at the site or sampling area. The water (and water with detergent) were poured onto the ground.
- Soil cuttings generated during the subsurface sampling were disposed of as described in Section 4.2.

4.6 Sample Documentation and Shipment

4.6.1 Field Logbooks

The following information was recorded during the collection of each sample:

- Sample location and description
- Site or sampling area sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (soil)
- Type of sampling equipment used
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Name(s) of recipient laboratory

4.6.2 Labeling

All samples collected were labeled in a clear and precise way for identification in the field and tracking in the laboratory. The sample labels contained the following information:

- Location
- Date of collection
- Analytical parameter
- Samples were assigned a unique sample number.

4.6.3 Chain-Of-Custody Form

Chain-of-custody record/traffic report forms were used to document sample collection and shipment to laboratories for analysis. All sample shipments for analyses were accompanied by a Chain-of-Custody record. The Chain-of-Custody form identified the contents of each shipment and maintained the custodial integrity of the samples. The sampling team leader or designee signed the Chain-of-Custody form in the "relinquished by" box and noted the date and time.

4.6.4 Packaging and Shipment

All sample containers were placed in a strong-outside shipping container (cooler) with empty space in the cooler filled with bubble wrap, styrofoam peanuts or other packing materials to prevent movement and breakage during shipment.

4.7 Quality Control

4.7.1 Field Quality Control Samples

Due to the small number of samples collected for this investigation and variability possibly caused by the heterogeneity of the matrix, duplicate samples for quality control (QC) purposes were not considered meaningful; therefore, no field QC samples were collected. Likewise, blanks were not collected.

4.7.2 Background Samples

A risk assessment for the site is prepared with this assessment to consider engineering controls to protect human health and the environment. Consequently, collection of (offsite) background samples was not performed for this site characterization report.

4.7.3 Laboratory Quality Control Samples

The typical collected soil sample did not contain sufficient volume for sample analysis and additional laboratory QC analyses. Therefore, separate soil samples for laboratory QC purposes were not collected.

5.0 SITE SAFETY

5.1 General Site Safety

Site safety activities were maintained through the field work. Prior to our subsurface work Underground Service Alert (USA) was notified to check for subsurface utilities on site. Environmental and physical hazards as presented below were assessed and mitigation measures as described in Section 5.4 below were implemented. Adverse health and safety issues did not develop during field work conducted for this Site Assessment Report.

5.2 Environmental Hazards

Elevated concentrations of Arsenic were considered as possibly present in soil. Also, it was anticipated that there were possibly low levels of total petroleum hydrocarbons, volatile organic compounds, and toxic metals (Title 22 Metals) additional to Arsenic. If present, the contaminants may have posed a health hazard to site personnel via ingestion or inhalation. Accidental ingestion of contaminants could also occur as a result of breathing airborne dust disturbed during sampling and/or dirt handling activities, or from contamination of hands and hand-to-mouth contact, and through contamination of food, chewing gum or liquids brought on site. Inhalation of contaminated dust could occur during drilling, and dirt handling activities.

5.3 Physical Hazards

Potential physical hazards included slips/trips/falls, material-handling (back) injuries (heavy lifting), heat and cold stress (hypothermia), poor illumination, vehicle traffic, snakes, insects, and spiders, flammable hazards, poisonous plants, and *Hantavirus*-associated diseases.

5.4 Protection Level

Due to recognized environmental and physical hazards, modified Level D personal protection equipment (PPE) were utilized in the sampling activities. The utilized PPE included the following:

- Safety glasses/goggles
- Safety shoes/boots
- Cotton work clothes
- Nitrile gloves
- Sunscreen
- Photoionization detector (PID)
- Site access control
- Equipment decontamination between sampling locations

6.0 LABORATORY ANALYTICAL RESULTS

6.1 Project Task

The purpose of this environmental sampling and analyses is to evaluate the Undocumented Fill soils to ascertain if they pose an environmental risk that would make the site unsuitable for residential or industrial/commercial land use. To achieve this objective the laboratory data are compared to risk-based screening levels (RBSLs) as described in this Section 6.

6.2 Laboratory Analytical Suite

Soil samples collected at this site were submitted to CalScience Environmental Laboratories, Inc. a State of California certified analytical laboratory. All soil samples were initially analyzed to detect

the presence of total recoverable petroleum hydrocarbons by methods EPA 3550B (preparation) and EPA 8015B, and California Title 22 metals by methods EPA 3050B/EPA 7471A (preparation) and EPA 6010B/EPA 7471A. Subsequent to receipt of preliminary analytical results, CTE directed the laboratory to perform soluble threshold leaching concentration (STLC) for Arsenic in all collected samples. Additionally, the laboratory was instructed to perform analyses to detect the presence of volatile organic compounds (VOCs) by EPA method 8260B in soil samples collected from Borings SB-2 and SB-4 which yielded the highest concentration of total recoverable petroleum hydrocarbons (C-7 to C-44 total) by method EPA 8015B.

6.3 Laboratory Analytical Results

Laboratory analytical results are attached in Appendix B of this report. Following is a summary presentation of the laboratory analytical results.

6.3.1 Total Recoverable Petroleum Hydrocarbon Results

All collected samples were quantitated for total recoverable petroleum hydrocarbons. Table 6.3.1 below presents summary results for the analyzed samples.

TABLE 6.3.1
QUANTITATED TOTAL PETROLEUM HYDROCARBONS
BY EPA METHOD 8015B (mod) FOR ALL SAMPLES
((units in milligrams per kilogram (mg/kg))

PARAMETER	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6
C7	ND	ND	ND	ND	ND	ND
C8	ND	ND	ND	ND	ND	ND
C9-C10	ND	ND	ND	ND	ND	ND
C11-12	ND	ND	ND	ND	ND	ND
C13-C14	ND	ND	ND	ND	ND	ND
C15-16	ND	ND	ND	ND	ND	ND
C17-C18	ND	0.26	0.11	0.37	ND	ND
C19-C20	ND	0.54	0.77	0.88	ND	ND
C21-C22	ND	1.1	1.2	1.3	ND	ND
C23-C24	ND	1.5	2.1	2.9	ND	ND
C25-C28	ND	6.9	5.6	10	ND	ND
C29-C32	ND	14	9.6	24	ND	0.19
C33-C36	ND	13	8.1	23	ND	0.41
C37-C40	ND	13	8.9	24	ND	ND
C41-C44	ND	11	6.7	17	ND	ND
C7-C44 Total	ND	62	43	100	ND	ND

6.3.2 Volatile Organic Compounds

The two soil borings with the highest concentration of total recoverable petroleum hydrocarbons (SB-2 and SB-4 at 62 and 100 milligrams/kilogram, respectively) were selected for volatile organic compound analyses by EPA Method 8260B. Only Soil Boring SB-4 yielded detections for volatile organic compounds as summarized Table 6.3.2 below.

Table 6.3.2
DETECTED VOLATILE ORGANIC COMPOUNDS
BY EPA METHOD 8260B SOIL BORING SB-4
((units in micrograms per kilogram (ug/kg))

Analyte	Acetone	Benzene	2-Butanone
Result	120	0.99	27

0.120

0.0099

0.001

6.3.3 Title 22 Metals

All collected samples were quantitated for California Title 22 Metals. Table 6.3.3 below presents summary results for the analyzed samples.

TABLE 6.3.3
CALIFORNIA TITLE 22 METALS
BY EPA METHODS 6010B/EPA 7471
 ((units in milligrams per kilogram (mg/kg))

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Parameter	SB-1	SB-2	SB-3	SB-4	SB-5	SB_6
Antimony	ND	ND	ND	ND	0.763	ND
Arsenic	1.20	9.73	2.00	2.70	8.50	0.971
Barium	37.0	185	61.1	87.2	142	61.0
Beryllium	ND	0.416	ND	ND	0.505	ND
Cadmium	ND	ND	ND	ND	ND	ND
Chromium	8.03	14.7	40.6	11.6	17.1	3.96
Cobalt	3.39	9.79	13.0	8.33	9.65	2.79
Copper	3.55	20.3	20.3	11.0	22.4	3.28
Lead	4.80	6.89	3.06	4.95	7.14	3.06
Mercury	ND	ND	ND	ND	ND	ND
Molybdenum	ND	ND	ND	ND	ND	ND
Nickel	1.97	10.6	20.2	5.0	13.8	1.72
Selenium	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND
Vanadium	16.0	39.6	36.1	40.5	41.2	13.1
Zinc	9.40	50.1	20.8	27.8	53.7	22.3

6.3.4 Soluble Threshold Leaching Concentration

All samples were submitted to the laboratory to analyze for Arsenic content by the Soluble Threshold Leaching Concentration (STLC) test method. All samples were non detect for Arsenic by STLC.

7.0 HEALTH RISK ASSESSMENT

7.1 Purpose and Methodology

The purpose of the risk assessment is to evaluate the multimedia environmental health risk for the Undocumented Fill soils placed on the Nutmeg site. The approach was to calculate the risk from volatile organic compounds (VOC's) and CCR Title 22 toxic metals. The CalTOX version 4.0 spreadsheet model was used to calculate the risk, and is calibrated to use soluble concentration

(STLC) results. CalTOX has been developed under the auspices of the University of California, Lawrence Berkeley National Laboratory (2002) with funding provided by the Department of Toxic Substance Control (DTSC).

7.2 Methodology

Six soil samples were collected and analyzed; of these samples the one with the highest concentration for each metal (as selected from all borings) was used in the risk calculation. This approach is considered the most conservative evaluation of the risk potential. The following Table 7.2 shows the metals and chemicals evaluated, soluble concentration used for the calculations, sample identification number, and resulting CalTOX Risk and CalTOX Hazard Ratio:

TABLE 7.2 Results of Risk Based Calculations					
Chemical	Soluble Concentration Used (mg/kg)	STLC (mg/l)	Sample ID Number	Risk CalTOX™	Hazard Ratio CalTOX™
Title 22 Metals					
Antimony	0.0763 ^a	15	SB-5	5.9 E-7	7.1 E-3
Arsenic	ND ^b	5.0	NA	NA	NA
Barium	14.2 ^a	100	SB-5	0	0.92
Beryllium	0.0505 ^a	0.75	SB-5	1.8 E-11	1.3 E-2
Cadmium	ND	1.0	NA	NA	NA
Chromium	4.06 ^a	5	SB-3	1.1 E-8	0.26
Cobalt	1.3 ^a	80	SB-3	0	2.8 E-4
Copper	2.24 ^a	25	SB-5	0	0.045
Lead	0.714 ^a	5.0	SB-5	9.5 E-9	0.04
Mercury	ND	0.2	NA	NA	NA
Molybdenum	ND	350	NA	NA	NA
Nickel	2.02 ^a	20	SB-3	1.1 E-10	0.40
Selenium	ND	1.0	NA	NA	NA
Silver	ND	5	NA	NA	NA
Thallium	ND	7.0	NA	NA	NA
Vanadium	4.12 ^a	24	SB-5	0	0.94
Zinc	5.37 ^a	250	SB-5	0	6.2 E-2
VOCs					
Acetone	0.120	NA	SB-5	0	6.0 E-10
Benzene	0.00099	NA	SB-5	3.0 E-7	0
Methyl ethyl ketone (2-Butanone)	0.027	NA	SB-5	0	1.6 E-29
Other VOCs	ND	NA	NA	NA	NA

Notes:

- a The Soluble Threshold Limit Concentration (STLC) is conservatively calculated at 10% of the Total Threshold Limit Concentration (TTLC).
- b STLC using the WET Test or Waste Extraction Test.

7.3 Results

All the soluble metal concentrations were below the CCR Title 22 section 66700 STLC regulatory limits. The calculated individual excess CalTOX risks were below the target value of 10⁻⁶ for

residential land use. The hazard ratio for all the tested chemicals (VOCs) was below the target of 1.00 for residential land use. The CalTOX spreadsheets for each chemical and metal are included in Appendix D.

8.0 ANALYSES AND CONCLUSIONS

8.1 General

The laboratory results detected the presence of low concentrations of total recoverable petroleum hydrocarbons, volatile organic compounds and California Title 22 metals. It is the opinion of CTE that the laboratory detected concentrations are sufficiently low so as to allow use of the property for Residential Estate purposes as defined by the City of Escondido. The risk calculations summarized in preceding Section 7.0 and presented in Appendix D support the use of the property as zoned by the City of Escondido for Residential Estates (R.E.). Following is a discussion of target analyte (total recoverable petroleum hydrocarbons, volatile organic compounds and Cal. Title 22 metals) results that support the use of the property as zoned by the City of Escondido for Residential Estate usage.

8.2 Total Recoverable Petroleum Hydrocarbons

Laboratory analytical results attached as Appendix B show that all samples except for SB-4 yielded total recoverable hydrocarbon (carbon chains C7 to C44) concentrations below 100 milligrams per kilogram (mg/kg). Sample SB-4 yielded a concentration of 100 mg/kg for total recoverable petroleum hydrocarbons. However, the classification of fuel contaminated soil (FCS) according to the California Regional Water Quality Control Board, San Diego Region, Order No. R9-2002-0342 for soil is less than or equal to 100 mg/kg in the diesel range (C10-C30) carbon chain or less than or equal to 10 mg/kg in the gasoline range (C6-C12). All analyzed samples were below the Order No.

R9-2002-0342 regulatory threshold concentrations as FCS. Attached in Appendix E are chromatographs depicting typical FCS results and the results for Samples SB-2, SB-3 and SB-4 that detected petroleum recoverable hydrocarbon compounds. The remaining samples did not yield laboratory detectable concentrations of total recoverable petroleum hydrocarbons. Comparison of the chromatographs show the predominance of the detected carbon chain(s) were above FCS carbon chain range (C6-C30) and likely represent asphalt fragments that were observed in test pit exposures. Therefore, the laboratory analytical data indicates that the site soils are not to be considered as fuel contaminated soil and indicate the presence of asphalt in low concentrations. This conclusion indicates the site can be utilized for residential purposes without remedial activities.

8.3 Volatile Organic Compounds

Sample SB-4 detected the presence of the volatile organic compounds (VOCs) acetone, benzene and 2-butanone at concentrations of 120, 0.99 and 27 micrograms per kilogram (ug/kg), respectively. It is believed the detected concentrations are an artifact of residual cleaning compounds remaining from the sample sleeve milling process that remained after cleaning and rinsing of the sleeve on site. Further, the detected benzene concentration (0.99 ug/kg) is below Order No. R9-2002-0342 assignment as FCS of equal to or greater than 1.0 ug/kg. The risk based calculations presented in Section 7 indicate the laboratory detected VOCs do not present a risk to human health and the environment sufficient to preclude use of the property for Residential Estate purposes.

8.4 California Title 22 Metals

Laboratory analyses quantitated California Title 22 Metals for all soil samples collected at the site. All collected samples were submitted to the laboratory to detect the presence of Arsenic under the Soluble Threshold Leaching Concentration (STLC) test. The laboratory did not detect the presence

of Arsenic under the STLC method. The risk based calculations presented in Section 7 indicate the quantitated metals do not present a risk to human health and environment sufficient to preclude use of the property for Residential Estate purposes.

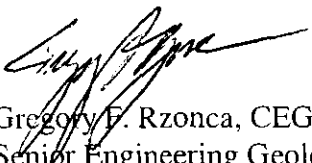
9.0 CLOSING

This Site Assessment Report was prepared in accordance with current practice and the standard of care exercised by reputable consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report.

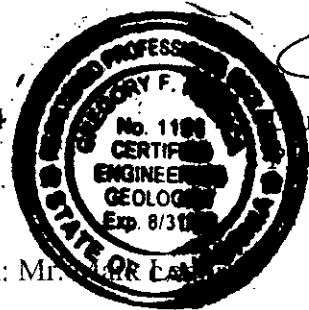
We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.


Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.


Gregory F. Rzonca, CEG# 1191
Senior Engineering Geologist

GFR/DTM/NC:nri
Dist: 6 Hilltop Group, Inc., attn: Mr.




Daniel T. Math, RCE #61013
Principal Engineer



CITED REFERENCES

University of California, Lawrence Berkeley National Laboratory (LNBL) (2002). CalTox™ 4.0 beta: Eight-Compartment Multimedia Exposure Model – Contaminated Soil. (<http://eetd.lbl.gov/ied/ERA/caltox/index.html>)

California Regional Water Quality Control Board, Water Quality Control Plan for the San Diego Basin (9), dated September 8, 1994.

California Regional Water Quality Control Board, Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater, Vol. 1: Summary Tier I Lookup Tables, Interim Final-December 2001.

Construction Testing & Engineering, Inc. Limited Geotechnical Investigation, Nutmeg Project 4.5 Acre Site, 2401 North Nutmeg Street (APN: 224-260-23), Escondido, California, dated November 13, 2006, CTE Project 10-8721G.

Construction Testing & Engineering, Inc. Limited Phase II Environmental Assessment, Nutmeg Project, 4.5 Acre Site, 2401 North Nutmeg Street (APN: 224-260-23), Escondido, California, dated November 27, 2006, CTE Project 10-8721E.

Construction Testing & Engineering, Inc. Letter of Transmittal, Voluntary Assistance Program Application, Undeveloped Property, 2401 Nutmeg Street (APN: 224-260-23), Escondido, California, dated February 14, 2007, CTE Project 10-8721E.

Construction Testing & Engineering, Inc., Workplan, 2401 Nutmeg Street (APN 224-26—23) Escondido, California, DEH VAP Case H39704-001, dated April 16, 2007, CTE Project 10.8721E.

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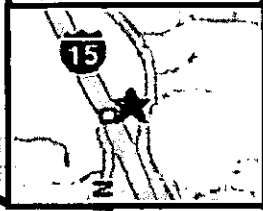
APPROXIMATE
SITE LOCATION

Coyote Hill Gln

1mi

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© 2006 MapQuest, Inc.

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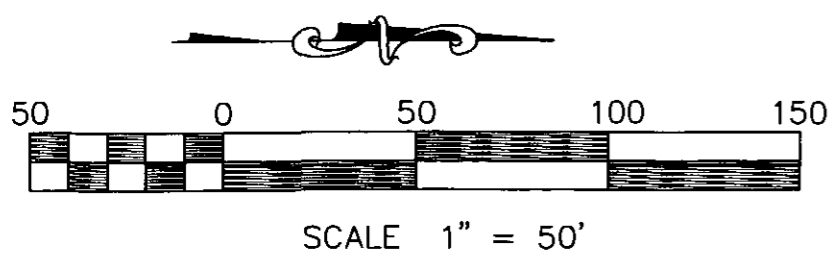
CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL AND CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, STE 115 ESCONDIDO CA. 92026 (760) 746-4955

SITE INDEX MAP
UNDEVELOPED PROPERTY
2401 NUTMEG STREET
ESCONDIDO, CALIFORNIA

CTE JOB NO:
10-8721E
SCALE:
AS SHOWN
DATE: 2/07 FIGURE: 1

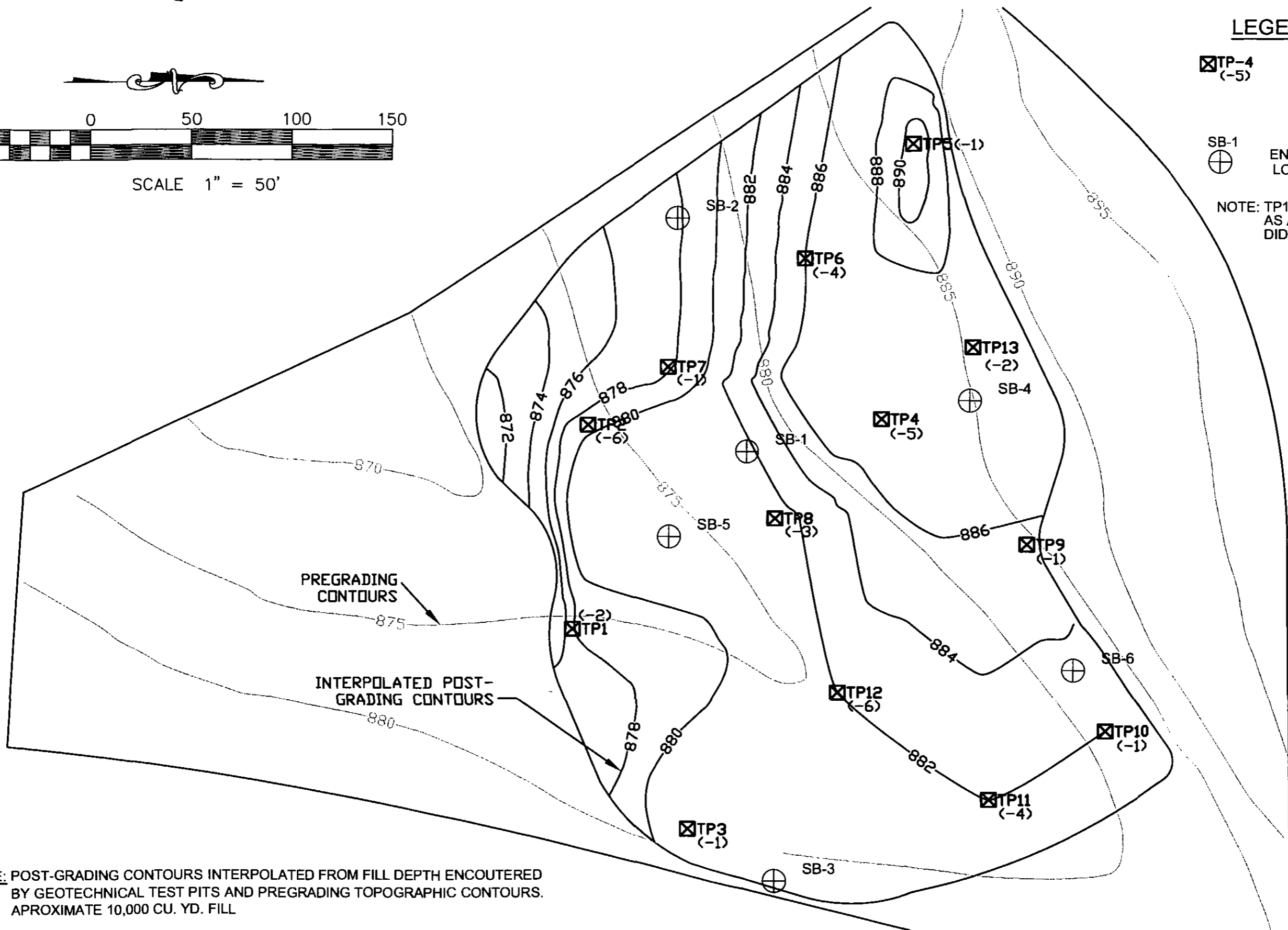
\\Cte_server\projects\10-8001 to 10-9000 Projects\10-8721E\POST GRADING CONTOURS & BORING LOCATIONS.dwg 6/14/2007 9:19:50 AM PDT



LEGEND

- TP-4 (-5)** APPROXIMATE LOCATION OF GEOTECHNICAL TEST PIT WITH FILL DEPTH ENCOUNTERED
- SB-1** ENVIRONMENTAL SOIL BORING LOCATION

NOTE: TP12 FILL DEPTH SHOWN AS 6 FEET AS AN ESTIMATED VALUE, TEST PIT DID NOT EXTEND TO NATIVE SOIL.



NOTE: POST-GRADING CONTOURS INTERPOLATED FROM FILL DEPTH ENCOUNTERED BY GEOTECHNICAL TEST PITS AND PREGRADING TOPOGRAPHIC CONTOURS. APPROXIMATE 10,000 CU. YD. FILL

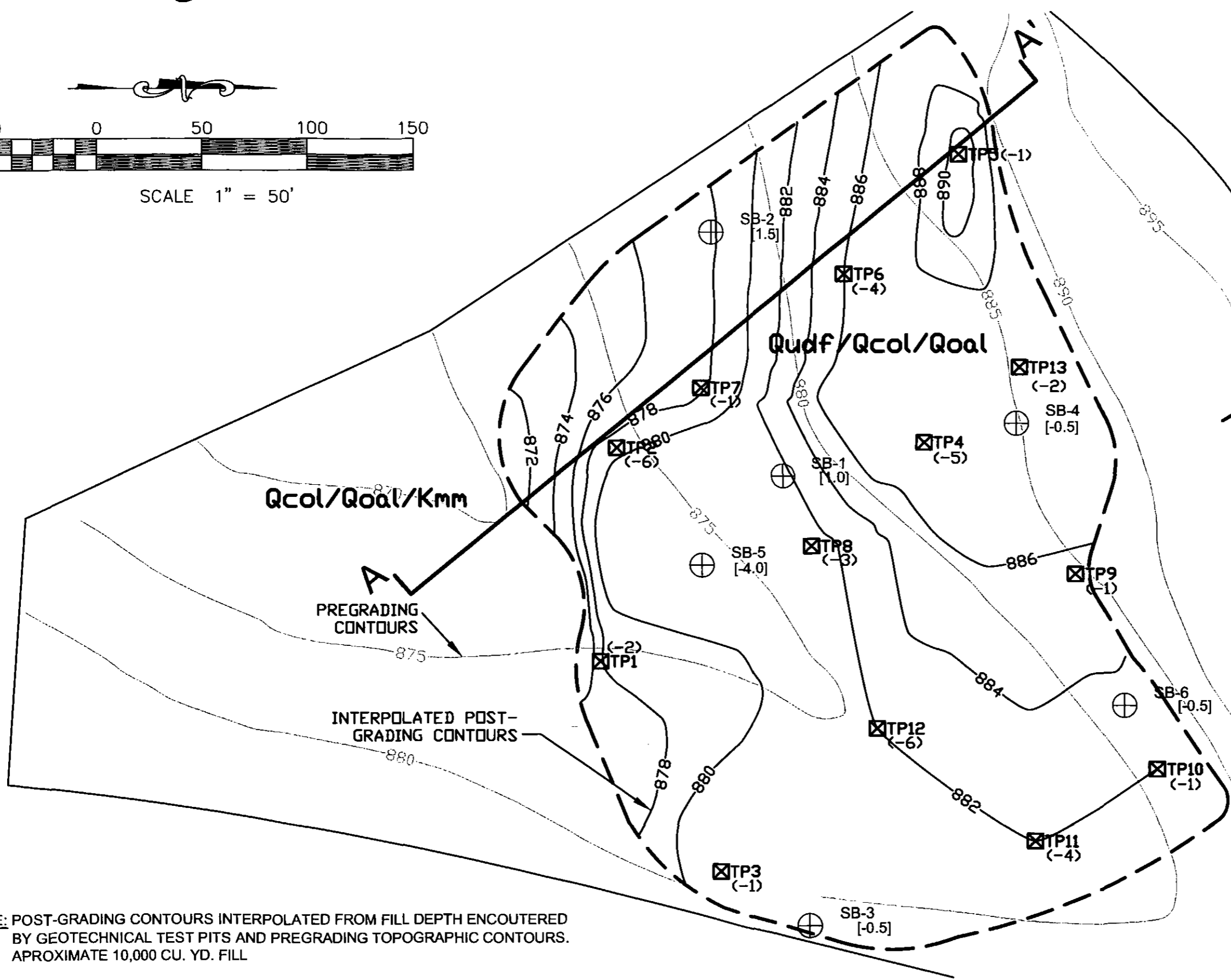
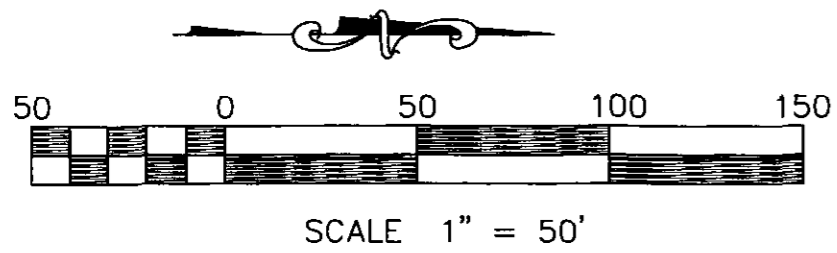


CONSTRUCTION TESTING & ENGINEERING, INC.
 PLANNING - CIVIL ENGINEERING - LAND SURVEYING - GEOTECHNICAL
 1441 MONTIEL ROAD, SUITE 115 ESCONDIDO CA. 92026, PH: (760) 746-4955

INTERPOLATED POST-GRADING CONTOURS AND SAMPLING LOCATIONS
 2401 NORTH NUTMEG STREET
 ESCONDIDO, CALIFORNIA
 APN: 224-260-23-00

CIE JOB NO: 10-8721E	
SCALE: 1" = 50'	
DATE: 6/07	FIGURE: 2

\\Cte_server\projects\10-8001 to 10-9000 Projects\10-8721E\EXPLORATION MAP.dwg 6/19/2007 3:53:16 PM PDT



LEGEND

- TP-4 (-5)**
 APPROXIMATE LOCATION OF GEOTECHNICAL TEST PIT WITH FILL DEPTH ENCOUNTERED
- SB-1**
 ENVIRONMENTAL SOIL BORING LOCATION
- [-0.5]**
 NUMBER IN BRACKETS SHOWS APPROXIMATE ENVIRONMENTAL SAMPLE DEPTH
- NOTE: TP12 FILL DEPTH SHOWN AS 6 FEET AS AN ESTIMATED VALUE, TEST PIT DID NOT EXTEND TO NATIVE SOIL.

--- APPROXIMATE GEOLOGIC CONTACT

QUATERNARY

- Qudf UNDOCUMENTED FILL
- Qcol COLLUVIUM
- Qoal OLDER ALLUVIUM

CRETACEOUS

- Kmm MIRIAM MOUNTAIN MONZOGRANITE

NOTE: POST-GRADING CONTOURS INTERPOLATED FROM FILL DEPTH ENCOUNTERED BY GEOTECHNICAL TEST PITS AND PREGRADING TOPOGRAPHIC CONTOURS. APPROXIMATE 10,000 CU. YD. FILL

CONSTRUCTION TESTING & ENGINEERING, INC.
 PLANNING - CIVIL ENGINEERING - LAND SURVEYING - GEOTECHNICAL
 1441 MONTIEL ROAD, SUITE 115 ESCONDIDO CA. 92026, PH: (760) 746-4955

INTERPOLATED POST-GRADING CONTOURS AND SAMPLING LOCATIONS
 2401 NORTH NUTMEG STREET
 ESCONDIDO, CALIFORNIA
 APN: 224-260-23-00

C/E JOB NO.	10-8721E
SCALE:	1" = 50'
DATE:	6/07
FIGURE:	3

LEGEND

▽ GROUNDWATER (PERCHED ?)

QUATERNARY

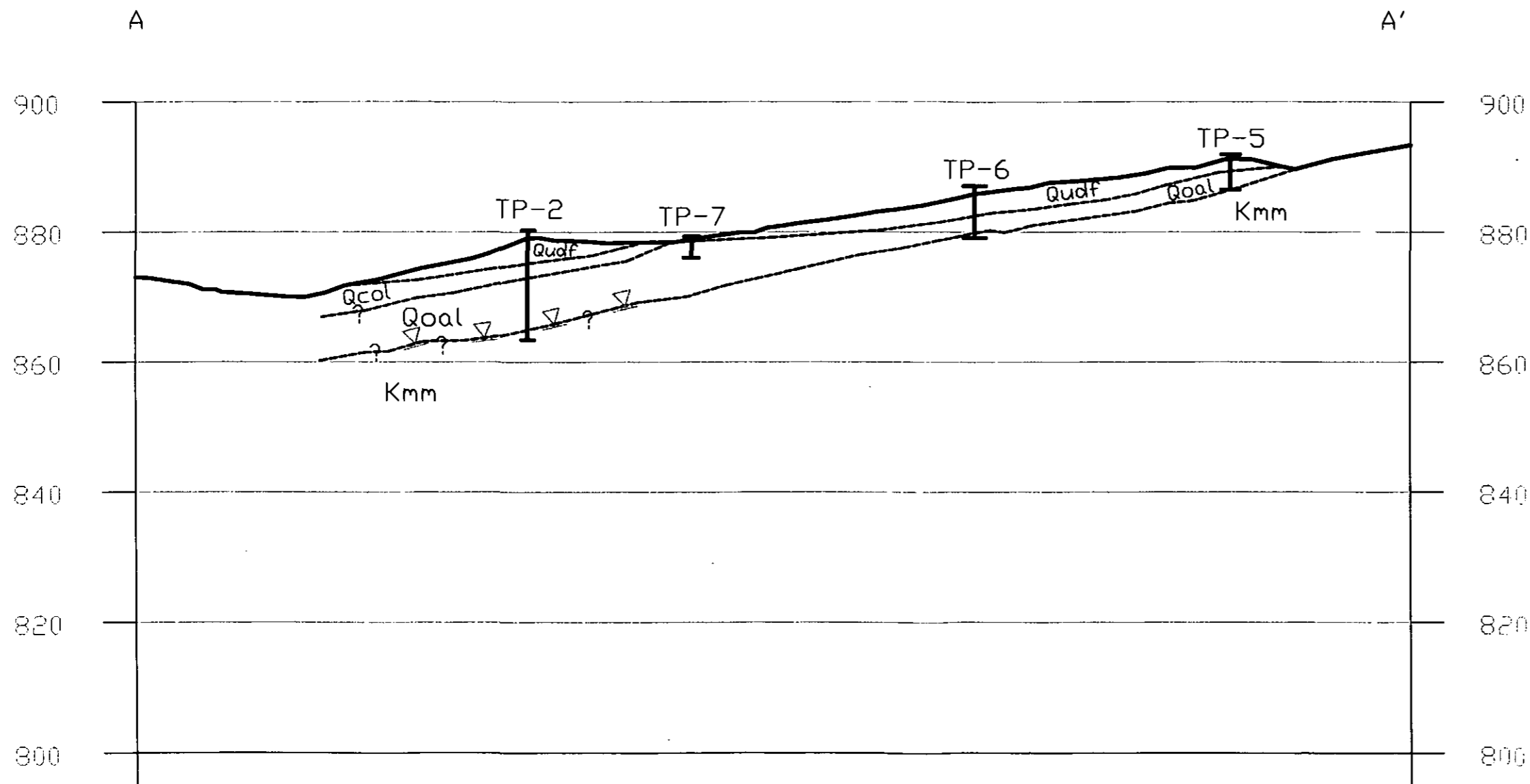
Qudf UNDOCUMENTED FILL

Qcol COLLUVIUM

Qoal OLDER ALLUVIUM

CRETACEOUS

Kmm MIRRIAM MOUNTAIN
MONZOGRANITE



SCALE
VERTICAL: 1"=20'
HORIZONTAL: 1"=40'



CONSTRUCTION TESTING & ENGINEERING, INC.
PLANNING - CIVIL ENGINEERING - LAND SURVEYING - GEOTECHNICAL
1441 MONTIEL ROAD, SUITE 115 ESCONDIDO CA. 92026, PH: (760) 746-4955

CROSS SECTION A-A' (REVISED)
NUTMEG PROJECT 4.5 ACRE SITE
2401 NORTH NUTMEG
ESCONDIDO, CALIFORNIA

C/E JOB NO. 10-8721E	
SCALE: VARIES	
DATE: 06/07	FIGURE: 4

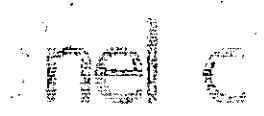
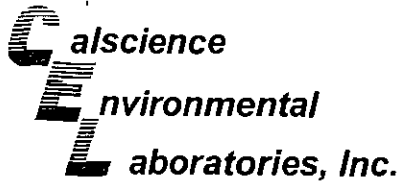
\\cte_server\projects\10-8001 to 10-9000 Projects\10-8721E\CROSS SECTION A-A' (REVISED).dwg 6/14/2007 9:06:25 AM PDT

APPENDIX A
RELEVANT SITE CONTACT INFORMATION

Property Owner: ADJ Holdings, LLC c/o Hilltop Group 807 East Mission Road, San Marcos, California, 92069, telephone 760.744.9040, Attention Mr. Mark Lemire.

Consultant: Construction Testing and Engineering, Inc. 1441 Montiel Road, Suite 115, Escondido, California, 92026, telephone 760.746.4955, Attention Mr. Gregory Rzonca

APPENDIX B
LABORATORY ANALYTICAL RESULTS



June 01, 2007

Greg Rzonca
Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Subject: **Calscience Work Order No.: 07-05-1220**
Client Reference: **Nutmeg Site / 10-8721E**

Dear Client:

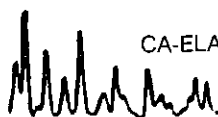
Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/16/2007 and analyzed in accordance with the attached chain-of-custody.

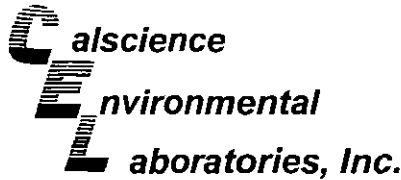
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager





Analytical Report

07-05-1220-1

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: EPA 3050B / EPA 7471A Total
Method: EPA 6010B / EPA 7471A
Units: mg/kg

Project: Nutmeg Site / 10-8721E

Page 1 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-4	07-05-1220-1	05/15/07	Solid	ICP 5300	05/17/07	05/17/07	070517L08

Comment(s): -Mercury was analyzed on 5/17/2007 2:49:14 PM with batch 070517L02A

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.70	0.750	1		Molybdenum	ND	0.250	1	
Barium	87.2	0.500	1		Nickel	5.00	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	11.6	0.250	1		Thallium	ND	0.750	1	
Cobalt	8.33	0.250	1		Vanadium	40.5	0.250	1	
Copper	11.0	0.500	1		Zinc	27.8	1.00	1	
Lead	4.95	0.500	1						

SB-6	07-05-1220-2	05/15/07	Solid	ICP 5300	05/17/07	05/17/07	070517L08
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Comment(s): -Mercury was analyzed on 5/17/2007 2:51:29 PM with batch 070517L02A

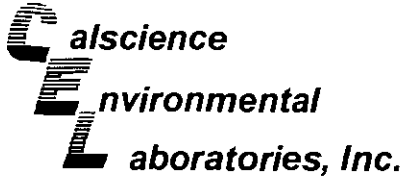
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	0.971	0.750	1		Molybdenum	ND	0.250	1	
Barium	61.0	0.500	1		Nickel	1.72	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	3.96	0.250	1		Thallium	ND	0.750	1	
Cobalt	2.79	0.250	1		Vanadium	13.1	0.250	1	
Copper	3.28	0.500	1		Zinc	22.3	1.00	1	
Lead	3.06	0.500	1						

SB-3	07-05-1220-3	05/15/07	Solid	ICP 5300	05/17/07	05/17/07	070517L08
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Comment(s): -Mercury was analyzed on 5/17/2007 2:58:14 PM with batch 070517L02A

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	2.00	0.750	1		Molybdenum	ND	0.250	1	
Barium	61.1	0.500	1		Nickel	20.2	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	40.6	0.250	1		Thallium	ND	0.750	1	
Cobalt	13.0	0.250	1		Vanadium	36.1	0.250	1	
Copper	20.3	0.500	1		Zinc	20.8	1.00	1	
Lead	3.06	0.500	1						

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 3050B / EPA 7471A Total
 Method: EPA 6010B / EPA 7471A
 Units: mg/kg

Project: Nutmeg Site / 10-8721E

Page 2 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-5	07-05-1220-4	05/15/07	Solid	ICP-5300	05/17/07	05/17/07	070517L08

Comment(s): -Mercury was analyzed on 5/17/2007 3:00:31 PM with batch 070517L02A

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	0.763	0.750	1		Mercury	ND	0.0835	1	
Arsenic	8.50	0.750	1		Molybdenum	ND	0.250	1	
Barium	142	0.500	1		Nickel	13.8	0.250	1	
Beryllium	0.505	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	17.1	0.250	1		Thallium	ND	0.750	1	
Cobalt	9.65	0.250	1		Vanadium	41.2	0.250	1	
Copper	22.4	0.500	1		Zinc	53.7	1.00	1	
Lead	7.14	0.500	1						

SB-1	07-05-1220-5	05/15/07	Solid	ICP-5300	05/17/07	05/17/07	070517L08
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Comment(s): -Mercury was analyzed on 5/17/2007 3:02:44 PM with batch 070517L02A

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	1.20	0.750	1		Molybdenum	ND	0.250	1	
Barium	37.0	0.500	1		Nickel	1.97	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	8.03	0.250	1		Thallium	ND	0.750	1	
Cobalt	3.39	0.250	1		Vanadium	16.0	0.250	1	
Copper	3.55	0.500	1		Zinc	9.40	1.00	1	
Lead	4.80	0.500	1						

SB-2	07-05-1220-6	05/15/07	Solid	ICP-5300	05/17/07	05/17/07	070517L08
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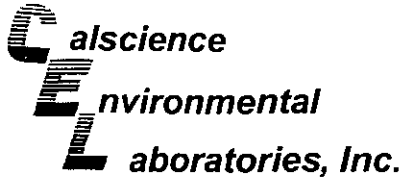
Comment(s): -Mercury was analyzed on 5/17/2007 3:04:53 PM with batch 070517L02A

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	9.73	0.750	1		Molybdenum	ND	0.250	1	
Barium	185	0.500	1		Nickel	10.6	0.250	1	
Beryllium	0.416	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	14.7	0.250	1		Thallium	ND	0.750	1	
Cobalt	9.79	0.250	1		Vanadium	39.6	0.250	1	
Copper	20.3	0.500	1		Zinc	50.1	1.00	1	
Lead	6.89	0.500	1						

Method Blank	099-04-007-4,636	N/A	Solid	Mercury	05/17/07	05/17/07	070517L02A
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Parameter	Result	RL	DF	Qual
Mercury	ND	0.0835	1	

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report

nd c

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 3050B / EPA 7471A Total
 Method: EPA 6010B / EPA 7471A
 Units: mg/kg

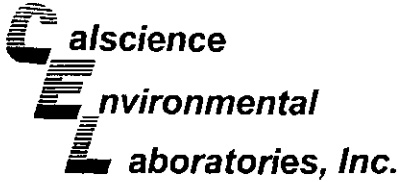
Project: Nutmeg Site / 10-8721E

Page 3 of 3

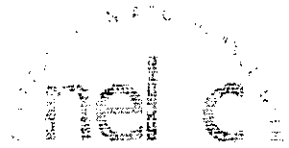
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	097-01-002-9,274	N/A	Solid	ICP 5300	05/17/07	05/17/07	070517L08

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Lead	ND	0.500	1	
Arsenic	ND	0.750	1		Molybdenum	ND	0.250	1	
Barium	ND	0.500	1		Nickel	ND	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	ND	0.250	1		Thallium	ND	0.750	1	
Cobalt	ND	0.250	1		Vanadium	ND	0.250	1	
Copper	ND	0.500	1		Zinc	ND	1.00	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: T22.11.5.AII
Method: EPA 6010B

Project: Nutmeg Site / 10-8721E

Page 1 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-4	07-05-1220-1	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A

Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

SB-6	07-05-1220-2	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A
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Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

SB-3	07-05-1220-3	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A
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Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

SB-5	07-05-1220-4	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A
------	--------------	----------	-------	----------	----------	----------	------------

Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

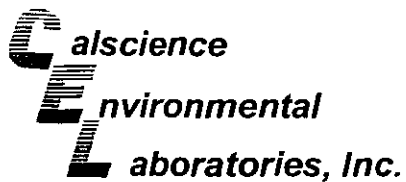
SB-1	07-05-1220-5	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A
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Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

SB-2	07-05-1220-6	05/15/07	Solid	ICP 5300	05/24/07	05/29/07	070529L05A
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Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: T22.11.5.AII
 Method: EPA 6010B

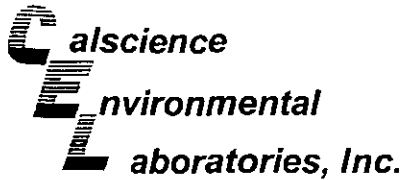
Project: Nutmeg Site / 10-8721E

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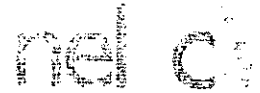
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	097-05-006-3,564	N/A	Solid	ICP 5300	05/24/07	05/29/07	070529L05A

Parameter	Result	RL	DF	Qual	Units
Arsenic	ND	0.150	1		mg/L

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: Nutmeg Site / 10-8721E

Page 1 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-4	07-05-1220-1	05/15/07	Solid	GC 6	05/17/07	05/17/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	1.3		1	
C8	ND		1		C23-C24	2.9		1	
C9-C10	ND		1		C25-C28	10		1	
C11-C12	ND		1		C29-C32	24		1	
C13-C14	ND		1		C33-C36	23		1	
C15-C16	ND		1		C37-C40	24		1	
C17-C18	0.37		1		C41-C44	17		1	
C19-C20	0.88		1		C7-C44 Total	100	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	122	61-145							

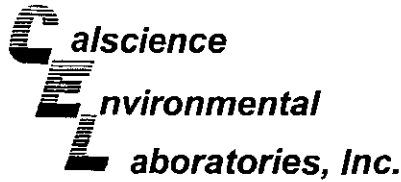
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-6	07-05-1220-2	05/15/07	Solid	GC 6	05/17/07	05/18/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	ND		1	
C8	ND		1		C23-C24	ND		1	
C9-C10	ND		1		C25-C28	ND		1	
C11-C12	ND		1		C29-C32	0.19		1	
C13-C14	ND		1		C33-C36	0.41		1	
C15-C16	ND		1		C37-C40	ND		1	
C17-C18	ND		1		C41-C44	ND		1	
C19-C20	ND		1		C7-C44 Total	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	107	61-145							

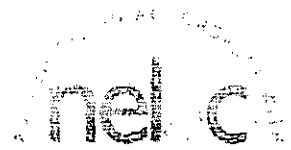
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-3	07-05-1220-3	05/15/07	Solid	GC 6	05/17/07	05/18/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	1.2		1	
C8	ND		1		C23-C24	2.1		1	
C9-C10	ND		1		C25-C28	5.6		1	
C11-C12	ND		1		C29-C32	9.6		1	
C13-C14	ND		1		C33-C36	8.1		1	
C15-C16	ND		1		C37-C40	8.9		1	
C17-C18	0.11		1		C41-C44	6.7		1	
C19-C20	0.77		1		C7-C44 Total	43	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	113	61-145							

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 3550B
 Method: EPA 8015B (M)
 Units: mg/kg

Project: Nutmeg Site / 10-8721E

Page 2 of 3

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-5	07-05-1220-4	05/15/07	Solid	GC 6	05/17/07	05/18/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	ND		1	
C8	ND		1		C23-C24	ND		1	
C9-C10	ND		1		C25-C28	ND		1	
C11-C12	ND		1		C29-C32	ND		1	
C13-C14	ND		1		C33-C36	ND		1	
C15-C16	ND		1		C37-C40	ND		1	
C17-C18	ND		1		C41-C44	ND		1	
C19-C20	ND		1		C7-C44 Total	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	106	61-145							

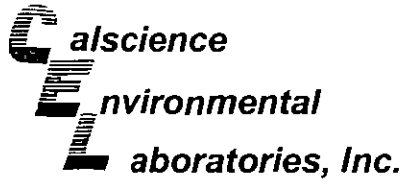
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-1	07-05-1220-5	05/15/07	Solid	GC 6	05/17/07	05/18/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	ND		1	
C8	ND		1		C23-C24	ND		1	
C9-C10	ND		1		C25-C28	ND		1	
C11-C12	ND		1		C29-C32	ND		1	
C13-C14	ND		1		C33-C36	ND		1	
C15-C16	ND		1		C37-C40	ND		1	
C17-C18	ND		1		C41-C44	ND		1	
C19-C20	ND		1		C7-C44 Total	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	121	61-145							

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-2	07-05-1220-6	05/15/07	Solid	GC 6	05/17/07	05/18/07	070517B01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	1.1		1	
C8	ND		1		C23-C24	1.5		1	
C9-C10	ND		1		C25-C28	6.9		1	
C11-C12	ND		1		C29-C32	14		1	
C13-C14	ND		1		C33-C36	13		1	
C15-C16	ND		1		C37-C40	13		1	
C17-C18	0.26		1		C41-C44	11		1	
C19-C20	0.54		1		C7-C44 Total	62	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	107	61-145							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report

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Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 3550B
 Method: EPA 8015B (M)
 Units: mg/kg

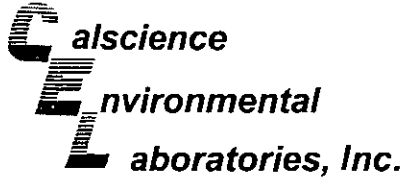
Project: Nutmeg Site / 10-8721E

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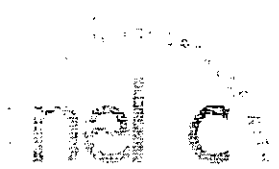
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	099-12-275-724	N/A	Solid	GC 6	05/17/07	05/17/07	070517B01

Parameter	Result	RL	DF	Qual
TPH as Diesel	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	127	61-145		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 5035
 Method: EPA 8260B
 Units: ug/kg

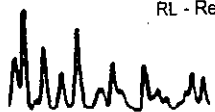
Project: Nutmeg Site / 10-8721E

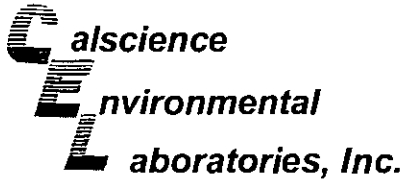
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Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-4	07-05-1220-1	05/15/07	Solid	GC/MS:BB	05/17/07	05/24/07	070524L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	120	49	0.988		c-1,3-Dichloropropene	ND	0.99	0.988	
Benzene	0.99	0.99	0.988		t-1,3-Dichloropropene	ND	2.0	0.988	
Bromobenzene	ND	0.99	0.988		Ethylbenzene	ND	0.99	0.988	
Bromochloromethane	ND	2.0	0.988		2-Hexanone	ND	20	0.988	
Bromodichloromethane	ND	0.99	0.988		Isopropylbenzene	ND	0.99	0.988	
Bromoform	ND	4.9	0.988		p-Isopropyltoluene	ND	0.99	0.988	
Bromomethane	ND	20	0.988		Methylene Chloride	ND	9.9	0.988	
2-Butanone	27	20	0.988		4-Methyl-2-Pentanone	ND	20	0.988	
n-Butylbenzene	ND	0.99	0.988		Naphthalene	ND	9.9	0.988	
sec-Butylbenzene	ND	0.99	0.988		n-Propylbenzene	ND	0.99	0.988	
tert-Butylbenzene	ND	0.99	0.988		Styrene	ND	0.99	0.988	
Carbon Disulfide	ND	9.9	0.988		1,1,1,2-Tetrachloroethane	ND	0.99	0.988	
Carbon Tetrachloride	ND	0.99	0.988		1,1,2,2-Tetrachloroethane	ND	2.0	0.988	
Chlorobenzene	ND	0.99	0.988		Tetrachloroethene	ND	0.99	0.988	
Chloroethane	ND	2.0	0.988		Toluene	ND	0.99	0.988	
Chloroform	ND	0.99	0.988		1,2,3-Trichlorobenzene	ND	2.0	0.988	
Chloromethane	ND	20	0.988		1,2,4-Trichlorobenzene	ND	2.0	0.988	
2-Chlorotoluene	ND	0.99	0.988		1,1,1-Trichloroethane	ND	0.99	0.988	
4-Chlorotoluene	ND	0.99	0.988		1,1,2-Trichloroethane	ND	0.99	0.988	
Dibromochloromethane	ND	2.0	0.988		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.9	0.988	
1,2-Dibromo-3-Chloropropane	ND	4.9	0.988		Trichloroethene	ND	2.0	0.988	
1,2-Dibromoethane	ND	0.99	0.988		Trichlorofluoromethane	ND	9.9	0.988	
Dibromomethane	ND	0.99	0.988		1,2,3-Trichloropropane	ND	2.0	0.988	
1,2-Dichlorobenzene	ND	0.99	0.988		1,2,4-Trimethylbenzene	ND	2.0	0.988	
1,3-Dichlorobenzene	ND	0.99	0.988		1,3,5-Trimethylbenzene	ND	2.0	0.988	
1,4-Dichlorobenzene	ND	0.99	0.988		Vinyl Acetate	ND	9.9	0.988	
Dichlorodifluoromethane	ND	2.0	0.988		Vinyl Chloride	ND	0.99	0.988	
1,1-Dichloroethane	ND	0.99	0.988		p/m-Xylene	ND	2.0	0.988	
1,2-Dichloroethane	ND	0.99	0.988		o-Xylene	ND	0.99	0.988	
1,1-Dichloroethene	ND	0.99	0.988		Methyl-t-Butyl Ether (MTBE)	ND	2.0	0.988	
c-1,2-Dichloroethene	ND	0.99	0.988		Tert-Butyl Alcohol (TBA)	ND	20	0.988	
t-1,2-Dichloroethene	ND	0.99	0.988		Diisopropyl Ether (DIPE)	ND	0.99	0.988	
1,2-Dichloropropane	ND	0.99	0.988		Ethyl-t-Butyl Ether (ETBE)	ND	0.99	0.988	
1,3-Dichloropropane	ND	0.99	0.988		Tert-Amyl-Methyl Ether (TAME)	ND	0.99	0.988	
2,2-Dichloropropane	ND	4.9	0.988		Ethanol	ND	490	0.988	
1,1-Dichloropropene	ND	2.0	0.988						
Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual		
Dibromofluoromethane	102	71-137		1,2-Dichloroethane-d4	127	58-160			
1,4-Bromofluorobenzene	105	66-126		Toluene-d8	97	87-111			

RL - Reporting Limit DF - Dilution Factor Qual - Qualifiers





Analytical Report

7/11/07

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

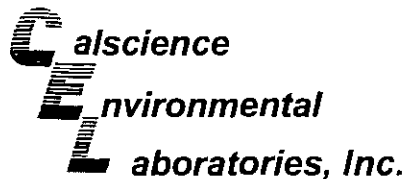
Project: Nutmeg Site / 10-8721E

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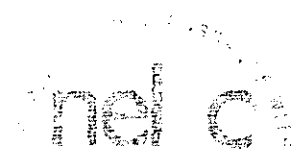
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
SB-2	07-05-1220-6	05/15/07	Solid	GC/MS/BB	05/17/07	05/24/07	070524L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	43	0.864		c-1,3-Dichloropropene	ND	0.86	0.864	
Benzene	ND	0.86	0.864		t-1,3-Dichloropropene	ND	1.7	0.864	
Bromobenzene	ND	0.86	0.864		Ethylbenzene	ND	0.86	0.864	
Bromochloromethane	ND	1.7	0.864		2-Hexanone	ND	17	0.864	
Bromodichloromethane	ND	0.86	0.864		Isopropylbenzene	ND	0.86	0.864	
Bromoform	ND	4.3	0.864		p-Isopropyltoluene	ND	0.86	0.864	
Bromomethane	ND	17	0.864		Methylene Chloride	ND	8.6	0.864	
2-Butanone	ND	17	0.864		4-Methyl-2-Pentanone	ND	17	0.864	
n-Butylbenzene	ND	0.86	0.864		Naphthalene	ND	8.6	0.864	
sec-Butylbenzene	ND	0.86	0.864		n-Propylbenzene	ND	0.86	0.864	
tert-Butylbenzene	ND	0.86	0.864		Styrene	ND	0.86	0.864	
Carbon Disulfide	ND	8.6	0.864		1,1,1,2-Tetrachloroethane	ND	0.86	0.864	
Carbon Tetrachloride	ND	0.86	0.864		1,1,2,2-Tetrachloroethane	ND	1.7	0.864	
Chlorobenzene	ND	0.86	0.864		Tetrachloroethene	ND	0.86	0.864	
Chloroethane	ND	1.7	0.864		Toluene	ND	0.86	0.864	
Chloroform	ND	0.86	0.864		1,2,3-Trichlorobenzene	ND	1.7	0.864	
Chloromethane	ND	17	0.864		1,2,4-Trichlorobenzene	ND	1.7	0.864	
2-Chlorotoluene	ND	0.86	0.864		1,1,1-Trichloroethane	ND	0.86	0.864	
4-Chlorotoluene	ND	0.86	0.864		1,1,2-Trichloroethane	ND	0.86	0.864	
Dibromochloromethane	ND	1.7	0.864		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.6	0.864	
1,2-Dibromo-3-Chloropropane	ND	4.3	0.864		Trichloroethene	ND	1.7	0.864	
1,2-Dibromoethane	ND	0.86	0.864		Trichlorofluoromethane	ND	8.6	0.864	
Dibromomethane	ND	0.86	0.864		1,2,3-Trichloropropane	ND	1.7	0.864	
1,2-Dichlorobenzene	ND	0.86	0.864		1,2,4-Trimethylbenzene	ND	1.7	0.864	
1,3-Dichlorobenzene	ND	0.86	0.864		1,3,5-Trimethylbenzene	ND	1.7	0.864	
1,4-Dichlorobenzene	ND	0.86	0.864		Vinyl Acetate	ND	8.6	0.864	
Dichlorodifluoromethane	ND	1.7	0.864		Vinyl Chloride	ND	0.86	0.864	
1,1-Dichloroethane	ND	0.86	0.864		p/m-Xylene	ND	1.7	0.864	
1,2-Dichloroethane	ND	0.86	0.864		o-Xylene	ND	0.86	0.864	
1,1-Dichloroethene	ND	0.86	0.864		Methyl-t-Butyl Ether (MTBE)	ND	1.7	0.864	
c-1,2-Dichloroethene	ND	0.86	0.864		Tert-Butyl Alcohol (TBA)	ND	17	0.864	
t-1,2-Dichloroethene	ND	0.86	0.864		Diisopropyl Ether (DIPE)	ND	0.86	0.864	
1,2-Dichloropropane	ND	0.86	0.864		Ethyl-t-Butyl Ether (ETBE)	ND	0.86	0.864	
1,3-Dichloropropane	ND	0.86	0.864		Tert-Amyl-Methyl Ether (TAME)	ND	0.86	0.864	
2,2-Dichloropropane	ND	4.3	0.864		Ethanol	ND	430	0.864	
1,1-Dichloropropene	ND	1.7	0.864						
Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual		
Dibromofluoromethane	103	71-137		1,2-Dichloroethane-d4	132	58-160			
1,4-Bromofluorobenzene	103	66-126		Toluene-d8	98	87-111			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

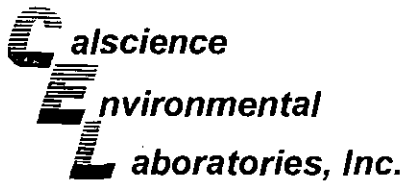
Project: Nutmeg Site / 10-8721E

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Client Sample Number	Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	095-01-025-14709	N/A	Solid	GC/MS BB	05/24/07	05/24/07	070524L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Acetone	ND	50	1		c-1,3-Dichloropropene	ND	1.0	1	
Benzene	ND	1.0	1		t-1,3-Dichloropropene	ND	2.0	1	
Bromobenzene	ND	1.0	1		Ethylbenzene	ND	1.0	1	
Bromochloromethane	ND	2.0	1		2-Hexanone	ND	20	1	
Bromodichloromethane	ND	1.0	1		Isopropylbenzene	ND	1.0	1	
Bromoform	ND	5.0	1		p-Isopropyltoluene	ND	1.0	1	
Bromomethane	ND	20	1		Methylene Chloride	ND	10	1	
2-Butanone	ND	20	1		4-Methyl-2-Pentanone	ND	20	1	
n-Butylbenzene	ND	1.0	1		Naphthalene	ND	10	1	
sec-Butylbenzene	ND	1.0	1		n-Propylbenzene	ND	1.0	1	
tert-Butylbenzene	ND	1.0	1		Styrene	ND	1.0	1	
Carbon Disulfide	ND	10	1		1,1,1,2-Tetrachloroethane	ND	1.0	1	
Carbon Tetrachloride	ND	1.0	1		1,1,2,2-Tetrachloroethane	ND	2.0	1	
Chlorobenzene	ND	1.0	1		Tetrachloroethene	ND	1.0	1	
Chloroethane	ND	2.0	1		Toluene	ND	1.0	1	
Chloroform	ND	1.0	1		1,2,3-Trichlorobenzene	ND	2.0	1	
Chloromethane	ND	20	1		1,2,4-Trichlorobenzene	ND	2.0	1	
2-Chlorotoluene	ND	1.0	1		1,1,1-Trichloroethane	ND	1.0	1	
4-Chlorotoluene	ND	1.0	1		1,1,2-Trichloroethane	ND	1.0	1	
Dibromochloromethane	ND	2.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1	
1,2-Dibromo-3-Chloropropane	ND	5.0	1		Trichloroethene	ND	2.0	1	
1,2-Dibromoethane	ND	1.0	1		Trichlorofluoromethane	ND	10	1	
Dibromomethane	ND	1.0	1		1,2,3-Trichloropropane	ND	2.0	1	
1,2-Dichlorobenzene	ND	1.0	1		1,2,4-Trimethylbenzene	ND	2.0	1	
1,3-Dichlorobenzene	ND	1.0	1		1,3,5-Trimethylbenzene	ND	2.0	1	
1,4-Dichlorobenzene	ND	1.0	1		Vinyl Acetate	ND	10	1	
Dichlorodifluoromethane	ND	2.0	1		Vinyl Chloride	ND	1.0	1	
1,1-Dichloroethane	ND	1.0	1		p/m-Xylene	ND	2.0	1	
1,2-Dichloroethane	ND	1.0	1		o-Xylene	ND	1.0	1	
1,1-Dichloroethene	ND	1.0	1		Methyl-t-Butyl Ether (MTBE)	ND	2.0	1	
c-1,2-Dichloroethene	ND	1.0	1		Tert-Butyl Alcohol (TBA)	ND	20	1	
t-1,2-Dichloroethene	ND	1.0	1		Diisopropyl Ether (DIPE)	ND	1.0	1	
1,2-Dichloropropane	ND	1.0	1		Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1	
1,3-Dichloropropane	ND	1.0	1		Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1	
2,2-Dichloropropane	ND	5.0	1		Ethanol	ND	500	1	
1,1-Dichloropropene	ND	2.0	1						
Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual		
Dibromofluoromethane	94	71-137		1,2-Dichloroethane-d4	105	58-160			
1,4-Bromofluorobenzene	104	66-126		Toluene-d8	98	87-111			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

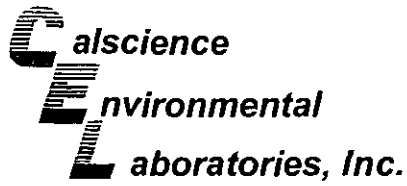
Date Received: 05/16/07
Work Order No: 07-05-1220
Preparation: EPA 3050B
Method: EPA 6010B

Project Nutmeg Site / 10-8721E

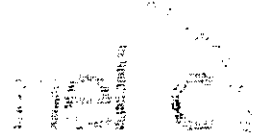
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-05-1246-25	Solid	ICP 5300	05/17/07	05/17/07	070517S08

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	82	83	50-115	2	0-20	
Arsenic	101	108	75-125	2	0-20	
Barium	98	99	75-125	0	0-20	
Beryllium	97	98	75-125	2	0-20	
Cadmium	94	95	75-125	1	0-20	
Chromium	98	99	75-125	1	0-20	
Cobalt	99	100	75-125	1	0-20	
Copper	86	89	75-125	2	0-20	
Lead	92	93	75-125	1	0-20	
Molybdenum	94	95	75-125	1	0-20	
Nickel	95	96	75-125	1	0-20	
Selenium	95	93	75-125	2	0-20	
Silver	90	91	75-125	1	0-20	
Thallium	92	92	75-125	1	0-20	
Vanadium	96	99	75-125	2	0-20	
Zinc	4X	4X	75-125	4X	0-20	Q

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate



Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

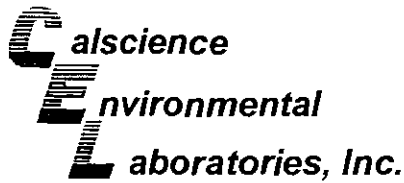
Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: T22.11.5.AII
 Method: EPA 6010B

Project Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-4	Solid	ICP 5300	05/24/07	05/30/07	070529S05

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Arsenic	87	88	75-125	1	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

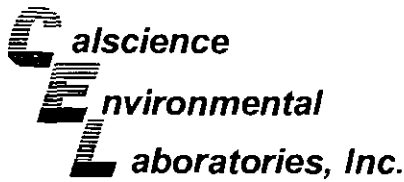
Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 3550B
 Method: EPA 8015B (M)

Project Nutmeg Site / 10-8721E

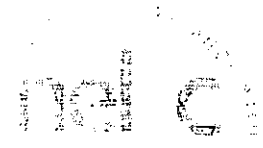
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
SB-6	Solid	GC 6	05/17/07	05/17/07	070517S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	98	97	64-130	1	0-15	

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - Spike/Spike Duplicate



Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 05/16/07
 Work Order No: 07-05-1220
 Preparation: EPA 7471A Total
 Method: EPA 7471A

Project Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
07-05-0943-2	Solid	Mercury	05/17/07	05/17/07	070517S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	95	96	76-136	1	0-16	

RPD - Relative Percent Difference , Cl. - Control Limit

alscience
Environmental Quality Control - Laboratory Control Sample
Laboratories, Inc.

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: N/A
 Work Order No: 07-05-1220
 Preparation: EPA 3050B
 Method: EPA 6010B

Project: Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-9,274	Solid	ICP 5300	05/17/07	070517-4-08	070517L08

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	24.3	97	80-120	
Arsenic	25.0	23.0	92	80-120	
Barium	25.0	24.3	97	80-120	
Beryllium	25.0	23.0	92	80-120	
Cadmium	25.0	24.1	96	80-120	
Chromium	25.0	24.4	98	80-120	
Cobalt	25.0	25.7	103	80-120	
Copper	25.0	23.2	93	80-120	
Lead	25.0	24.3	97	80-120	
Molybdenum	25.0	24.0	96	80-120	
Nickel	25.0	25.5	102	80-120	
Selenium	25.0	22.8	91	80-120	
Silver	12.5	11.5	92	80-120	
Thallium	25.0	23.8	95	80-120	
Vanadium	25.0	23.2	93	80-120	
Zinc	25.0	24.5	98	80-120	

RPD - Relative Percent Difference, CL - Control Limit

Calscience
Environmental Laboratories, Inc. **Quality Control - Laboratory Control Sample**

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

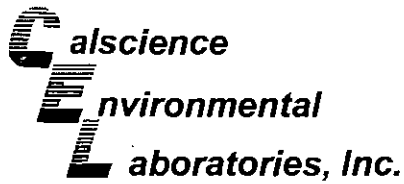
Date Received: N/A
 Work Order No: 07-05-1220
 Preparation: T22.11.5.AII
 Method: EPA 6010B

Project: Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-05-006-3,564	Solid	ICP 5300	05/29/07	070529-I-05	070529L05A

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Arsenic	5.00	4.99	100	80-120	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate

malc

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

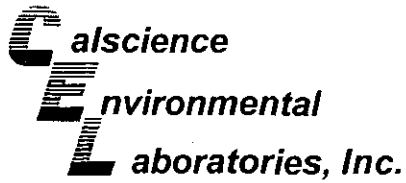
Date Received: N/A
 Work Order No: 07-05-1220
 Preparation: EPA 3550B
 Method: EPA 8015B (M)

Project: Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-275-724	Solid	GC.6	05/17/07	05/17/07	070517B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	109	97	75-123	11	0-12	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

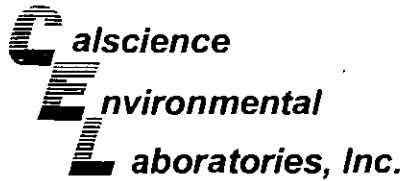
Date Received: N/A
 Work Order No: 07-05-1220
 Preparation: EPA 7471A Total
 Method: EPA 7471A

Project: Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-4,636	Solid	Mercury	05/17/07	05/17/07	070517L02A

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	99	99	87-117	0	0-3	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate

net c

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

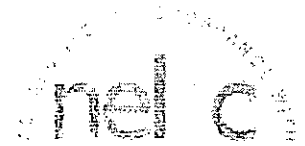
Date Received: N/A
Work Order No: 07-05-1220
Preparation: EPA 5035
Method: EPA 8260B

Project: Nutmeg Site / 10-8721E

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-14709	Solid	GC/MS/BB	05/24/07	05/24/07	070524L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	87	87	85-115	0	0-11	
Carbon Tetrachloride	85	88	68-134	3	0-14	
Chlorobenzene	102	103	83-119	1	0-9	
1,2-Dichlorobenzene	101	102	57-135	0	0-10	
1,1-Dichloroethene	87	89	72-120	2	0-10	
Toluene	92	95	67-127	3	0-10	
Trichloroethene	92	91	88-112	1	0-9	
Vinyl Chloride	78	80	57-129	2	0-16	
Methyl-t-Butyl Ether (MTBE)	79	81	76-124	2	0-12	
Tert-Butyl Alcohol (TBA)	51	55	31-145	8	0-23	
Diisopropyl Ether (DIPE)	84	85	74-128	2	0-10	
Ethyl-t-Butyl Ether (ETBE)	83	86	77-125	3	0-9	
Tert-Amyl-Methyl Ether (TAME)	89	90	81-123	2	0-10	
Ethanol	66	73	44-152	10	0-24	

RPD - Relative Percent Difference, CL - Control Limit



Work Order Number: 07-05-1220

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

**CALIFORNIA ENVIRONMENTAL
LABORATORIES, INC.**

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1427
TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 5-15-07
Page 1 of 1

LABORATORY CLIENT: <u>Construction Testing & Engineering, Inc.</u>		CLIENT PROJECT NAME / NUMBER: <u>Nutmeg site / 10.8721E</u>	P.O. NO.: <u>10.8721E</u>
ADDRESS: <u>1331 Montiel Road</u>		PROJECT CONTACT: <u>Greg Rzonca</u>	LAB USE ONLY: <input type="checkbox"/> 5- <input type="checkbox"/> 220
CITY: <u>Escondido, CA</u>	STATE: _____ ZIP: _____	SAMPLER(S): (PRINT) <u>G. Rzonca</u>	COELT LOG CODE: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TEL: <u>760-746-4966</u>	EMAIL: <u>greg@cte-inc.net</u>	COOLER RECEIPT TEMP = _____ °C	

TURNAROUND TIME: Standard
 SAME DAY 24 HR 48 HR 72 HR 5 DAYS 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
 RWQCB REPORTING FORMS COELT EDF San Diego DEH

SPECIAL INSTRUCTIONS: 2 samples w/ highest TPH analyze for VOCs by 8260 B. T22 metals above Cal PRGs (residential) analyze by STL. Call CTE before analyzing for VOCs and STL - Quantitate TPH ranges -

REQUESTED ANALYSES

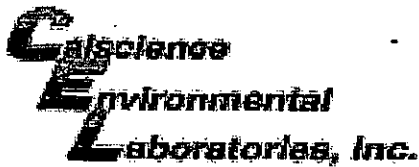
LAB USE ONLY	SAMPLE ID	FIELD POINT NAME (FOR COELT EDF)	SAMPLING		MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or 8016 B	BTX / MTBE (8260B) or OXYGENATES (8260B)	VOCs (8260B) 2 samples / 11/15/07	5035 ENCORE PREP	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	CAC, T22 METALS (6010B) / 747	PNAs (8310) or (8270C)	VOCs (TO-14A) or (TO-15)	TPH (G) (TO-3M)	STL samples above Cal PRGs - target analytes only	
			DATE	TIME																
	SB-4	RZONCA	5-15-07	11:53	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	SB-6	RZONCA	5-15-07	12:35	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	SB-3	RZONCA	5-15-07	13:15	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	SB-5	RZONCA	5-15-07	14:15	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	SB-1	RZONCA	5-15-07	14:45	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	SB-2	RZONCA	5-15-07	15:30	soil	6	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature/Affiliation) <u>[Signature] DEL</u>	Date: <u>5/16/7</u>	Time: <u>1210</u>
Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature/Affiliation) <u>[Signature] Wobate CA</u>	Date: <u>5/16/7</u>	Time: <u>1600</u>
Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature/Affiliation)	Date:	Time:

DISTRIBUTION: White with final report, Green and Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.

05/10/06 Revision

Page 23 of 25
0208-888-1171 JHC/G DFG



WORK ORDER #: 07 - 05 - 1220

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CTE

DATE: 5/16/7

TEMPERATURE - SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided.
Chilled, cooler without temperature blank.
Chilled and placed in cooler with wet ice.
Ambient and placed in cooler with wet ice.
Ambient temperature.

LABORATORY (Other than Calscience Courier):

- C Temperature blank.
C IR thermometer.
Ambient temperature.

3.6 C Temperature blank.

Initial: [Signature]

CUSTODY SEAL INTACT:

Sample(s): Cooler: No (Not Intact):

Not Present: [checkmark]

Initial: [Signature]

SAMPLE CONDITION:

Table with 4 columns: Description, Yes, No, N/A. Rows include Chain-Of-Custody document(s), Sampler's name, Sample container label(s), Sample container(s) intact, Correct containers and volume, Proper preservation, VOA vial(s) free of headspace, Tedlar bag(s) free of condensation.

Initial: [Signature]

COMMENTS:

Blank lines for handwritten comments.

Ranjit Clarke

From: Greg Rzonca [greg@cte-inc.net]
Sent: Thursday, May 24, 2007 11:41 AM
To: Ranjit Clarke
Cc: kipcarl@cox.net
Subject: RE: Nutmeg Site / 10.8721E / CEL 07-05-1220 (Preliminary) (05/15/07)

Hi Ranjit,

Please do VOCs including fuel oxygenates and MTBE for samples SB-2 and SB-4.

Also, do STLC analyses for Arsenic in all samples (S-1 to S-6, inclusive).

Can you provide the chromatograph for SB-2, SB-3 and SB-4? Want to see if the detects are for asphalt compounds not fuel compounds.

Regards,

Greg

-----Original Message-----

From: Ranjit Clarke [mailto:RClarke@calscience.com]
Sent: Wednesday, May 23, 2007 5:08 PM
To: Greg Rzonca (E-mail)
Subject: Nutmeg Site / 10.8721E / CEL 07-05-1220 (Preliminary) (05/15/07)

<<07-05-1220(prelim).pdf>>

Here is the prelim report for samples collected on 05/15/07. It appears as though none of the meatls are above the STLC limits. Also, it appears that "SB-2" and "SB-4" have the highest TPH levels.

Let me know if you require further analyses.

Thanks,

> Ranjit K. K. Clarke
> Project Manager
> Calscience Environmental
> Laboratories, Inc.
> 7440 Lincoln Way
> Garden Grove, CA 92841-1427
> Tel.: 714-895-5494 Ext. 129
> Fax : 714-894-7501
> rclarke@calscience.com
>

> PRIVACY NOTICE:

> This email (and/or the documents attached to it) is intended only for
> the use of the individual or entity to which it is addressed and may
> contain information that is privileged, confidential, or exempt from
> disclosure under applicable Federal or State law. If the reader of

Date 5-15-07
Page 1 of 1

LABORATORY CLIENT: <i>Construction Testing & Engineering, Inc.</i>		CLIENT PROJECT NAME / NUMBER: <i>Nutmeg site / 10.8721E</i>	P.O. NO.: <i>10.8721E</i>
ADDRESS: <i>1331 Montiel Road</i>		PROJECT CONTACT: <i>Greg Rzonca</i>	LAB USE ONLY: <input type="checkbox"/> 5 - <input type="checkbox"/> 2 <input type="checkbox"/> 2 <input type="checkbox"/> 0
CITY: <i>Escondido, CA</i>	STATE: <i>CA</i>	ZIP: <i>92025</i>	COOLER RECEIPT TEMP = _____ °C
TEL: <i>760-746-4955</i>	EMAIL: <i>greg@cte-inc.net</i>	SAMPLER(S): (PRINT) <i>G. Rzonca</i>	COELT LOG CODE <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

TURNAROUND TIME:
 SAME DAY 24 HR *Standard* 48 HR 72 HR 5 DAYS 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
 RWQCB REPORTING FORMS COELT EDF *San Diego DEH*

SPECIAL INSTRUCTIONS:
2 samples w/ highest TPH analyze for VOCs by 8260 B. T22 metals above Cal PRCS (residential) analyze by STL. Call CTE before analyzing for VOCs and STL - Quantitate TPH ranges -

REQUESTED ANALYSES													
TPH (G)	TPH (D) or 8016 B	BTX / MTBE (8260B) or	OXYGENATES (8260B)	VOCs (8260B) 2 samples w/ highest TPH	5035 ENCORE PREP	SVOCS (8270C)	PEST (8081A)	PCBs (8082)	CAC, T22 METALS (6010B) / 747	PNAs (8310) or (8270C)	VOCs (TO-14A) or (TO-15)	TPH (G) (TO-3M)	STL samples above Cal PRCS - target analytes only
/	/	/	/	/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/	/	/	/	/
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/	/	/	/	/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/	/	/	/	/

Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature/Affiliation) <i>[Signature] DEL</i>	Date: <i>5/16/7</i>	Time: <i>1210</i>
Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature/Affiliation) <i>[Signature] Woodall ca</i>	Date: <i>5/16/7</i>	Time: <i>1600</i>
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

WORK ORDER #: **07** - -

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CTE

DATE: 5/16/7

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided.
- Chilled, cooler without temperature blank.
- Chilled and placed in cooler with wet ice.
- Ambient and placed in cooler with wet ice.
- Ambient temperature.

LABORATORY (Other than Calscience Courier):

- °C Temperature blank.
- °C IR thermometer.
- Ambient temperature.

3.6 °C Temperature blank.

Initial: 

CUSTODY SEAL INTACT:

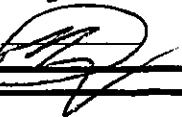
Sample(s): _____ Cooler: _____ No (Not Intact) : _____

Not Present:

Initial: 

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with custody papers.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on sample label(s).....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOA vial(s) free of headspace.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initial: 

COMMENTS:

Ranjit Clarke

From: Greg Rzonca [greg@cte-inc.net]
Sent: Thursday, May 24, 2007 11:41 AM
To: Ranjit Clarke
Cc: kipcarl@cox.net
Subject: RE: Nutmeg Site / 10.8721E / CEL 07-05-1220 (Preliminary) (05/15/07)

Hi Ranjit,

Please do VOCs including fuel oxygenates and MTBE for samples SB-2 and SB-4.

Also, do STLC analyses for Arsenic in all samples (S-1 to S-6, inclusive).

Can you provide the chromatograph for SB-2, SB-3 and SB-4? Want to see if the detects are for asphalt compounds not fuel compounds.

Regards,

Greg

-----Original Message-----

From: Ranjit Clarke [mailto:RClarke@calscience.com]
Sent: Wednesday, May 23, 2007 5:08 PM
To: Greg Rzonca (E-mail)
Subject: Nutmeg Site / 10.8721E / CEL 07-05-1220 (Preliminary) (05/15/07)

<<07-05-1220 (prelim).pdf>>

Here is the prelim report for samples collected on 05/15/07. It appears as though none of the metals are above the STLC limits. Also, it appears that "SB-2" and "SB-4" have the highest TPH levels.

Let me know if you require further analyses.

Thanks,

> Ranjit K. K. Clarke
> Project Manager
> Calscience Environmental
> Laboratories, Inc.
> 7440 Lincoln Way
> Garden Grove, CA 92841-1427
> Tel.: 714-895-5494 Ext. 129
> Fax : 714-894-7501
> rclarke@calscience.com
>

> PRIVACY NOTICE:

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APENDIX C
EXPLORATION LOGS



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4565

PROJECT:
 CTE JOB NO:
 LOGGED BY:

DRILLER:
 DRILL METHOD:
 SAMPLE METHOD:

SHEET: of
 DRILLING DATE:
 ELEVATION:

Depth (Feet)	Bulk Sample Driven Type	Blows/Feet	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING LEGEND	
							DESCRIPTION	Laboratory Tests
0							Block or Chunk Sample	
							Bulk Sample	
5								
							Standard Penetration Test	
-10							Modified Split-Barrel Drive Sampler (Cal Sampler)	
							Thin Walled Army Corp. of Engineers Sample	
-15							Groundwater Table	
							Soil Type or Classification Change	
-20							Formation Change [(Approximate boundaries queried (?))]	
					"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	



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GEOTECHNICAL | CONSTRUCTION ENGINEERING | TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4954

PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 875±

TEST PIT LOG: TP-1

Laboratory Tests

DESCRIPTION

SM

0
5
10
15

Fill:

QUATERNARY UNDOCUMENTED FILL (Qudf):
0-2.5': Loose, dry, light brown, silty fine to coarse SAND with trace construction debris (plastic, screws, etc.)

No Groundwater
Backfilled with excavated soil



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTEC ROAD, SUITE 115 | ESCOBIDO, TX 78226 | 760.745.4555

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-S721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 380±

TEST PIT LOG: TP-2

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0': Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles, trace construction debris (wire, metal pipe, etc.). 5': Numerous vegetation fragments including leaves, twigs, small branches.
		SM		5			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u> 6': Dense, dry, light brown, silty fine to coarse SAND.
		SM		10			Older Alluvium <u>QUATERNARY OLDER ALLUVIUM (Qoa):</u> 8': Medium dense, slightly moist, orange-dark brown, silty fine to coarse SAND with trace clay.
		SC		15			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> Dense to very dense, moist, off white mottled orange, clayey SAND. Groundwater @ 16 ft. Backfilled with excavated soil



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1141 MONTIEL ROAD, SUITE 119 | ESCORCADO, CA 92026 | 760.746.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 880±

TEST PIT LOG: TP-3

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			<p>Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry light brown, silty SAND with gravel to cobbles, trace construction debris including geogrid fabric and twine.</p> <p>Colluvium: Older Alluvium: 1': 1.25' layer of vegetation fragments including stems, branches and roots.</p> <p><u>QUATERNARY COLLUVIUM (Qcol):</u> 1.25-1.5': Medium dense, dry, light brown silty SAND.</p> <p><u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1.5-6.5': Medium dense, slightly moist, red to orange brown silty fine to coarse SAND with trace clay.</p> <p>No groundwater Backfilled with excavated soil</p>
		SM		5			
		SM		10			
				15			



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTELE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.1955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK. SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 884±

TEST PIT LOG: TP-4

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles.
		SM		4.5			4.5': Vegetation fragments including leaves, twigs, small branches, trace construction debris including visquene.
		SM		5			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u> 5': Loose, dry, light brown, silty fine to coarse SAND with roots.
		SM		5.5			Older Alluvium: 5.5': Medium dense, dry, dark brown, silty fine to coarse SAND with trace clay, rootlets in upper two inches.
				6.3			<u>QUATERNARY OLDER ALLUVIUM (Qcol):</u> 6.3': Loose, moist, orange brown, silty fine SAND with gravel.
		SC		11			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 11': Dense to very dense, slightly moist, off white mottled olive and orange, clayey SAND.
				15			No groundwater Backfilled with excavated soil

FIGURE 1 TP-4



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4953

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 886±

TEST PIT LOG: TP-5

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			<p>Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND with trace gravel to cobbles and construction debris. Contains asphalt.</p>
		SM		0.5			<p>Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Ooal):</u> 0.5': Medium dense, moist, orange brown, silty fine to coarse SAND with trace clay.</p>
				3.75			<p>Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 3.75': Very dense, dry, light gray, silty fine to coarse SAND.</p>
				5			<p>No groundwater Backfilled with excavated soil</p>



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDDO, CA 92026 | 760.741.4855

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 885±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-6	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND.	
		SM		4			4': 0.5" layer of vegetation including branches, grass, stems, roots. Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.5': Medium dense, moist, orange brown, silty fine to coarse SAND.	
		SM		9			Granite Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 9': Very dense, moist, light gray, silty fine to coarse SAND.	
				15			No groundwater Backfilled with excavated soil	



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1141 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4933

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 88.5±

TEST PIT LOG: TP-7

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qud)</u> : 0' Loose, dry, light brown, silty fine to coarse SAND.
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal)</u> : 1' Medium dense, moist, orange brown, silty fine to coarse SAND.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1141 MEDFEL ROAD, SUITE 115 | ESCONCADO, CA 92628 | 760.746.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 881±

TEST PIT LOG: TP-8

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-3': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles, plastic bag. 2.75': Vegetation fragments, including twigs, stems, grass, branches.
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 3': Medium dense, slightly moist, silty fine SAND with trace coarse grains.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1417 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 883±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-9	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-0.5': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles. Older Alluvium: 0.5': Vegetation fragments including stems, branches, roots.	
		SM		5			<u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.6': Medium dense, moist, red brown silty fine SAND with trace coarse SAND.	
				10			Groundwater at 5' Backfilled with excavated soil	
				15				



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONIDO, CA 92026 | 760.746.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 889±

TEST PIT LOG: TP-10

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-1': Loose, dry, light brown silty fine to coarse SAND with clay, gravel, cobbles.
		CL					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1'-4': Stiff, slightly moist, dark brown, sandy CLAY with gravel to cobbles and asphalt.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL / CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1641 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.716.4853

PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 881±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Bulk Sample	Driven Type	TEST PIT LOG: TP-11		Laboratory Tests
							DESCRIPTION		
		ML/SM		0			Fill:	<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-4': Loose, dry, dark brown fine to medium sandy SILT and silty fine to medium SAND.	
		SC		5			Older Alluvium:	<u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.25'-5': Medium dense, slightly moist, dark brown clayey SAND.	
								No groundwater Backfilled with excavated soil	

FIGURE: TP-11



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GEOTECHNICAL / CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1141 MONTELL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.749.1955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 881±

TEST PIT LOG: TP-12

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		ML/SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf)</u> 0-4': Loose, dry, dark brown sandy SILT and silty fine to medium SAND. 4': Vegetation fragments, including shrubs, grass and small limbs.
				6			Groundwater at 6' Backfilled with excavated soil



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1241 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.749.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 875±

TEST PIT LOG: TP-13

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf)</u> 0-1.75': Loose, dry, red brown silty fine to coarse SAND.
		SM		1.75			1.75': Vegetation fragments including twigs and roots.
				1.75			Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1.8'-2.75': Medium dense, moist, orange brown silty fine SAND with trace coarse grains.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIET ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4955

PROJECT: NUTMEG PROJECT 4.5 ACRE SITE	DRILLER: CTE	SHEET: 1 of 1
CTE JOB NO: 10-8721E	DRILL METHOD: HAND AUGER	DRILLING DATE: 5/15/2007
LOGGED BY: SC & GR	SAMPLE METHOD: SLEEVE, ENCORE	ELEVATION: -882

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: SB-1	Laboratory Tests
								DESCRIPTION	
0	X					CL		QUATERNARY UNDOCUMENTED FILL (Qudf): 0-1.0': Firm, slightly moist, dark brown, sandy CLAY with trace gray homogeneous clay and fragments of brick. 1.5': Dense, slightly moist, dark brown, silty SAND.	PID @ 0-1' = 0.9ppm
						SM			
-5								Sampled 1.0' to 2.0'. Backfilled with bentonite chips. No Groundwater.	
-10									
-15									
-20									
-25									



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCROWO, CA 92026 | 760 746 1953

PROJECT: NUTMEG PROJECT 4.5 ACRE SITE	DRILLER: CTE	SHEET: 1 of 1
CTE JOB NO: 10-8721E	DRILL METHOD: HAND AUGER	DRILLING DATE: 5/15/2007
LOGGED BY: SC & GR	SAMPLE METHOD: SLEEVE, ENCORE	ELEVATION: -878

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0	X				CL-SC		<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-2.5': Dense, slightly moist, orange brown and gray, sandy CLAY to clayey SAND with trace fine gravel.	PID @ 0-1.5' = 1.6ppm
5							Sampled 1.5' to 2.5'. Backfilled with bentonite chips. No Groundwater.	
10								
15								
20								
25								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCOBIDO, CA 92026 | 760.746.4955

PROJECT: NUTMEG PROJECT 4.5 ACRE SITE DRILLER: CTE SHEET: 1 of 1
 CTE JOB NO: 10-8721E DRILL METHOD: HAND AUGER DRILLING DATE: 5/15/2007
 LOGGED BY: SC & GR SAMPLE METHOD: SLEEVE, ENCORE ELEVATION: ~880

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: SB-3	
								Laboratory Tests	
								DESCRIPTION	
0	X					CL		<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-1.5': Stiff, slightly moist, dark brown sandy CLAY.	PID @ 0-0.5' = 0.2ppm
5								Sampled 0.5' to 1.5'. Backfilled with bentonite chips. No Groundwater.	
10									
15									
20									
25									



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4555

PROJECT: NUTMEG PROJECT 4.5 ACRE SITE DRILLER: CTE SHEET: 1 of 1
CTE JOB NO: 10-8721E DRILL METHOD: HAND AUGER DRILLING DATE: 5/15/2007
LOGGED BY: SC & GR SAMPLE METHOD: SLEEVE, ENCORE ELEVATION: -887

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: SB-4	Laboratory Tests
DESCRIPTION								
0	X				SM		<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-1.5': Dense to very dense, slightly moist, red brown silty SAND, with trace asphalt and wood fragments.	PID @ 0.75' = 0.5ppm
5							Sampled 0.5' to 1.5'. Backfilled with bentonite chips. No groundwater.	
10								
15								
20								



PROJECT: NUTMEG PROJECT 4.5 ACRE SITE DRILLER: CTE SHEET: 1 of 1
 CTE JOB NO: 10-8721E DRILL METHOD: HAND AUGER DRILLING DATE: 5/15/2007
 LOGGED BY: SC & GR SAMPLE METHOD: SLEEVE, ENCORE ELEVATION: -881

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: SB-5	
							Laboratory Tests	
							DESCRIPTION	
0					CL		<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-3.0': Stiff, slightly moist, gray brown sandy CLAY w/trace fine gravel.	PID @ 3-3.5' = 2.2 ppm
3					CL		3-5.0': Medium stiff, moist, mottled orange and brown, sandy CLAY w/trace wood fragments.	
4	X						Sampled 4.0' to 5.0'. Backfilled with bentonite chips. No groundwater.	
5								
10								
15								
20								
25								



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
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PROJECT: NUTMEG PROJECT 4.5 ACRE SITE DRILLER: CTE SHEET: 1 of 1
 CTE JOB NO: 10-8721E DRILL METHOD: HAND AUGER DRILLING DATE: 5/15/2007
 LOGGED BY: SC & GR SAMPLE METHOD: SLEEVE, ENCORE ELEVATION: -883

Depth (Feet)	Bulk Sample Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING: SB-6	
							Laboratory Tests	
							DESCRIPTION	
0	X				SM		QUATERNARY UNDOCUMENTED FILL (Qudf): 0-1.5': Dense, dry, brown, silty SAND.	PID @ 0-0.5' = 0.3 ppm
5							Sampled 0.5' to 1.5'. Backfilled with bentonite chips. No groundwater.	
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APPENIDIX D

CaITOX SPREAD SHEET CALCULATIONS

CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Acetone	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)		
Inhalation	0.0 E+00	8.82		
Ingestion	0.0 E+00	0.1		
Dermal	0.0 E+00	0.1		
Total dose		0		
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00		
Root-soil thickness ==>	current value 3	should be > OK		
Alter root soil thickness to?	3.0 E+00			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
Root-zone soil	0.12	ppm (mg/kg)		
Vadose-zone soil	0	ppm (mg/kg)		
Ground water	0	ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
Source term to air (mol/d)	0.0 E+00	Sa		
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg		
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics				
Distance to first well (m)	0.0 E+00	d_well		
Darcy velecocity (m/d)	1.0 E-01	v_darc		
Water dispersion coeff. (m2/d)	5.0 E-02	D T		
			Un-mitigated risk and/or hazard ratio	
			Risk	0.0 E+0
			Hazard ratio	6.0 E-10
			Target Soil Concentrations (in ppm)	
			Based on cancer risk:	
			Root soil	0.0 E+0 not avlbl.
			Vadose soil	0.0 E+0 not avlbl.
			Root Soil	1.0 E+5
			Vadose soil	n/a
			Based on hazard:	
			Root soil	1.0 E+5 >conc limit
			Vadose soil	0.0 E+0 not avlbl.
			Concentration limits without NAPL	
			Root soil	7.9 E+04 mg/kg solid
			Vadose soil	7.4 E+04 mg/kg solid
			Ground water	6.0 E+05 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	1.1 E-32 mg/m3
			Total Leaf	4.2 E-33 mg/kg(total)
			Grnd-surface soil	1.6 E-32 mg/kg(total)
			Root-zone soil	1.9 E-30 mg/kg(total)
			Vadose-zone soil	8.6 E-13 mg/kg(total)
			Ground water	1.7 E-10 mg/L(water)
			Surface water	4.6 E-33 mg/L
			Sediment	6.9 E-35 mg/kg

Chemical Properties

0.00297

0.003

1

1.0 E+02

Compound	Acetone		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	5.81 E+01	5.81E+01	0.01	1	
	Octanol-water partition coefficient	Kow	6.00 E-01	6.00E-01	0.03	1	
	Melting point (K)	Tm	1.78 E+02	1.78E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	3.03 E+04	3.03E+04	0.02	1	
	Solubility in mol/m ³	S	1.04 E+04	1.04E+04	0.39	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	3.96 E+00	3.96E+00	0.46	1	0.0016486
	Diffusion coefficient in pure air (m ² /d)	Dair	1.07 E+00	1.07E+00	0.08	1	1.24 E-05
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.13 E-04	1.13E-04	0.25	1	1.31 E-09
	Organic carbon partition coefficient Koc	Koc -	2.88 E-01	-9.90E+01	1.00	1	m ² /s
	Octanol/air partition coefficient	Koa -	3.64 E+02	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	2.97 E-03	-9.90E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	8.81 E-04	-9.90E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	8.81 E-04	-9.90E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	5.76 E-03	-9.90E+01	0.10	1	
	NOT USED	Kps -	1.03 E+01	-9.90E+01	4.00	1	
	Leaves/phlm wtr prtn cff.(wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	6.85 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.42 E-02	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	3.67 E-01	-9.90E+01	14.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	4.77 E-09	-9.90E+01	11.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	1.51 E-08	-9.90E+01	13.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	9.51 E-08	-9.90E+01	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	1.20 E-07	-9.90E+01	10.00	1	
	Bioconcentration factor; fish/water	BCF -	2.88 E-02	-9.90E+01	0.60	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	7.81 E-04	-9.90E+01	2.40	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.30	1	
	Fraction dermal uptake from soil	dfct_sl-	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	6.39 E+01	6.39E+01	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	4.00 E+00	4.00E+00	1.10	1	
Reaction half-life in root-zone soil (d)	Thalf_s	4.00 E+00	4.00E+00	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	1.50 E+01	1.50E+01	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	8.00 E+00	8.00E+00	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	4.00 E+00	4.00E+00	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	1.45 E+01	1.45E+01	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	6.39 E+01	-9.90E+01	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	0.00 E+00	0.00E+00	0.00	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.20	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.20	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	0.20	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content, vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.03 E-02	8.47E-03	1.98	1
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1 (m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1 3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1

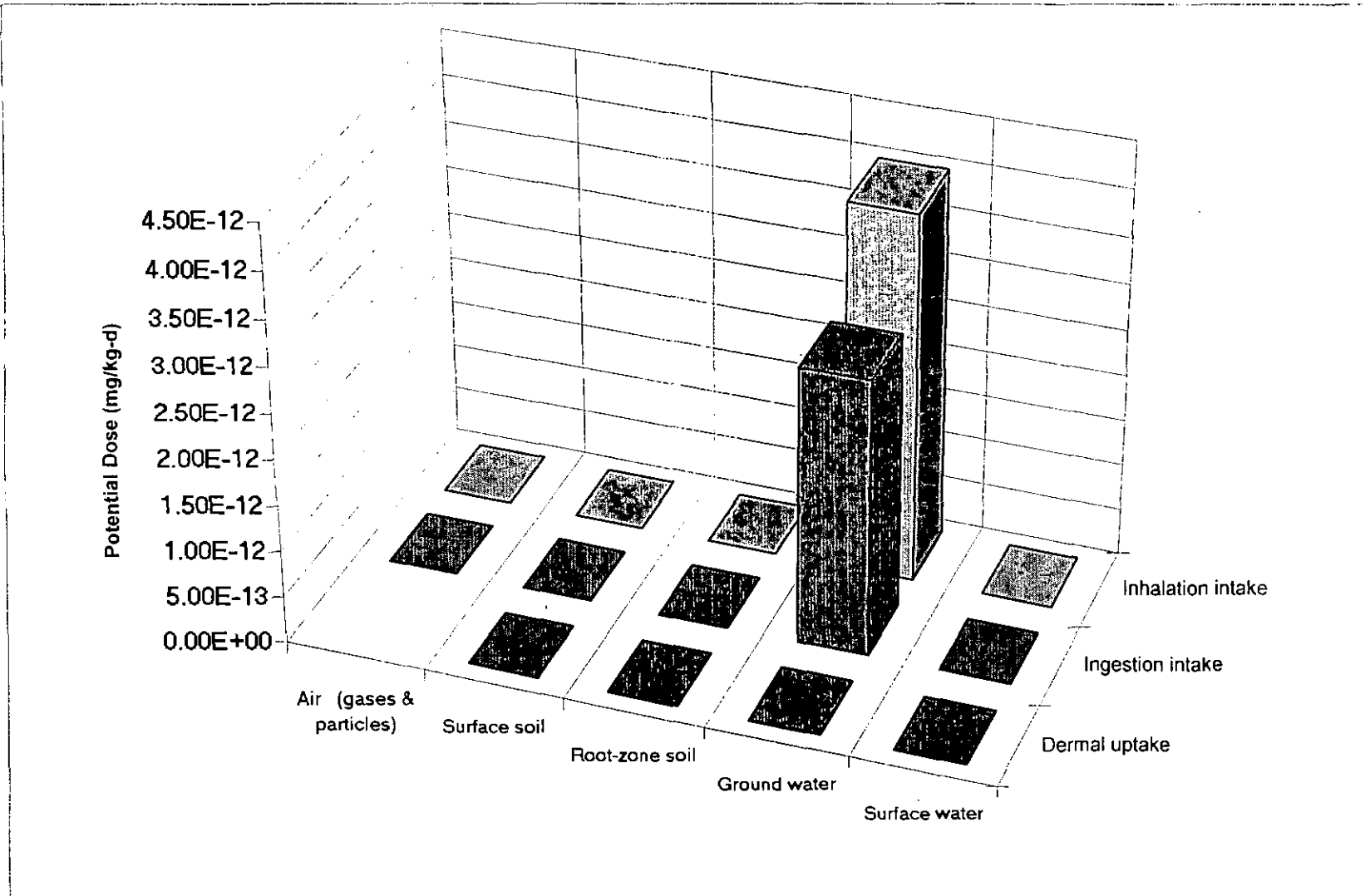
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m2-d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prttn fctr, particles, m3/kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m3/min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m3/h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m^3)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm^2)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	

Constants

Gas Constant (Pa-m^3/mol-K)	8.31E+00	Rgas
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thisisacaltosheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	1	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	1	Cntmnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	1	Contamnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	1		
Transfer of soil dust to indoor air	1	Ingestion of home-grown exposed produce	1
Transfer of soil vapors to indoor air	1	Ingestion of home-grown unexposed produce	1
On-site inhalation by animals	1	Ingestion of home-grown meat	1
		Ingestion of home-grown milk	1
Use of ground water as tap water	1	Ingestion of home-grown eggs	1
Use of surface water as tap water	1	Ingestion of locally caught fish	1
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	1	Soil contact exposure at home or at work	1
Use of surface water for irrigation	1	Dermal exposure during shower/bath	1
		Dermal & ingstn exposures while swimming	1
Use of ground water for feeding animals	1		
Use of surface water for feeding animals	1	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	2.26E-33	2.35E-42	4.93E-34	4.00E-12	2.72E-35	4.00E-12	57.18
INGESTION:							
Water				2.99E-12	2.03E-35	2.99E-12	42.69
Exposed produce	4.09E-36	1.31E-39	9.35E-38	3.91E-17	2.66E-40	3.91E-17	0.00
Unexposed produce			1.08E-34	2.34E-17	1.59E-40	2.34E-17	0.00
Meat	3.12E-41	4.63E-45	1.12E-43	9.46E-20	6.42E-43	9.46E-20	0.00
Milk	2.07E-41	3.29E-45	9.88E-44	5.89E-20	4.00E-43	5.89E-20	0.00
Eggs	4.25E-43	2.84E-48	1.97E-46	2.00E-22	1.36E-45	2.00E-22	0.00
Fish					2.70E-38	2.70E-38	0.00
Soil		1.09E-42	1.23E-40			1.25E-40	0.00
Total ingestion	4.09 E-36	1.31 E-39	1.08 E-34	2.99 E-12	2.04 E-35	2.99 E-12	42.69
DERMAL UPTAKE		5.67E-40	6.44E-38	8.94E-15	1.13E-37	8.94E-15	0.13
Dose SUM	2.26E-33	1.88E-39	6.01E-34	7.00E-12	4.77E-35	7.00E-12	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	1.78 E-38	1.47 E-44	4.71 E-39	5.49 E-17	3.74 E-40	5.49 E-17
Infant dose	1.95 E-39	1.62 E-45	5.19 E-40	6.04 E-18	4.11 E-41	dose_bm 6.04 E-18

Ingestion dose used =>	2.99 E-12
Total dose used =>	7.00 E-12

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	1.08 E-32	5.96 E-41	3.85E-34	4.37 E-32	1.70 E-10	4.61 E-33

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	1.08 E-32	5.96 E-41	1.16 E-41	2.43 E-33	4.67 E-12	3.17 E-35
Bathroom air (mg/m ³)					6.00 E-10	4.07 E-33
Outdoor air (mg/m ³)	1.08 E-32	5.96 E-41				
Tap water (mg/L)					1.36 E-10	9.22 E-34
Exposed produce (mg/kg)	4.10 E-33	2.26 E-41	1.31 E-36	9.38 E-35	3.92 E-14	2.66 E-37
Unexposed produce (mg/kg)				1.72 E-31	3.76 E-14	2.55 E-37
Meat (mg/kg)	2.36 E-38	1.30 E-46	3.51 E-42	8.48 E-41	7.17 E-17	4.87 E-40
Milk (mg/kg)	7.95 E-39	4.38 E-47	1.27 E-42	3.80 E-41	2.27 E-17	1.54 E-40
Eggs (mg/kg)	2.31 E-39	1.27 E-47	1.54 E-44	1.07 E-42	1.09 E-18	7.37 E-42
Fish and seafood (mg/kg)						1.33 E-34
Household soil (mg/kg)			1.93 E-34	2.19 E-32		
Swimming water (mg/L)						4.61 E-33

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		1.52 E-01		
Indoor air (resting)		5.12 E-02		
Indoor air (shower/bath)		5.13 E-03		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	6.58 E-05
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			1.32 E-03	
Milk			2.60 E-03	
Eggs			1.84 E-04	
Fish and seafood			2.03 E-04	
Household soil			5.65 E-09	2.94 E-06
Swimming wtr			1.44 E-05	1.14 E-05

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	0.0 E+00	0.0 E+00	0.0 E+00	5.5 E-12	4.1 E-12	1.2 E-14

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	8.0 E-11	6.0 E-11	1.8 E-13	1.4 E-10	0.0 E+00	1.4 E-10
2.4	3.5 E-21	2.6 E-21	7.8 E-24	6.1 E-21	0.0 E+00	6.1 E-21
3.8	1.5 E-31	1.1 E-31	3.4 E-34	2.6 E-31	0.0 E+00	2.6 E-31
5.2	6.6 E-42	4.9 E-42	1.5 E-44	1.1 E-41	0.0 E+00	1.1 E-41
6.6	2.9 E-52	2.1 E-52	6.4 E-55	5.0 E-52	0.0 E+00	5.0 E-52
8	1.2 E-62	9.3 E-63	2.8 E-65	2.2 E-62	0.0 E+00	2.2 E-62
9.4	5.4 E-73	4.0 E-73	1.2 E-75	9.4 E-73	0.0 E+00	9.4 E-73
10.8	2.3 E-83	1.8 E-83	5.2 E-86	4.1 E-83	0.0 E+00	4.1 E-83
12.2	1.0 E-93	7.6 E-94	2.3 E-96	1.8 E-93	0.0 E+00	1.8 E-93
13.6	4.4 E-104	3.3 E-104	9.9 E-107	7.8 E-104	0.0 E+00	7.8 E-104
15	1.9 E-114	1.4 E-114	4.3 E-117	3.4 E-114	0.0 E+00	3.4 E-114
Cumulative doses				3.57683E-08		
over ED by route, mg/kg	2.0 E-08	1.5 E-08	4.6 E-11	3.6 E-08	0.0 E+00	3.6 E-08
fraction	0.5718	0.4269	0.0013	1.0000	0.000	1.000
Average doses						
over ED by route, mg/kg-d	4.0 E-12	3.0 E-12	8.9 E-15	7.0 E-12	0.0 E+00	7.0 E-12
Maximum doses						
over ED by route, mg/kg-d	8.0 E-11	6.0 E-11	1.8 E-13	1.4 E-10	0.0 E+00	1.4 E-10
fraction	0.5718	0.4269	0.0013	1.0000	0.000	1.000

Max breast-milk dose

1.2 E-16

mg/kg-d

Max ing

6.0 E-11

Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 6.4 E-24 mol/day
 bbb2 = 5.4 E-23 bbb4 = 3.2 E-26
 bbb3 = 9.4 E-26 bbb5 = 6.1 E-29

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	1.1 E-32	mg/m ³	4.5 E-34	4.5 E-34	air
Off-site concentration (particles)	6.0 E-41	mg/m ³			
Off-site surface-water concentrtn.	1.3 E-33	mg/L	9.0 E-35	3.1 E-34	water
Off-site surface soil concentration	2.0 E-35	mg/kg	4.7 E-34	8.8 E-33	ground soil
Off-site root-soil concentration	2.2 E-38	mg/kg	5.0 E-37	1.0 E-30	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	5.0 E-01 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	2.5 E-01 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	7.7 E-07 1/d

Calculated Properties

fugacity capacity of pure air	4.16E-04	Zair		
fugacity capacity of pure water	2.53E-01	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	2.17E-03	del_aw		
bndry lyr thickness in wtr below air (m)	4.71E-04	del_wa		
diffusion length in surface soil (m)	2.01E-02	del_g		
diffusion length in upper soil (m)	1.87E+00	del_s		
Thickness of the root-zone soil layer	3.00E+00	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	4.27E-01	del_dw		
Initial concentration in soil (mol/m ³)	3.33E-03	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	4.30E-01	tlag		
Skin/water partition coefficient	8.06E-01	Km		
Reaction rate constant in air (1/d)	1.08E-02	Ra		
Reaction rate constant, ground soil (1/d)	1.73E-01	Rg		
Reaction rate constant, root-zone soil (1/d)	1.73E-01	Rs		
Reaction rate constant, vadose-zone soil (1/d)	4.62E-02	Rv		
Reaction rate constant, ground water (1/d)	8.66E-02	Rq		
Reaction rate constant, surface water (1/d)	1.73E-01	Rw		
Reaction rate constant, sediment (1/d)	4.51E-02	Rd		
Reaction rate constant in leaf surface (1/d)	1.08E-02	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	1.86E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	1.50E+02	mtc_s		
cuticular conductance (m/d)	2.31E-04	mtc_c		
air side conductance over leaf (m/d)	5.35E+02	mtc_a		
cuticle water permeance (m/d)	3.80E-07	mtc_l		
conductance air/cuticle (m/d)	2.31E-04	mtc_ct		
conductance air/stomata (m/d)	1.17E+02	mtc_st		
root-soil / stem transfer factor	1.13E-05	x_rs		
stem / leaf transfer factor	2.27E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.13E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	4.48E-34
Cuticle	fc	9.33E-33
Leaf	fl	4.53E-34
Ground	fg	8.84E-33
Root	fs	1.00E-30
Vadose	fv	4.81E-13
Water	fw	3.14E-34
Sediment	fd	5.04E-35
Groundwater	fq	1.16E-11

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	1.2 E+12	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

5.51E-09

Zap	9.69E-02	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	1.95E-03	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	1.95E-03	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	5.78E-04	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	3.78E-03	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	3.78E-03	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	5.78E-04	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	1.25E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	4.16E-04	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	2.69E-02	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	1.26E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	4.97E-02	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	5.32E-02	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	5.15E-02	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	2.52E-01	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	5.35E-02	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	5.10E-02	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)			Fugacity mass-transfer coefficients mol/Pa-m ² -d			Overall intercompartment mass transfer rate constants (1/day)			
Compartment	Phase	Compartment			Y	one-sided	both-sides	Diffusion	Advection	Total	Compartment Interface		
Dair	1.07E+00	Da	1.07E+00	2.17E-03	2.05E-01	4.68E-02		2.93E-03	1.76E-05	2.94E-03	air-water, T_aw		
Dwater	1.13E-04	Dw	1.13E-04	4.71E-04	6.06E-02			3.71 E-02		3.71E-02	water-air, T_wa		
Dair_g	6.17E-02	Dg	6.48E-04	5.00E-03	8.91E-02	1.57E-03		5.30E-03	8.54E-04	6.15E-03	air-ground, T_ag		
Dwater_g	2.21E-06			2.01E-02	1.60E-03			3.17E+00	4.65E-08	3.17E+00	ground-air, T_ga		
Dair_s	5.21E-02	Ds	5.40E-04	2.01E-02	1.60E-03	1.53E-05		3.07E-02	2.83E-02	5.90E-02	ground-soil, T_gs		
Dwater_s	2.77E-06			1.87E+00	1.54E-05			9.55E-05	0.00E+00	9.55E-05	soil-ground, T_sg		
Dair_v	4.51E-02	Dv	4.99E-04	1.87E+00	1.54E-05	7.26E-06			8.82E-05	8.82E-05	soil-vadose, T_sv		
Dwater_v	2.86E-06			1.77E+00	1.38E-05						vadose-soil, T_vs		
Dwater_d	1.32E-05	Dd	6.23E-05	2.00E-02	1.43E-03	7.77E-06		6.15E-06	1.21E-05	1.83E-05	water-sediment, T_wd		
				4.27E-01	7.81E-06			2.90E-03	5.71E-03	8.61E-03	sediment-water, T_dw		
								2.35E-06	9.49E-05	9.73E-05	air-cuticle, T_ac		
								1.76E+00	2.48E-03	1.77E+00	cuticle-air, T_ca		
								5.96E-01		5.96E-01	air - leaf T_al		
								1.02E+03		1.02E+03	leaf-air, T_la		
								1.76E+00		1.76E+00	cuticle-leaf, T_cl		
								3.97E-03		3.97E-03	leaf-cuticle, T_lc		
									4.98E-02	4.98E-02	cuticle-ground T_cg		
aaa1	1.36E-02	C0_1	4.04E+09					4.04E+09	2.74E-03	2.74E-03	leaf-ground T_lg		
aaa2	1.26E+00	C0_2	0.00E+00					2.81E+06	1.10E-03	1.10E-03	leaf-soil, T_ls		
aaa3	2.68E+01	S_1	0.00E+00					-2.81E+06	1.13E-05	1.13E-05	soil-leaf, T_sl		
aaa4	9.42E-05	S_2	0.00E+00					0.00E+00		0.00E+00	ground-cuticle, T_gc		
aaa5	2.74E-05	AA	1.73E-01					0	4.91E-04	4.91E-04	vadose-aquifer, T_vq		
bbb1	0.00E+00	BB	0.00E+00					0.173443	1.41E-06	1.41E-06	sediment-out, T_do		
bbb2	0.00E+00	CC	8.82E-05						1.00E-01	1.00E-01	air-out, T_ao		
bbb3	0.00E+00	DDD	4.67E-02						2.73E-01	2.73E-01	ground-water, T_gw		
ccc1	1.02E+03	Gam1	-4.67E-02						5.36E-03	5.36E-03	water-out, T_wo		
ccc2	5.96E-01	Gam2	-1.73E-01										
ccc3	7.16E-01	Gm1mGm2	1.27E-01										
ccc4	1.02E+03	Gam1p	1.73E-01										
ccc5	6.16E-03	Gam2p	4.67E-02										
ccc6	2.79E-03	Gm1mGm2p	1.27E-01										

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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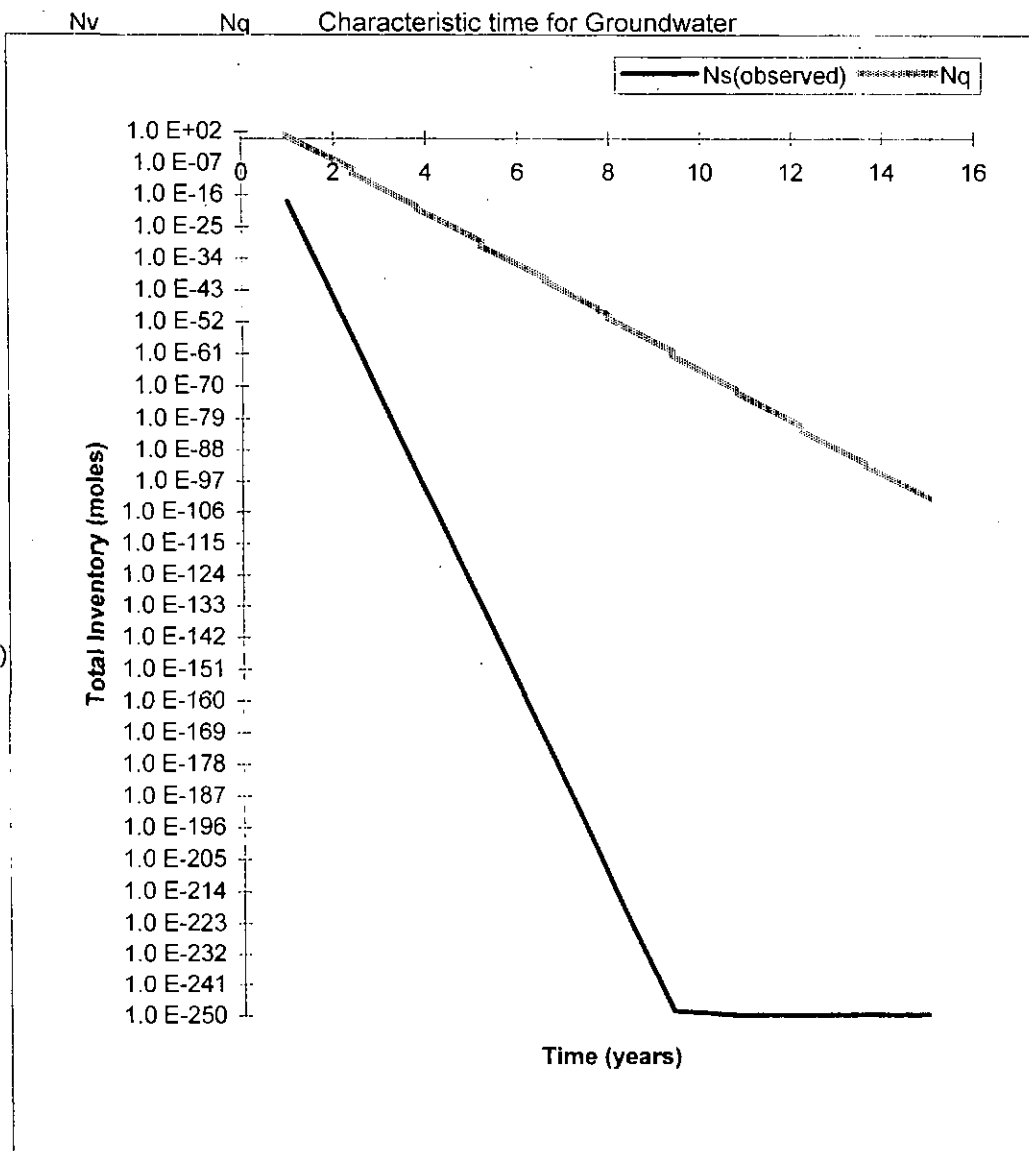
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	7.16E-01	5.37E-23	1.86E-37	0.00%	2.23E-21	2.23E-21	1.40E+00
leaf	l	1.02E+03	3.22E-26	5.72E-35	0.00%	1.90E-21	1.90E-21	9.84E-04
cuticle	c	3.59E+00	1.49E-27	2.51E-34	0.00%	3.11E-25	3.11 E-25	2.79E-01
ground-soil	g	3.67E+00	1.77E-24	4.39E-34	0.00%	3.78E-22	3.78E-22	2.72E-01
root-soil	s	1.73E-01	6.47E-20	5.34E-32	0.00%	6.09E-24	6.52E-19	5.77E+00
vadose-zone	v	4.67E-02	5.57E-03	2.48E-14	0.76%	3.32E-22	1.51E-02	2.14E+01
surface water	w	2.16E-01	2.98E-24	7.94E-35	0.00%	3.73E-23	3.73E-23	4.64E+00
sediment	d	5.37E-02	1.01E-27	2.70E-36	0.00%	3.15E-27	3.15E-27	1.86E+01
aquifer	q	8.66E-02	7.28E-01	5.90E-13	99.24%	1.59E-04	3.66E+00	1.15E+01

Mass Flows (g/d)

air-ground	1.92E-23	Tag*Na*MW	ground-water	2.81E-23	Tgw*Ng*MW
air-water	9.17E-24	Taw*Na*MW	ground-trnsfrm	1.79E-23	Rg*Ng*MW
air-out	3.13E-22	Tao*Na*MW	soil-ground	3.59E-22	Tsg*Ns*MW
air-leaves	1.86E-21	Tal*Na*MW	soil-leaves	4.24E-23	Tsl*Ns*MW
air-leaf surfaces	3.03E-25	Tac*Na*MW	soil-vadose	3.32E-22	Tsv*Ns*MW
air-transform	3.38E-23	Ra*Na*MW	soil-trnsfrm	6.51E-19	Rs*Ns*MW
leaves-air	1.90E-21	Tla*NI*MW	vadose-aquifer	1.59E-04	Tvq*Nv*MW
leaves-leaf surfaces	7.41E-27	Tlc*NI*MW	vadose-trnsfrm	1.50E-02	Rv*Nv*MW
leaves-ground	5.12E-27	Tlg*NI*MW	aquifer-removal	3.66E+00	Lq*Nq*MW
leaves-soil	2.05E-27	Tls*NI*MW	water-air	6.40E-24	Twa*Nw*MW
leaf-surface - air	1.53E-25	Tca*Nc*MW	water-sediment	3.15E-27	Twd*Nw*MW
leaf-surfaces - leaves	1.53E-25	Tcl*Nc*MW	water-out	9.27E-25	Two*Nw*MW
leaf-surfaces - ground	4.31E-27	Tcg*Nc*MW	water-trnsfrm	2.99E-23	Rw*Nw*MW
leaf surfaces-trnsfrm	9.38E-28	Rls*Nc*MW	sediment-water	5.06E-28	Tdw*Nd*MW
ground-air	3.26E-22	Tga*Ng*MW	sedmnt-trnsfrm	2.65E-27	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	8.30E-32	Tdo*Nd*MW
ground-soil	6.08E-24	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	1.3 E-18	1.5 E+01
2.4	876	4.2 E-57	6.3 E-10
3.8	1387	1.3 E-95	2.8 E-20
5.2	1898	4.3 E-134	1.2 E-30
6.6	2409	1.4 E-172	5.2 E-41
8	2920	4.5 E-211	2.3 E-51
9.4	3431	1.5 E-249	9.8 E-62
10.8	3942	1.0 E-250	4.3 E-72
12.2	4453	1.0 E-250	1.9 E-82
13.6	4964	1.0 E-250	8.1 E-93
15	5475	1.0 E-250	3.5 E-103
		Ns(0)[total]	
		4.0 E+09	
		const_sat	
		-4.60799E+14	
		Ns(sat)	
		2.7E+15	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.68 E+17	1.3E-18	5.0E+12
0	-2.35 E+17	4.2E-57	5.0E+12
0	-2.35 E+17	1.3E-95	5.0E+12
0	-2.35 E+17	4.3E-134	5.0E+12
0	-2.35 E+17	1.4E-172	5.0E+12
0	-2.35 E+17	4.5E-211	5.0E+12
0	-2.35 E+17	1.5E-249	5.0E+12
0	-2.35 E+17	1.0E-250	5.0E+12
418.30176	-2.35 E+17	1.0E-250	5.0E+12
929.30176	-2.35 E+17	1.0E-250	5.0E+12
1440.3018	-2.35 E+17	1.0E-250	5.0E+12



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Antimony	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)		
Inhalation	1.0 E+00	0.0004		
Ingestion	1.0 E+00	0.0004		
Dermal	1.0 E+00	0.0004		
Total dose	0			
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotient 1.00		
Root-soil thickness ==>	current value 3	should be > OK		
Alter root soil thickness to?	3.0 E+00			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
Root-zone soil	0.0763	ppm (mg/kg)		
Vadose-zone soil	0	ppm (mg/kg)		
Ground water	0	ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
Source term to air (mol/d)	0.0 E+00	Sa		
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg		
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics				
Distance to first well (m)	0.0 E+00	d_well		
Darcy velocity (m/d)	1.0 E-01	v_darc		
Water dispersion coeff. (m2/d)	5.0 E-02	D_T		
59.63956371				
			Un-mitigated risk and/or hazard ratio	
			Risk	5.9 E-7
			Hazard ratio	7.1 E-3
			Target Soil Concentrations (in ppm)	
			Based on cancer risk:	
			Root soil	1.3 E-1
			Vadose soil	0.0 E+0 not avbl.
			Root Soil	1.3 E-1
			Vadose soil	n/a
			Based on hazard:	
			Root soil	1.1 E+1
			Vadose soil	0.0 E+0 not avbl.
			Concentration limits without NAPL	
			Root soil	9.7 E+02 mg/kg solid
			Vadose soil	9.8 E+02 mg/kg solid
			Ground water	1.2 E+02 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	3.6 E-09 mg/m3
			Total Leaf	8.6 E-01 mg/kg(total)
			Grnd-surface soil	6.5 E-02 mg/kg(total)
			Root-zone soil	7.2 E-02 mg/kg(total)
			Vadose-zone soil	1.6 E-03 mg/kg(total)
			Ground water	4.5 E-01 mg/L(water)
			Surface water	8.8 E-03 mg/L
			Sediment	7.2 E-02 mg/kg

Chemical Properties

0.00287

0.003

1

4.1 E+01

Compound	Antimony		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	1.22 E+02	1.22E+02	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	9.04 E+02	9.04E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m ³	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa·m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	9.00 E+00	9.00E+00	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	9.00 E+00	9.00E+00	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	9.00 E+00	9.00E+00	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	9.00 E+00	9.00E+00	0.10	1	
	NOT USED	Kps -	0.00 E+00	0.00E+00	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	1.10 E+06	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.10 E-04	1.10E-04	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	3.74 E-04	3.74E-04	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	9.00 E-01	9.00E-01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	0.00 E+00	0.00E+00	0.00	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.20	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.20	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	0.20	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Organic carbon fraction in upper soil zone	foc_s	1.03 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

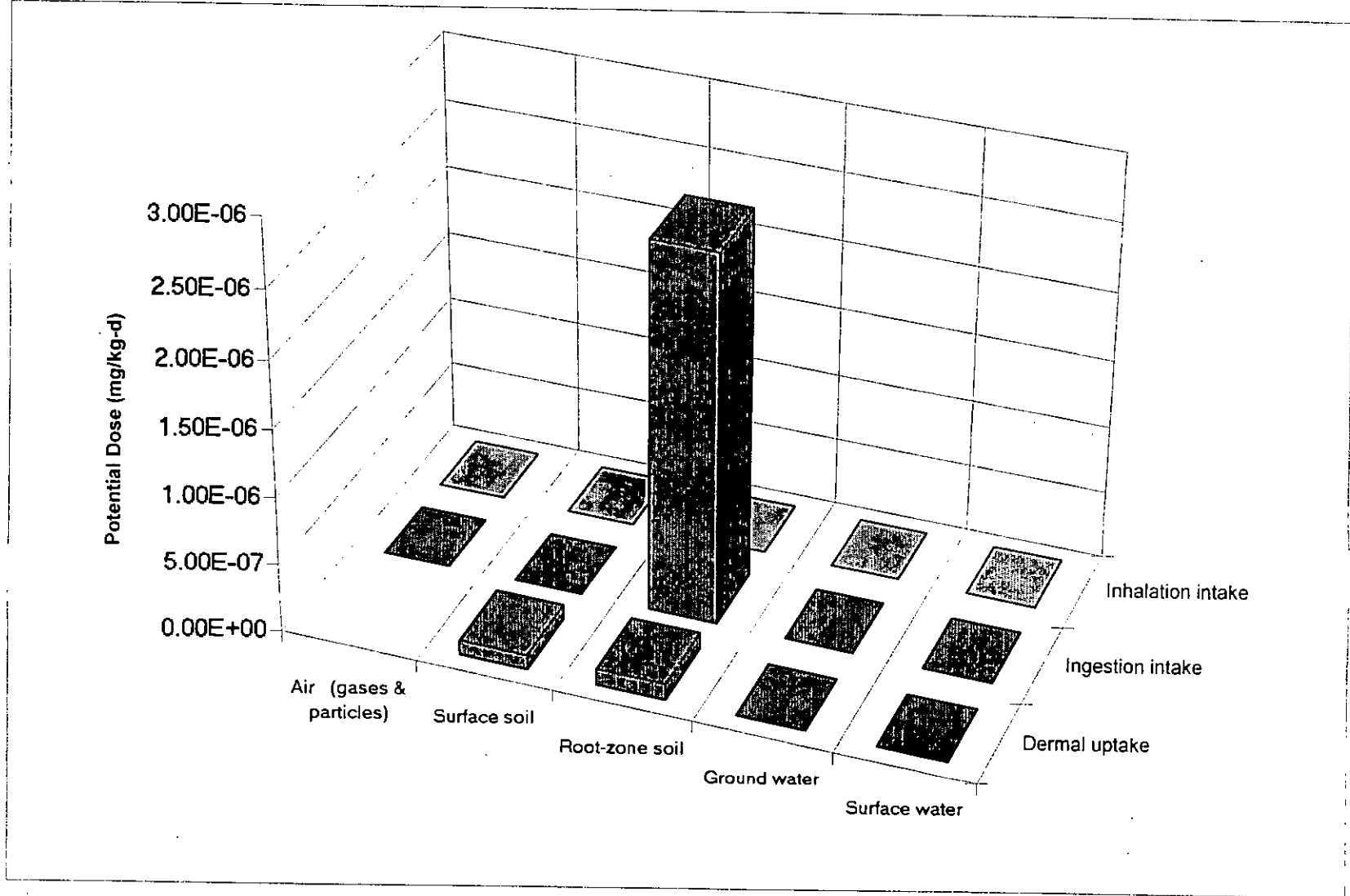
Human Exposure Factors

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frcn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prtn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	
Constants							
	Gas Constant (Pa-m ³ /mol-K)		8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Cntmnmnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contamnmnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	0
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	0
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingstn exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	2.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-11	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Unexposed produce			2.72E-06	0.00E+00	0.00E+00	2.72E-06	92.27
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		2.06E-10	2.30E-10			4.36E-10	0.01
Total ingestion	0.00 E+00	2.06 E-10	2.72 E-06	0.00 E+00	0.00 E+00	2.72 E-06	92.28
DERMAL UPTAKE		1.07E-07	1.20E-07	0.00E+00	0.00E+00	2.27E-07	7.72
Dose SUM	2.04E-11	1.08E-07	2.84E-06	0.00E+00	0.00E+00	2.95E-06	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	2.72 E-06
Total dose used =>	2.95 E-06

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	3.58 E-09	7.31E-02	8.14 E-02	4.50 E-01	8.71 E-03

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	3.58 E-09				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	2.56 E-04	2.48 E-04	8.61 E-01	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				4.36 E-03	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	5.74 E-06	5.57 E-06	1.93 E-02	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	2.39 E-06	2.32 E-06	8.05 E-03	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						7.84 E-03
Household soil (mg/kg)			3.65 E-02	4.07 E-02		
Swimming water (mg/L)						8.77 E-03

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			0.00 E+00	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.94 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	1.8 E-20	2.4 E-15	2.0 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	2.1 E-11	2.9 E-06	2.4 E-07	3.1 E-06	3.1 E-06	0.0 E+00
2.4	2.1 E-11	2.8 E-06	2.4 E-07	3.1 E-06	3.1 E-06	0.0 E+00
3.8	2.1 E-11	2.8 E-06	2.3 E-07	3.0 E-06	3.0 E-06	0.0 E+00
5.2	2.1 E-11	2.8 E-06	2.3 E-07	3.0 E-06	3.0 E-06	0.0 E+00
6.6	2.1 E-11	2.7 E-06	2.3 E-07	3.0 E-06	3.0 E-06	0.0 E+00
8	2.0 E-11	2.7 E-06	2.3 E-07	2.9 E-06	2.9 E-06	0.0 E+00
9.4	2.0 E-11	2.7 E-06	2.2 E-07	2.9 E-06	2.9 E-06	0.0 E+00
10.8	2.0 E-11	2.7 E-06	2.2 E-07	2.9 E-06	2.9 E-06	0.0 E+00
12.2	2.0 E-11	2.6 E-06	2.2 E-07	2.9 E-06	2.9 E-06	0.0 E+00
13.6	2.0 E-11	2.6 E-06	2.2 E-07	2.8 E-06	2.8 E-06	0.0 E+00
15	1.9 E-11	2.6 E-06	2.2 E-07	2.8 E-06	2.8 E-06	0.0 E+00
Cumulative doses				0.015050569		
over ED by route, mg/kg	1.0 E-07	1.4 E-02	1.2 E-03	1.5 E-02	1.5 E-02	0.0 E+00
fraction	0.0000	0.9228	0.0772	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	2.0 E-11	2.7 E-06	2.3 E-07	2.9 E-06	2.9 E-06	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	2.1 E-11	2.9 E-06	2.4 E-07	3.1 E-06	3.1 E-06	0.0 E+00
fraction	0.0000	0.9228	0.0772	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max_ing	2.9 E-06
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 7.4 E+00 mol/day
 bbb2 = 8.5 E+00 bbb4 = 2.7 E+05
 bbb3 = 2.9 E+02 bbb5 = 5.3 E+04

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	0.0 E+00	mg/m ³	5.3 E-05	5.3 E-05	air
Off-site concentration (particles)	3.6 E-09	mg/m ³			
Off-site surface-water concentrtn.	2.9 E-06	mg/L	2.3 E-08	7.1 E-05	water
Off-site surface soil concentration	2.3 E-05	mg/kg	2.1 E-08	6.7 E-05	ground soil
Off-site root-soil concentration	1.9 E-05	mg/kg	1.8 E-08	7.4 E-05	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	5.3 E-03 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	2.6 E-03 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	8.2 E-09 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	1.88E-03	del_aw		
bdry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.69E-01	del_s		
Thickness of the root-zone soil layer	3.00E+00	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	2.19E-02	del_dw		
Initial concentration in soil (mol/m3)	1.01E-03	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	1.86E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	1.30E-05	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	5.31E-05
Cuticle	fc	5.41E-05
Leaf	fl	1.17E-02
Ground	fg	6.65E-05
Root	fs	7.42E-05
Vadose	fv	1.63E-06
Water	fw	7.14E-05
Sediment	fd	7.13E-05
Groundwater	fq	3.69E-03

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	1.2 E+12	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	2.34E+01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	2.34E+01	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	2.34E+01	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	2.34E+01	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	2.34E+01	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	2.34E+01	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	2.34E+01	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	4.98E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	5.54E-10	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	2.67E-01	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	1.29E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	1.29E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	1.34E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.01E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	1.89E+01	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	1.89E+01	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment			Y one-sided	both-sides	Diffusion	Advection	Total	
Dair	6.40E-01	Da	0.00E+00	1.88E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw
Dwater	1.30E-04	Dw	1.29E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag
Dwater_g	2.54E-06			1.37E-02	1.13E-01		0.00E+00	2.15E-06	2.15E-06	ground-air, T_ga
Dair_s	3.11E-02	Ds	1.20E-04	1.37E-02	1.13E-01	2.26E-03	1.76E-02	4.33E-04	1.80E-02	ground-soil, T_gs
Dwater_s	3.19E-06			6.69E-01	2.31E-03		5.87E-05	0.00E+00	5.87E-05	soil-ground, T_sg
Dair_v	2.70E-02	Dv	1.20E-04	6.69E-01	2.31E-03	1.18E-03		1.45E-06	1.45E-06	soil-vadose, T_sv
Dwater_v	3.29E-06			6.69E-01	2.40E-03					vadose-soil, T_vs
Dwater_d	1.52E-05	Dd	8.04E-07	2.00E-02	6.54E-03	6.28E-04	1.25E-04	1.88E-02	1.89E-02	water-sediment, T_wd
				2.19E-02	6.95E-04		6.64E-04	1.00E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00		0.00E+00	air - leaf T_al
							0.00E+00		0.00E+00	leaf-air, T_la
							0.00E+00		0.00E+00	cuticle-leaf, T_cl
							0.00E+00		0.00E+00	leaf-cuticle, T_lc
aaa1	2.70E+00			C0_1	1.22E+09					cuticle-ground T_cg
aaa2	7.79E-01			C0_2	0.00E+00			4.98E-02	4.98E-02	leaf-ground T_lg
aaa3	2.45E-06			S_1	0.00E+00		aaa6	1.22E+09	2.74E-03	leaf-soil, T_ls
aaa4	0.00E+00			S_2	0.00E+00		aaa7	1.51E+08	1.84E-03	soil-leaf, T_sl
aaa5	2.99E-03			AA	1.27E-04		aaa8	-1.51E+08	1.30E-05	ground-cuticle, T_gc
bbb1	0.00E+00			BB	0.00E+00		bbb4	0.00E+00	0.00E+00	vadose-aquifer, T_vq
bbb2	0.00E+00			CC	1.45E-06		bbb5	0	7.50E-06	sediment-out, T_do
bbb3	0.00E+00			DDD	7.50E-06		Lam1	1.92E-05	2.47E-05	air-out, T_ao
ccc1	4.58E-03			Gam1	-7.50E-06				1.00E-01	ground-water, T_gw
ccc2	0.00E+00			Gam2	-1.27E-04				4.18E-03	water-out, T_wo
ccc3	8.79E-01			Gm1mGm2	1.20E-04				5.36E-03	
ccc4	0.00E+00			Gam1p	1.27E-04					
ccc5	7.64E-01			Gam2p	7.50E-06					
ccc6	2.74E-03			Gm1mGm2p	1.20E-04					

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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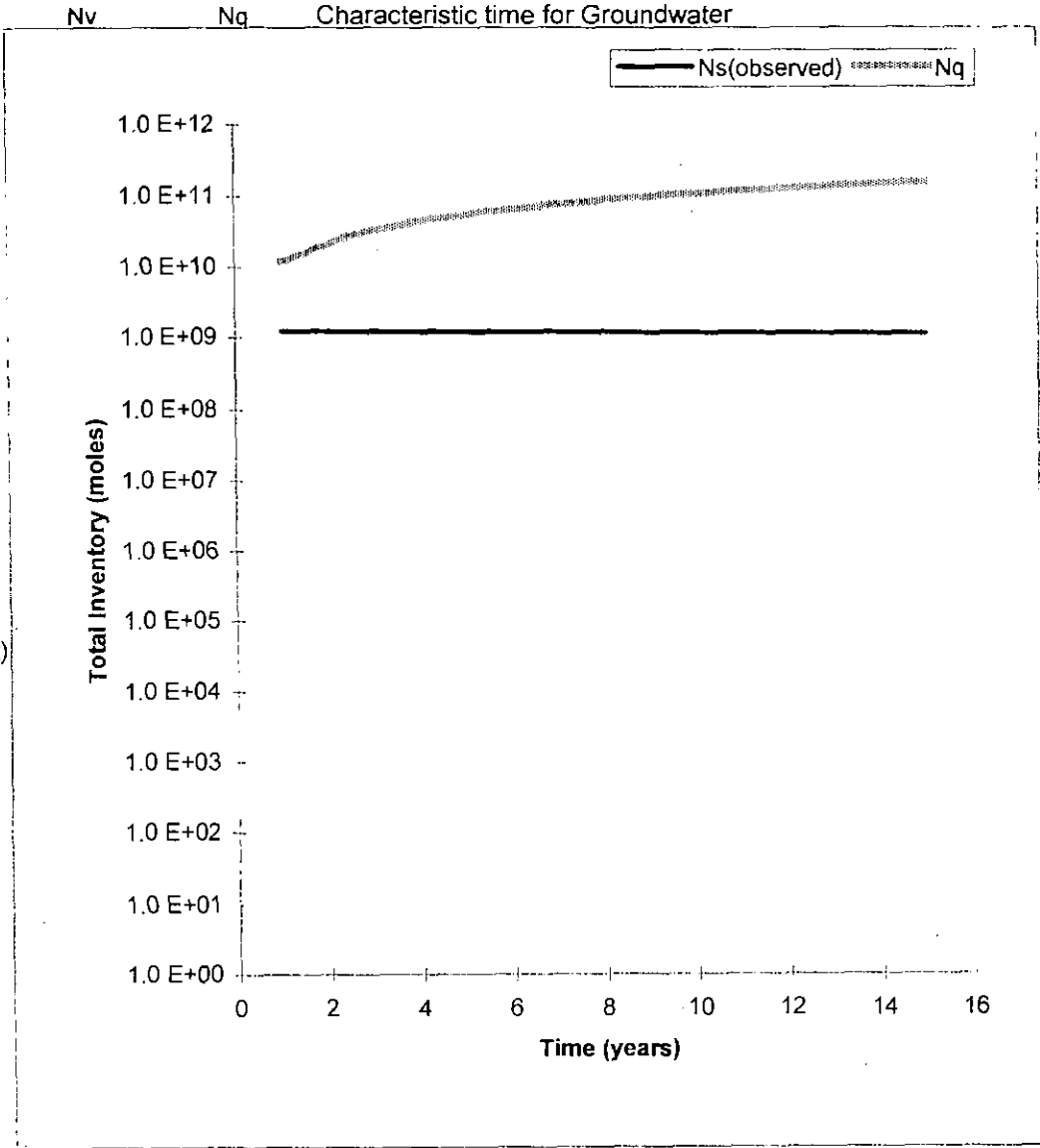
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	8.46E+00	2.94E-14	0.00%	9.33E+02	9.33E+02	1.11E+00
leaf	l	4.58E-03	3.29E+06	5.85E-03	0.00%	1.84E+06	1.84E+06	2.18E+02
cuticle	c	5.22E-02	8.56E+01	1.44E-05	0.00%	5.46E+02	5.46 E+02	1.91E+01
ground-soil	g	2.22E-02	3.46E+06	8.56E-04	0.00%	9.37E+06	9.37E+06	4.50E+01
root-soil	s	7.32E-05	1.16E+09	9.53E-04	1.32%	8.34E+06	1.03E+07	1.37E+04
vadose-zone	v	7.50E-06	4.91E+06	2.18E-05	0.01%	2.04E+05	4.50E+03	1.33E+05
surface water	w	2.43E-02	2.70E+06	7.19E-05	0.00%	7.98E+06	7.98E+06	4.12E+01
sediment	d	1.01E-01	5.06E+05	1.35E-03	0.00%	6.22E+06	6.22E+06	9.93E+00
aquifer	q	1.00E-05	8.62E+10	6.98E-02	98.66%	4.50E+03	1.05E+08	1.00E+05

Mass Flows (g/d)

air-ground	2.69E+02	Tag*Na*MW	ground-water	1.77E+06	Tgw*Ng*MW
air-water	1.49E+01	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	1.04E+02	Tao*Na*MW	soil-ground	8.27E+06	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	1.84E+06	Tsl*Ns*MW
air-leaf surfaces	5.46E+02	Tac*Na*MW	soil-vadose	2.04E+05	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	4.50E+03	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	1.10E+06	Tlg*NI*MW	aquifer-removal	1.05E+08	Lq*Nq*MW
leaves-soil	7.39E+05	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	2.59E+01	Tca*Nc*MW	water-sediment	6.22E+06	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	1.76E+06	Two*Nw*MW
leaf-surfaces - ground	5.20E+02	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	6.21E+06	Tdw*Nd*MW
ground-air	9.07E+02	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	1.53E+03	Tdo*Nd*MW
ground-soil	7.60E+06	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	1.2 E+09	1.1 E+10
2.4	876	1.2 E+09	2.7 E+10
3.8	1387	1.2 E+09	4.2 E+10
5.2	1898	1.2 E+09	5.7 E+10
6.6	2409	1.2 E+09	7.2 E+10
8	2920	1.2 E+09	8.7 E+10
9.4	3431	1.1 E+09	1.0 E+11
10.8	3942	1.1 E+09	1.2 E+11
12.2	4453	1.1 E+09	1.3 E+11
13.6	4964	1.1 E+09	1.4 E+11
15	5475	1.1 E+09	1.6 E+11
		Ns(0)[total]	
		1.2 E+09	
		const_sat	
		-299390702	
		Ns(sat)	
		1.6E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.08 E+11	1.2E+09	8.2E+09
0	-1.52 E+11	1.2E+09	1.1E+10
0	-1.52 E+11	1.2E+09	1.1E+10
0	-1.52 E+11	1.2E+09	1.1E+10
0	-1.52 E+11	1.2E+09	1.1E+10
0	-1.52 E+11	1.2E+09	1.1E+10
0	-1.52 E+11	1.1E+09	1.1E+10
0	-1.52 E+11	1.1E+09	1.1E+10
0	-1.52 E+11	1.1E+09	1.2E+10
0	-1.52 E+11	1.1E+09	1.2E+10
0	-1.52 E+11	1.1E+09	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil
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Chemical ==>	Arsenic		Summary of Results:
Landscape ==>	Calif. Residential Site (CA Res.)		
Exposure Factors Set=>	(Residential) Exposure Factors		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio
Inhalation	1.2 E+01	0.00000857	Risk 2.7 E-5
Ingestion	1.5 E+00	0.0003	Hazard ratio 2.9 E-1
Dermal	1.5 E+00	0.0003	
Total dose	0		
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00	Target Soil Concentrations (in ppm)
Root-soil thickness ==>	current value 0.9	should be > 9.4 E-1	Based on cancer risk:
Alter root soil thickness to?	1.0 E+00		Root soil 3.6 E-2
Distance off-site for air exposure=	0.0 E+00	meters	Vadose soil 0.0 E+0 not avlbl.
Time after initial concentrations when exposure begins =	3.7 E+02	days	Root Soil 3.6 E-2
Measured Concentrations (at time = 0)			Vadose soil n/a
Root-zone soil	0.973	ppm (mg/kg)	Based on hazard:
Vadose-zone soil	0	ppm (mg/kg)	Root soil 3.4 E+0
Ground water	0	ppm (mg/L)	Vadose soil 0.0 E+0 not avlbl.
Continuous inputs	Methane flux m/d	0	Concentration limits without NAPL
Source term to air (mol/d)	0.0 E+00	Sa	Root soil 8.5 E+03 mg/kg solid
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Vadose soil 8.6 E+03 mg/kg solid
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	Ground water 7.5 E+00 mg/L water
Source term to surface water(mol/d)	0.0 E+00	Sw	
Aquifer characteristics			Time avrg. Conc. in on-site environmental media
Distance to first well (m)	0.0 E+00	d_well	Air 5.5 E-08 mg/m3
Darcy veleocity (m/d)	1.0 E-01	v_darc	Total Leaf 8.2 E-02 mg/kg(total)
Water dispersion coeff. (m2/d)	5.0 E-02	D_T	Grnd-surface soil 9.8 E-01 mg/kg(total)
			Root-zone soil 9.7 E-01 mg/kg(total)
			Vadose-zone soil 1.5 E-04 mg/kg(total)
			Ground water 1.6 E-02 mg/L(water)
			Surface water 1.3 E-03 mg/L
			Sediment 7.5 E-01 mg/kg

Chemical Properties

0.00297

0.003

1

-2.8 E+03

Compound	Arsenic		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	7.49 E+01	7.49E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	0.00 E+00	0.00E+00	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E-01	1.00E-01	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	6.60 E-05	6.60E-05	0.24	1	7.64 E-10
	Organic carbon partition coefficient Koc	Koc -	n/a	-9.90E+01	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	1.30 E+03	1.30E+03	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	1.30 E+03	1.30E+03	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	1.30 E+03	1.30E+03	0.10	1	
	Partition coeffic. in surface wtr sediments	Kd_d -	1.30 E+03	1.30E+03	0.10	1	
	NOT USED	Kps -	3.85 E-04	-9.90E+01	3.70	1	
	Leaves/plm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	1.37 E+04	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	6.20 E-05	6.20E-05	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	6.20 E-05	6.20E-05	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	6.20 E-05	6.20E-05	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	3.00 E-02	3.00E-02	10.00	1	
	Bioconcentration factor; fish/water	BCF -	7.50 E+01	7.50E+01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	1.00E-03	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	6.50 E-01	6.50E-01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content, vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.40 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

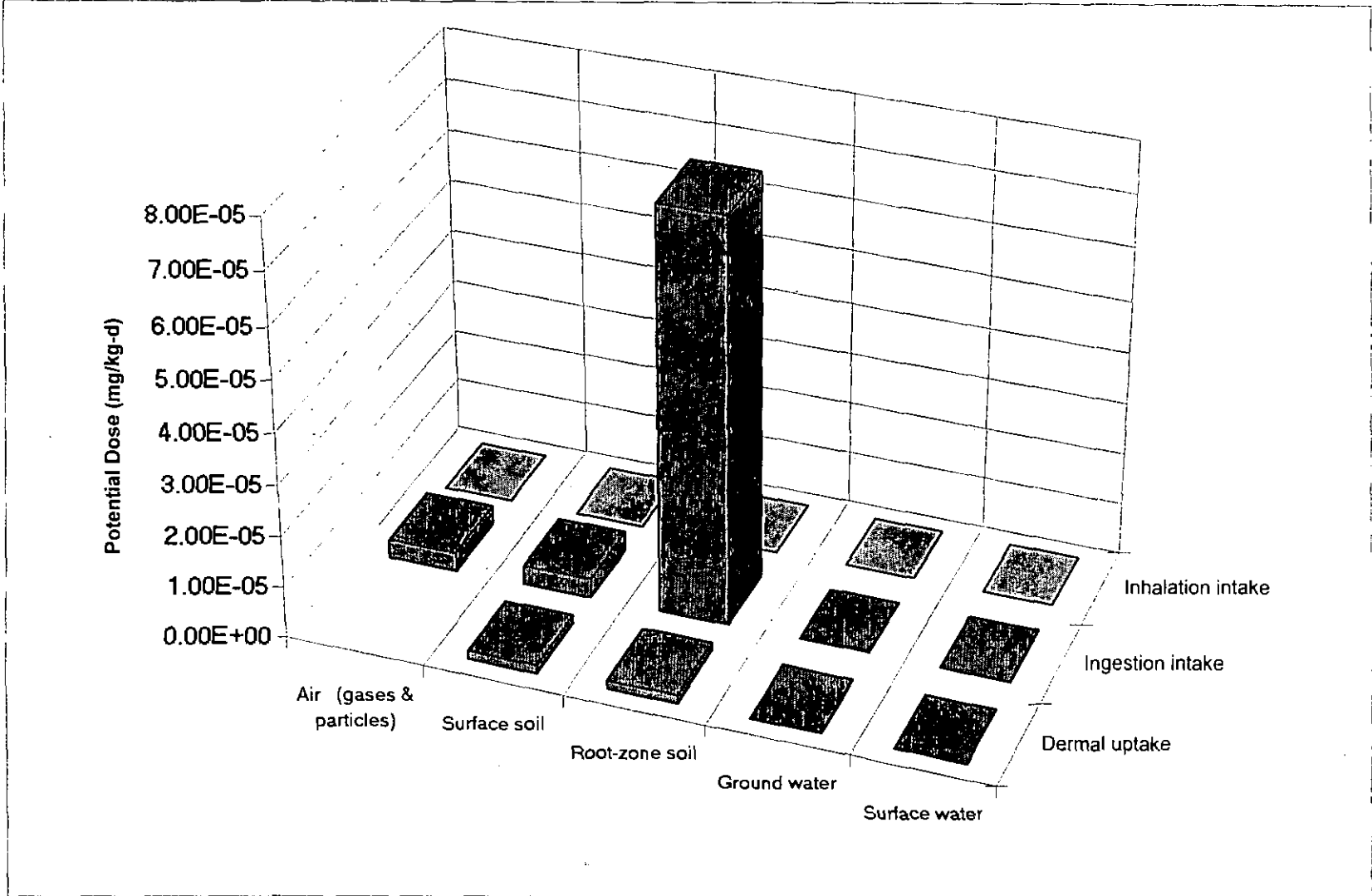
Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m2-d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prttn fctr, particles, m3/kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m3/min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m3/h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m^3)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm^2)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1
Constants						
	Gas Constant (Pa-m^3/mol-K)	8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Cntrmnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contamnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0		
Transfer of soil dust to indoor air	0	Ingestion of home-grown exposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown unexposed produce	1
On-site inhalation by animals	1	Ingestion of home-grown meat	0
		Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
		Dermal & ingstn exposures while swimming	0
Use of ground water for feeding animals	0		
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	3.11E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-10	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	3.72E-06	3.77E-06	7.79E-05	0.00E+00	0.00E+00	8.54E-05	96.02
Unexposed produce			2.57E-07	0.00E+00	0.00E+00	2.57E-07	0.29
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		3.14E-09	3.14E-09			6.28E-09	0.01
Total ingestion	3.72 E-06	3.77 E-06	7.81 E-05	0.00 E+00	0.00 E+00	8.56 E-05	96.32
DERMAL UPTAKE		1.64E-06	1.64E-06	0.00E+00	0.00E+00	3.27E-06	3.68
Dose SUM	3.72E-06	5.41E-06	7.98E-05	0.00E+00	0.00E+00	8.89E-05	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	7.29 E-06	1.06 E-05	1.57 E-04	0.00 E+00	0.00 E+00	1.74 E-04
Infant dose	8.02 E-07	1.17 E-06	1.72 E-05	0.00 E+00	0.00 E+00	dose_bm 1.92 E-05

Ingestion dose used =>	8.56 E-05
Total dose used =>	8.89 E-05

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	5.46 E-08	1.11E+00	1.11 E+00	1.57 E-02	6.36 E-04

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	5.46 E-08				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	3.73 E-03	3.78 E-03	7.81 E-02	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				4.13 E-04	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	1.39 E-05	4.16 E-05	2.91 E-04	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.97 E-05	4.75 E-05	4.12 E-04	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	2.78 E-08	2.90 E-08	5.81 E-07	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						4.77 E-02
Household soil (mg/kg)			5.56 E-01	5.57 E-01		
Swimming water (mg/L)						1.30 E-03

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.94 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	3.7 E-20	1.0 E-14	3.9 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
2.4	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
3.8	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
5.2	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
6.6	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
8	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
9.4	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
10.8	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
12.2	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
13.6	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
15	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
Cumulative doses				0.454337911		
over ED by route, mg/kg	1.6 E-06	4.4 E-01	1.7 E-02	4.5 E-01	4.5 E-01	0.0 E+00
fraction	0.0000	0.9632	0.0368	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	3.1 E-10	8.6 E-05	3.3 E-06	8.9 E-05	8.9 E-05	0.0 E+00
fraction	0.0000	0.9632	0.0368	1.0000	1.000	0.000

Max breast-milk dose 1.9 E-05 mg/kg-d

Max ing	8.6 E-05
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.8 E+02 mol/day
 bbb2 = 2.1 E+02 bbb4 = 2.7 E+08
 bbb3 = 9.1 E+03 bbb5 = 1.6 E+08

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	0.0 E+00	mg/m ³	9.1 E-06	9.1 E-06	air
Off-site concentration (particles)	5.5 E-08	mg/m ³			
Off-site surface-water concentrtn.	2.1 E-05	mg/L	2.8 E-07	8.5 E-06	water
Off-site surface soil concentration	3.6 E-02	mg/kg	3.7 E-07	1.1 E-05	ground soil
Off-site root-soil concentration	3.6 E-02	mg/kg	3.7 E-07	1.1 E-05	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.0 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	1.8 E-05 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	1.8 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qp	1.6 E-10 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	1.48E-03	del_aw		
bdry lyr thickness in wtr below air (m)	2.75E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	1.00E+00	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	4.65E-04	del_dw		
Initial concentration in soil (mol/m3)	2.09E-02	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.71E-01	tlag		
Skin/water partition coefficient	6.50E-01	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	5.57E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	2.75E-07	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	9.11E-06
Cuticle	fc	9.28E-06
Leaf	fl	1.80E-03
Ground	fg	1.14E-05
Root	fs	1.14E-05
Vadose	fv	1.76E-09
Water	fw	8.49E-06
Sediment	fd	8.48E-06
Groundwater	fq	2.10E-04

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	4.0 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	3.38E+03	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	3.38E+03	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	3.38E+03	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	3.38E+03	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	3.38E+03	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	3.38E+03	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	3.38E+03	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	8.97E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	8.00E-08	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	3.86E+01	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	1.83E+03	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	1.83E+03	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	1.90E+03	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	2.04E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	2.70E+03	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	2.70E+03	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment	Y		one-sided	both-sides	Diffusion	Advection	Total	
Dair	6.40E-01	Da	0.00E+00	1.48E-03	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	6.60E-05	Dw	3.24E-05	2.75E-04	2.40E-01	0.00E+00	0.00E+00	0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	1.29E-06			1.37E-02	1.61E+01	0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga	
Dair_s	3.11E-02	Ds	1.20E-04	1.37E-02	1.61E+01	3.22E-01	3.05E-06	1.76E-02	ground-soil, T_gs	
Dwater_s	1.62E-06			6.68E-01	3.28E-01		0.00E+00	1.76E-04	soil-ground, T_sg	
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	3.28E-01	1.67E-01	3.05E-08	3.05E-08	soil-vadose, T_sv	
Dwater_v	1.67E-06			6.68E-01	3.41E-01				vadose-soil, T_vs	
Dwater_d	7.72E-06	Dd	2.85E-09	2.00E-02	6.73E-03	4.79E-03	1.34E+00	1.34E+00	water-sediment, T_wd	
				4.65E-04	1.66E-02		3.54E-05	1.01E-01	sediment-water, T_dw	
							0.00E+00	5.29E-01	air-cuticle, T_ac	
							0.00E+00	2.48E-03	cuticle-air, T_ca	
							0.00E+00	0.00E+00	air - leaf T_al	
							0.00E+00	0.00E+00	leaf-air, T_la	
							0.00E+00	0.00E+00	cuticle-leaf, T_cl	
							0.00E+00	0.00E+00	leaf-cuticle, T_lc	
aaa1	2.54E+00	C0_1	8.46E+09				4.98E-02	4.98E-02	cuticle-ground T_cg	
aaa2	7.68E-03	C0_2	0.00E+00			aaa6	8.46E+09	2.74E-03	2.74E-03	leaf-ground T_lg
aaa3	2.48E-06	S_1	0.00E+00			aaa7	4.88E+08	1.84E-03	1.84E-03	leaf-soil, T_ls
aaa4	0.00E+00	S_2	0.00E+00			aaa8	-4.88E+08	2.75E-07	2.75E-07	soil-leaf, T_sl
aaa5	1.00E-02	AA	3.52E-04			bbb4	0.00E+00	0.00E+00	0.00E+00	ground-cuticle, T_gc
bbb1	0.00E+00	BB	0.00E+00			bbb5	0	5.27E-08	5.27E-08	vadose-aquifer, T_vq
bbb2	0.00E+00	CC	3.05E-08			Lam1	5.82E-07	2.50E-05	2.50E-05	sediment-out, T_do
bbb3	0.00E+00	DDD	5.27E-08					1.00E-01	1.00E-01	air-out, T_ao
ccc1	4.58E-03	Gam1	-5.27E-08					4.37E-05	4.37E-05	ground-water, T_gw
ccc2	0.00E+00	Gam2	-3.52E-04					5.36E-03	5.36E-03	water-out, T_wo
ccc3	8.79E-01	Gm1mGm2	3.52E-04							
ccc4	0.00E+00	Gam1p	3.52E-04							
ccc5	7.64E-01	Gam2p	5.27E-08							
ccc6	2.74E-03	Gm1mGm2p	3.52E-04							

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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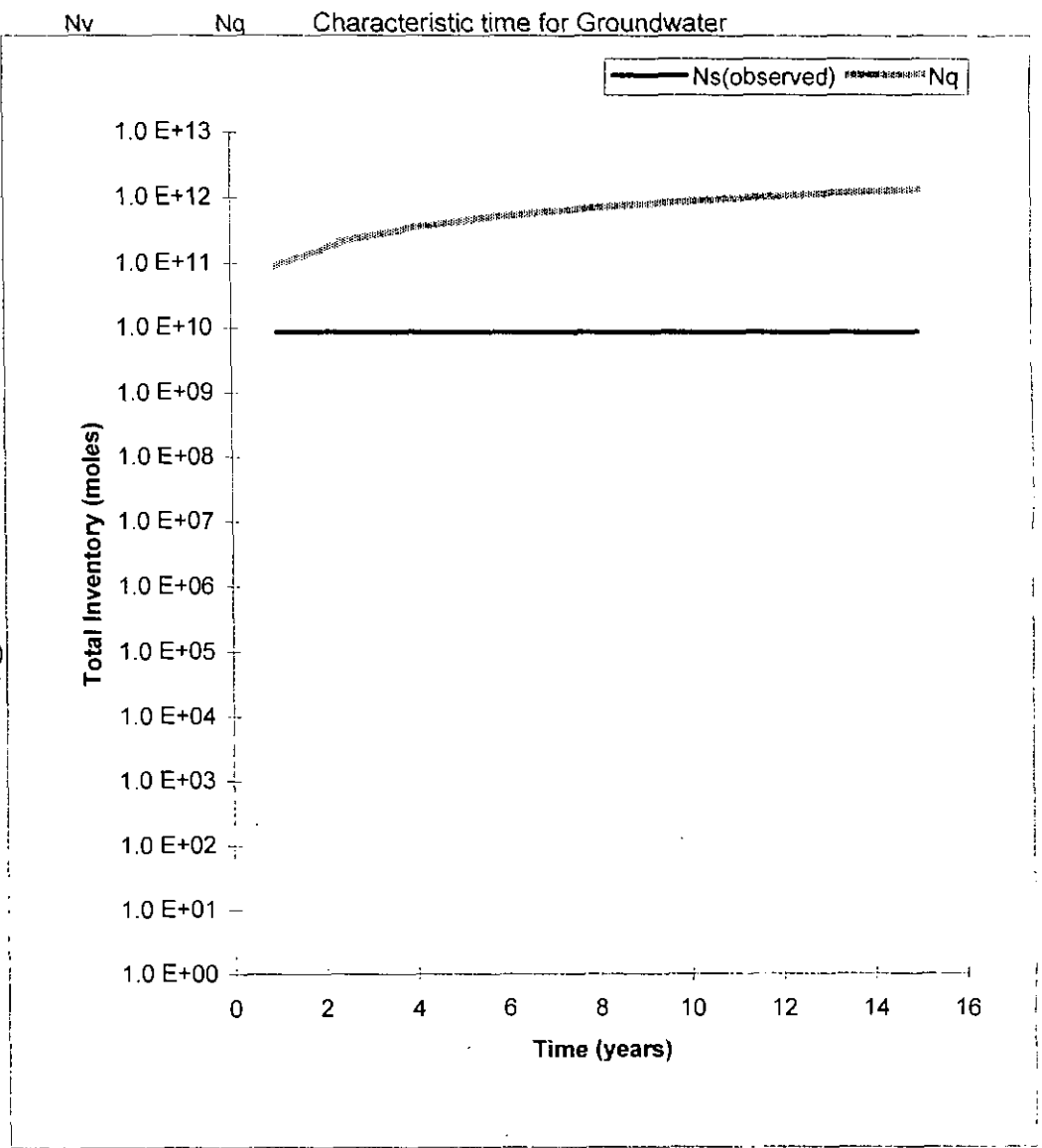
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m ³) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	2.10E+02	7.28E-13	0.00%	1.42E+04	1.42E+04	1.11E+00
leaf	l	4.58E-03	5.07E+05	9.02E-04	0.00%	1.74E+05	1.74E+05	2.18E+02
cuticle	c	5.22E-02	2.12E+03	3.58E-04	0.00%	8.31E+03	8.31 E+03	1.91E+01
ground-soil	g	1.76E-02	8.45E+07	2.09E-02	0.01%	1.11E+08	1.11E+08	5.68E+01
root-soil	s	1.76E-04	8.44E+09	2.09E-02	1.19%	1.11E+08	1.11E+08	5.67E+03
vadose-zone	v	5.27E-08	7.53E+05	3.35E-06	0.00%	1.93E+04	2.97E+00	1.90E+07
surface water	w	1.34E+00	6.50E+05	1.73E-05	0.00%	6.54E+07	6.54E+07	7.44E-01
sediment	d	1.01E-01	8.60E+06	2.29E-02	0.00%	6.51E+07	6.51E+07	9.89E+00
aquifer	q	1.00E-05	7.01E+11	5.68E-01	98.80%	2.97E+00	5.25E+08	1.00E+05

Mass Flows (g/d)

air-ground	4.09E+03	Tag*Na*MW	ground-water	2.77E+05	Tgw*Ng*MW
air-water	2.27E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	1.58E+03	Tao*Na*MW	soil-ground	1.11E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	1.74E+05	Tsl*Ns*MW
air-leaf surfaces	8.31E+03	Tac*Na*MW	soil-vadose	1.93E+04	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*Ni*MW	vadose-aquifer	2.97E+00	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*Ni*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	1.04E+05	Tlg*Ni*MW	aquifer-removal	5.25E+08	Lq*Nq*MW
leaves-soil	7.00E+04	Tls*Ni*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	3.93E+02	Tca*Nc*MW	water-sediment	6.51E+07	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	2.61E+05	Two*Nw*MW
leaf-surfaces - ground	7.91E+03	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	6.51E+07	Tdw*Nd*MW
ground-air	1.38E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	1.61E+04	Tdo*Nd*MW
ground-soil	1.11E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	8.5 E+09	8.8 E+10
2.4	876	8.5 E+09	2.1 E+11
3.8	1387	8.5 E+09	3.3 E+11
5.2	1898	8.4 E+09	4.6 E+11
6.6	2409	8.4 E+09	5.8 E+11
8	2920	8.4 E+09	7.0 E+11
9.4	3431	8.4 E+09	8.2 E+11
10.8	3942	8.4 E+09	9.5 E+11
12.2	4453	8.4 E+09	1.1 E+12
13.6	4964	8.4 E+09	1.2 E+12
15	5475	8.4 E+09	1.3 E+12
		Ns(0)[total]	
		8.5 E+09	
		const_sat	
		-42936264.4	
		Ns(sat)	
		7.4E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-7.21 E+09	8.5E+09	8.2E+08
0	-1.35 E+10	8.5E+09	1.2E+09
0	-1.35 E+10	8.5E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09
0	-1.35 E+10	8.4E+09	1.2E+09



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Barium	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>			Un-mitigated risk and/or hazard ratio	
	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Risk	0.0 E+0
Inhalation	0.0 E+00	0.000143	Hazard ratio	9.2 E-1
Ingestion	0.0 E+00	0.07		
Dermal	0.0 E+00	0.07		
Total dose		0		
	Risk	Hazard quotie	Target Soil Concentrations (in ppm)	
Target Risk/Hazard =	1.0 E-06	1.00		
	current value	should be >		
Root-soil thickness ==>	0.9	9.4 E-1		
Alter root soil thickness to?	3.0 E+00			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
Root-zone soil	18.5	ppm (mg/kg)		
Vadose-zone soil	0	ppm (mg/kg)		
Ground water	0	ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
Source term to air (mol/d)	0.0 E+00	Sa		
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg		
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics				
Distance to first well (m)	0.0 E+00	d_well		
Darcy veleocity (m/d)	1.0 E-01	v_darc		
Water dispersion coeff. (m2/d)	5.0 E-02	D_T		
			Based on cancer risk:	
			Root soil	0.0 E+0 not avbl.
			Vadose soil	0.0 E+0 not avbl.
			Root Soil	2.0 E+1
			Vadose soil	n/a
			Based on hazard:	
			Root soil	2.0 E+1
			Vadose soil	0.0 E+0 not avbl.
			Concentration limits without NAPL	
			Root soil	3.7 E+03 mg/kg solid
			Vadose soil	3.7 E+03 mg/kg solid
			Ground water	1.4 E+02 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	9.8 E-07 mg/m3
			Total Leaf	6.4 E+01 mg/kg(total)
			Grnd-surface soil	1.8 E+01 mg/kg(total)
			Root-zone soil	1.8 E+01 mg/kg(total)
			Vadose-zone soil	1.2 E-01 mg/kg(total)
			Ground water	3.3 E+01 mg/L(water)
			Surface water	7.0 E-01 mg/L
			Sediment	1.9 E+01 mg/kg

Chemical Properties

0.00287

0.003

1

7.5 E+00

Compound	Barium		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	1.37 E+02	1.37E+02	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	9.98 E+02	9.98E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	3.10 E+01	3.10E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	3.10 E+01	3.10E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	3.10 E+01	3.10E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	3.10 E+01	3.10E+01	0.10	1	
	NOT USED	Kps -	1.61 E-02	-9.90E+01	3.70	1	
	Leaves/plm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	3.23 E+05	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	3.50 E-04	3.50E-04	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	9.70 E-05	9.70E-05	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	2.16 E+02	2.16E+02	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary produciton dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

m

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.03 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

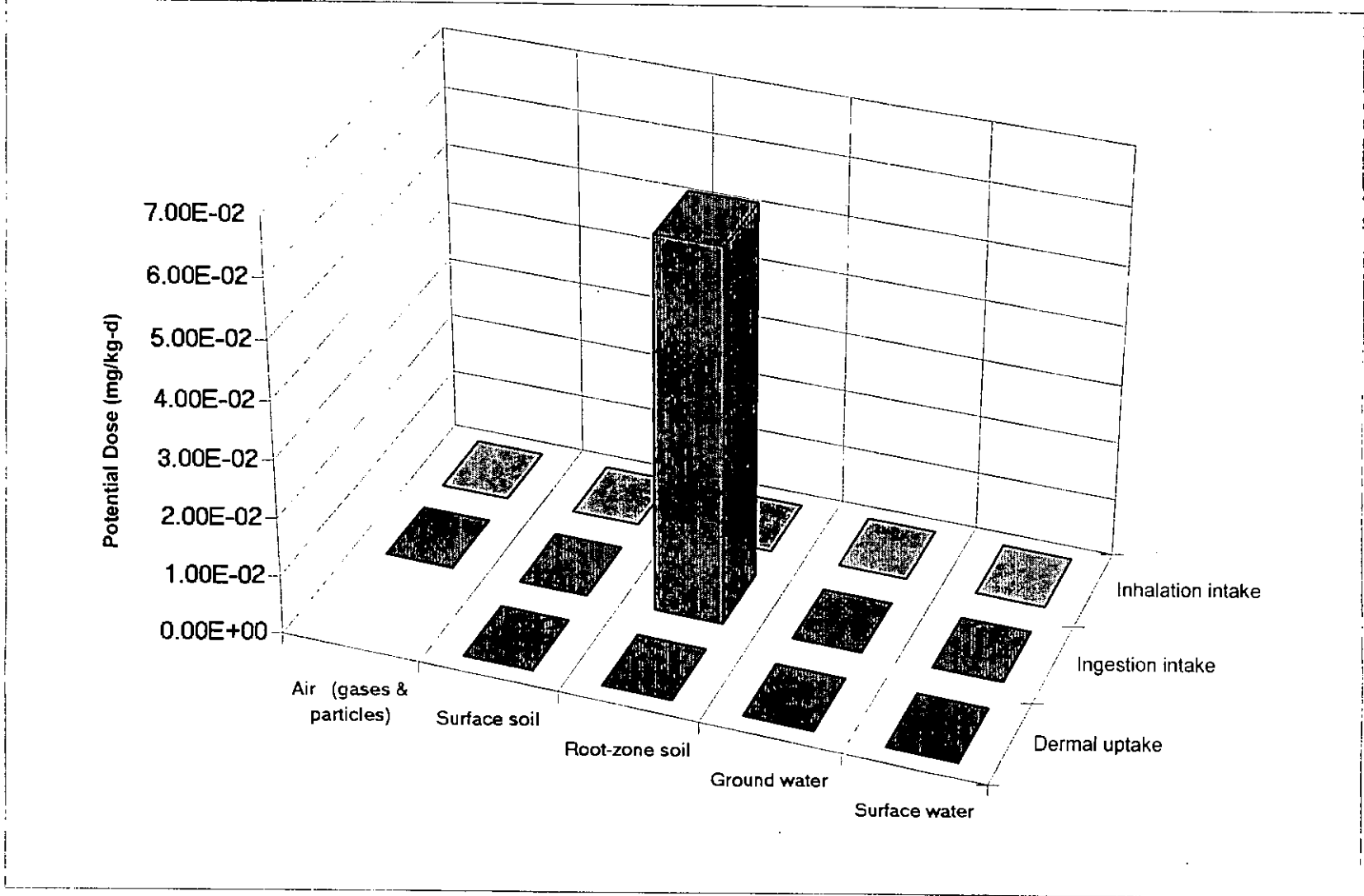
scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Cntmnnnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contamnnnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingstn exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	5.60E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.60E-09	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	6.97E-05	6.78E-05	6.34E-02	0.00E+00	0.00E+00	6.36E-02	99.59
Unexposed produce			2.01E-04	0.00E+00	0.00E+00	2.01E-04	0.32
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		5.65E-08	5.86E-08			1.15E-07	0.00
Total ingestion	6.97 E-05	6.79 E-05	6.36 E-02	0.00 E+00	0.00 E+00	6.38 E-02	99.91
DERMAL UPTAKE		2.94E-05	3.05E-05	0.00E+00	0.00E+00	6.00E-05	0.09
Dose SUM	6.97E-05	9.73E-05	6.37E-02	0.00E+00	0.00E+00	6.38E-02	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	6.38 E-02
Total dose used =>	6.38 E-02

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m ³ (air)	Air (dust) mg/m ³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	9.82 E-07	2.00E+01	2.08 E+01	3.33 E+01	6.85 E-01

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	9.82 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	6.99 E-02	6.80 E-02	6.36 E+01	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				3.23 E-01	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	4.07 E-04	1.17 E-03	3.70 E-01	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	2.08 E-03	4.82 E-03	1.89 E+00	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						1.48 E+02
Household soil (mg/kg)			1.00 E+01	1.04 E+01		
Swimming water (mg/L)						7.02 E-01

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.94 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	2.2 E-20	2.5 E-13	2.3 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	5.7 E-09	6.5 E-02	6.1 E-05	6.5 E-02	6.5 E-02	0.0 E+00
2.4	5.7 E-09	6.5 E-02	6.1 E-05	6.5 E-02	6.5 E-02	0.0 E+00
3.8	5.6 E-09	6.4 E-02	6.1 E-05	6.4 E-02	6.4 E-02	0.0 E+00
5.2	5.6 E-09	6.4 E-02	6.0 E-05	6.4 E-02	6.4 E-02	0.0 E+00
6.6	5.6 E-09	6.4 E-02	6.0 E-05	6.4 E-02	6.4 E-02	0.0 E+00
8	5.6 E-09	6.4 E-02	6.0 E-05	6.4 E-02	6.4 E-02	0.0 E+00
9.4	5.6 E-09	6.4 E-02	6.0 E-05	6.4 E-02	6.4 E-02	0.0 E+00
10.8	5.6 E-09	6.3 E-02	6.0 E-05	6.3 E-02	6.3 E-02	0.0 E+00
12.2	5.5 E-09	6.3 E-02	5.9 E-05	6.3 E-02	6.3 E-02	0.0 E+00
13.6	5.5 E-09	6.3 E-02	5.9 E-05	6.3 E-02	6.3 E-02	0.0 E+00
15	5.5 E-09	6.3 E-02	5.9 E-05	6.3 E-02	6.3 E-02	0.0 E+00
Cumulative doses				326.1527753		
over ED by route, mg/kg	2.9 E-05	3.3 E+02	3.1 E-01	3.3 E+02	3.3 E+02	0.0 E+00
fraction	0.0000	0.9991	0.0009	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	5.6 E-09	6.4 E-02	6.0 E-05	6.4 E-02	6.4 E-02	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	5.7 E-09	6.5 E-02	6.1 E-05	6.5 E-02	6.5 E-02	0.0 E+00
fraction	0.0000	0.9991	0.0009	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max_ing

6.5 E-02

Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.8 E+03 mol/day
 bbb2 = 2.1 E+03 .bbb4 = 2.5 E+08
 bbb3 = 8.3 E+04 .bbb5 = 4.8 E+07
 fugacity off-site fugacity on-site

Off-site air concentration (gases)	0.0 E+00	mg/m ³	3.8 E-03	3.8 E-03	air
Off-site concentration (particles)	9.8 E-07	mg/m ³			
Off-site surface-water concentrtn.	7.4 E-04	mg/L	5.4 E-06	5.0 E-03	water
Off-site surface soil concentration	2.1 E-02	mg/kg	5.0 E-06	4.7 E-03	ground soil
Off-site root-soil concentration	2.0 E-02	mg/kg	4.7 E-06	4.9 E-03	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.5 E-03 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	7.7 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	2.4 E-09 1/d

um

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	2.00E-03	del_aw		
bndry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.69E-01	del_s		
Thickness of the root-zone soil layer	3.00E+00	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	9.45E-03	del_dw		
Initial concentration in soil (mol/m3)	2.18E-01	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	RIls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	1.86E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	3.83E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	3.76E-03
Cuticle	fc	3.83E-03
Leaf	fl	7.71E-01
Ground	fg	4.71E-03
Root	fs	4.89E-03
Vadose	fv	3.15E-05
Water	fw	5.00E-03
Sediment	fd	5.00E-03
Groundwater	fq	2.43E-01

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	1.2 E+12	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

Zap	8.06E+01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	8.06E+01	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	8.06E+01	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	8.06E+01	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	8.06E+01	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	8.06E+01	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	8.06E+01	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.04E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	1.91E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	9.20E-01	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	4.39E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	4.38E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	4.55E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.02E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	6.47E+01	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	6.47E+01	fugacity capacity of aquifer compartment in mol/m ³ -Pa

phi

#VALUE!

Diffusion coefficients in m2/d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m2-d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment			Y	one-sided	both-sides	Diffusion	Advection	
Dair	6.40E-01	Da	0.00E+00	2.00E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw
Dwater	1.30E-04	Dw	1.27E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag
Dwater_g	2.54E-06			1.37E-02	3.85E-01		0.00E+00	2.17E-06	2.17E-06	ground-air, T_ga
Dair_s	3.11E-02	Ds	1.20E-04	1.37E-02	3.85E-01	7.70E-03	1.76E-02	1.27E-04	1.77E-02	ground-soil, T_gs
Dwater_s	3.19E-06			6.69E-01	7.86E-03		5.87E-05	0.00E+00	5.87E-05	soil-ground, T_sg
Dair_v	2.70E-02	Dv	1.20E-04	6.69E-01	7.86E-03	4.01E-03		4.25E-07	4.25E-07	soil-vadose, T_sv
Dwater_v	3.29E-06			6.69E-01	8.17E-03					vadose-soil, T_vs
Dwater_d	1.52E-05	Dd	2.35E-07	2.00E-02	6.66E-03	1.30E-03	2.53E-04	6.35E-02	6.38E-02	water-sediment, T_wd
				9.45E-03	1.61E-03		4.01E-04	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00		0.00E+00	air - leaf T_al
							0.00E+00		0.00E+00	leaf-air, T_la
							0.00E+00		0.00E+00	cuticle-leaf, T_cl
							0.00E+00		0.00E+00	leaf-cuticle, T_lc
aaa5	3.22E-03	AA	1.20E-04					4.98E-02	4.98E-02	cuticle-ground T_cg
bbb1	0.00E+00	BB	0.00E+00			aaa6	2.64E+11	2.74E-03	2.74E-03	leaf-ground T_lg
bbb2	0.00E+00	CC	4.25E-07			aaa7	2.99E+10	1.84E-03	1.84E-03	leaf-soil, T_ls
bbb3	0.00E+00	DDD	2.20E-06			aaa8	-2.99E+10	3.83E-06	3.83E-06	soil-leaf, T_sl
ccc1	4.58E-03	Gam1	-2.20E-06			bbb4	0.00E+00		0.00E+00	ground-cuticle, T_gc
ccc2	0.00E+00	Gam2	-1.20E-04			bbb5	0	2.20E-06	2.20E-06	vadose-aquifer, T_vq
ccc3	8.79E-01	Gm1mGm2	1.18E-04			Lam1	5.95E-06	2.49E-05	2.49E-05	sediment-out, T_do
ccc4	0.00E+00	Gam1p	-1.20E-04					1.00E-01	1.00E-01	air-out, T_ao
ccc5	7.64E-01	Gam2p	2.20E-06					1.24E-03	1.24E-03	ground-water, T_gw
ccc6	2.74E-03	Gm1mGm2p	1.18E-04					5.36E-03	5.36E-03	water-out, T_wo

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	2.06E+03	7.17E-12	0.00%	2.56E+05	2.56E+05	1.11E+00
leaf	l	4.58E-03	2.17E+08	3.85E-01	0.00%	1.36E+08	1.36E+08	2.18E+02
cuticle	c	5.22E-02	2.09E+04	3.52E-03	0.00%	1.49E+05	1.49 E+05	1.91E+01
ground-soil	g	1.89E-02	8.35E+08	2.07E-01	0.00%	2.16E+09	2.16E+09	5.28E+01
root-soil	s	6.29E-05	2.59E+11	2.14E-01	1.32%	2.08E+09	2.23E+09	1.59E+04
vadose-zone	v	2.20E-06	3.22E+08	1.43E-03	0.00%	1.51E+07	9.72E+04	4.54E+05
surface water	w	6.92E-02	1.92E+08	5.12E-03	0.00%	1.82E+09	1.82E+09	1.45E+01
sediment	d	1.01E-01	1.21E+08	3.23E-01	0.00%	1.68E+09	1.68E+09	9.88E+00
aquifer	q	1.00E-05	1.94E+13	1.57E+01	98.67%	9.72E+04	2.66E+10	1.00E+05

Mass Flows (g/d)

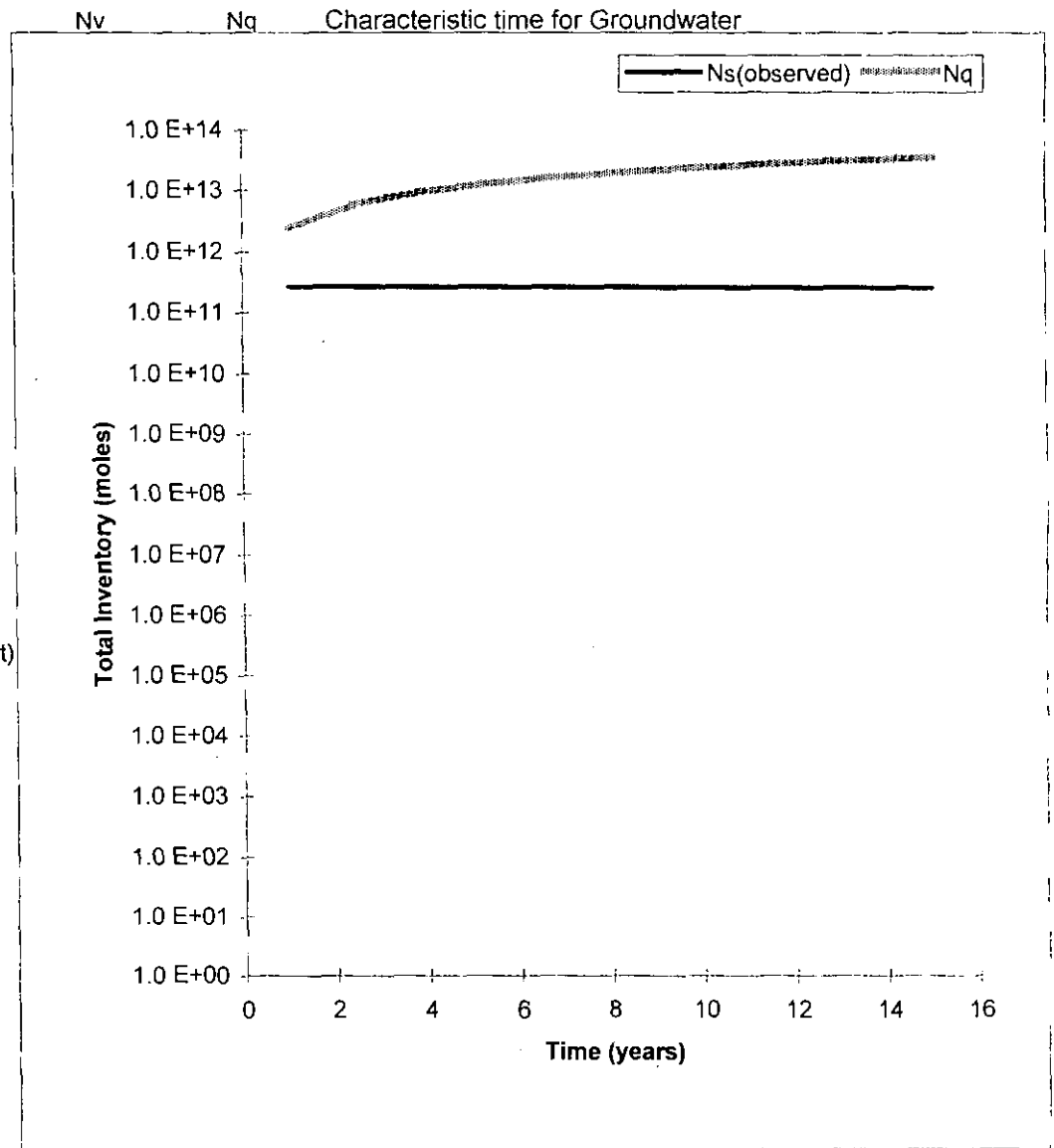
air-ground	7.37E+04	Tag*Na*MW	ground-water	1.42E+08	Tgw*Ng*MW
air-water	4.09E+03	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	2.84E+04	Tao*Na*MW	soil-ground	2.08E+09	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	1.36E+08	Tsl*Ns*MW
air-leaf surfaces	1.49E+05	Tac*Na*MW	soil-vadose	1.51E+07	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*Ni*MW	vadose-aquifer	9.72E+04	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*Ni*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	8.13E+07	Tlg*Ni*MW	aquifer-removal	2.66E+10	Lq*Nq*MW
leaves-soil	5.47E+07	Tls*Ni*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	7.08E+03	Tca*Nc*MW	water-sediment	1.68E+09	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	1.41E+08	Two*Nw*MW
leaf-surfaces - ground	1.42E+05	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	1.68E+09	Tdw*Nd*MW
ground-air	2.49E+05	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	4.14E+05	Tdo*Nd*MW
ground-soil	2.02E+09	Tgs*Ng*MW			

Time-dependent Compartment Inventories

Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.6 E+11	2.5 E+12
2.4	876	2.6 E+11	5.9 E+12
3.8	1387	2.6 E+11	9.3 E+12
5.2	1898	2.6 E+11	1.3 E+13
6.6	2409	2.6 E+11	1.6 E+13
8	2920	2.6 E+11	1.9 E+13
9.4	3431	2.6 E+11	2.3 E+13
10.8	3942	2.6 E+11	2.6 E+13
12.2	4453	2.6 E+11	2.9 E+13
13.6	4964	2.6 E+11	3.3 E+13
15	5475	2.6 E+11	3.6 E+13

		Ns(0)[total]	
		2.6 E+11	
const_sat		Ns(sat)	
-315739450.2		5.3E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	1.49 E+11	2.6E+11	8.2E+09
0	1.02 E+11	2.6E+11	1.2E+10
0	1.01 E+11	2.6E+11	1.2E+10
0	1.00 E+11	2.6E+11	1.2E+10
0	9.95 E+10	2.6E+11	1.2E+10
0	9.87 E+10	2.6E+11	1.2E+10
0	9.79 E+10	2.6E+11	1.2E+10
0	9.71 E+10	2.6E+11	1.2E+10
0	9.63 E+10	2.6E+11	1.2E+10
0	9.55 E+10	2.6E+11	1.2E+10
0	9.47 E+10	2.6E+11	1.2E+10

Plot



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Benzene		Summary of Results:
Landscape ==>	Calif. Residential Site (CA Res.)		
Exposure Factors Set=>	(Residential) Exposure Factors		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio
Inhalation	1.0 E-01	0	Risk 3.0 E-7
Ingestion	1.0 E-01	0	Hazard ratio 0.0 E+0
Dermal	1.0 E-01	0	
Total dose		0	
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00	
Root-soil thickness ==>	current value 19	should be > OK	
Alter root soil thickness to?	1.9 E+01		
Distance off-site for air exposure=	0.0 E+00	meters	
Time after initial concentrations when exposure begins =	3.7 E+02	days	
Measured Concentrations (at time = 0)			
Root-zone soil	0.00099	ppm (mg/kg)	
Vadose-zone soil	0	ppm (mg/kg)	
Ground water	0	ppm (mg/L)	
Continuous inputs	Methane flux m/d	0	
Source term to air (mol/d)	0.0 E+00	Sa	
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	
Source term to surface water(mol/d)	0.0 E+00	Sw	
Aquifer characteristics			
Distance to first well (m)	0.0 E+00	d_well	
Darcy veleocity (m/d)	1.0 E-01	v_darc	
Water dispersion coeff. (m2/d)	5.0 E-02	D_T	
			Based on cancer risk:
			Root soil 3.3 E-3
			Vadose soil 0.0 E+0 not avlbl.
			Root Soil 3.3 E-3
			Vadose soil n/a
			Based on hazard:
			Root soil 0.0 E+0 not avlbl.
			Vadose soil 0.0 E+0 not avlbl.
			Concentration limits without NAPL
			Root soil 1.0 E+03 mg/kg solid
			Vadose soil 5.3 E+02 mg/kg solid
			Ground water 1.8 E+03 mg/L water
			Time avrg. Conc. in on-site environmental media
			Air 1.8 E-07 mg/m3
			Total Leaf 9.4 E-10 mg/kg(total)
			Grnd-surface soil 4.4 E-08 mg/kg(total)
			Root-zone soil 1.7 E-05 mg/kg(total)
			Vadose-zone soil 1.2 E-06 mg/kg(total)
			Ground water 2.6 E-04 mg/L(water)
			Surface water 4.0 E-09 mg/L
			Sediment 4.4 E-09 mg/kg

59.63956371

Chemical Properties

0.00297

0.003

1

7.0 E+01

Compound	Benzene		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	7.81 E+01	7.81E+01	0.01	1	
	Octanol-water partition coefficient	Kow	1.51 E+02	1.51E+02	0.24	1	
	Melting point (K)	Tm	2.79 E+02	2.79E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	1.27 E+04	1.27E+04	0.04	1	
	Solubility in mol/m3	S	2.25 E+01	2.25E+01	0.06	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H-	5.74 E+02	5.74E+02	0.16	1	0.2388667
	Diffusion coefficient in pure air (m ² /d)	Dair	7.56 E-01	7.56E-01	0.08	1	8.75 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	9.63 E-05	9.63E-05	0.25	1	1.11 E-09
	Organic carbon partition coefficient Koc	Koc -	5.51 E+01	5.51E+01	0.57	1	m ² /s
	Octanol/air partition coefficient	Koa -	6.31 E+02	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	4.83 E-01	-9.90E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	1.68 E-01	-9.90E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	1.68 E-01	-9.90E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	1.10 E+00	-9.90E+01	0.10	1	
	NOT USED	Kps -	3.00 E+00	3.00E+00	0.38	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.73 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	1.55 E+00	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	5.26 E-01	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	8.73 E-03	8.73E-03	14.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.61 E-06	1.61E-06	11.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	1.62 E-05	1.62E-05	13.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	1.20 E-03	1.20E-03	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	3.01 E-05	3.01E-05	10.00	1	
	Bioconcentration factor; fish/water	BCF -	6.79 E+00	6.79E+00	0.43	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.86 E-01	1.86E-01	0.57	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.37	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	5.91 E+00	5.91E+00	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	1.90 E+02	1.90E+02	1.10	1	
Reaction half-life in root-zone soil (d)	Thalf_s	1.90 E+02	1.90E+02	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	2.43 E+02	2.43E+02	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	2.43 E+02	2.43E+02	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	1.12 E+01	1.12E+01	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	2.23 E+02	2.23E+02	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	1.90 E+02	-9.90E+01	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	0.00 E+00	0.00E+00	0.00	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.20	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.20	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	0.20	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sedmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	8.76 E-03	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

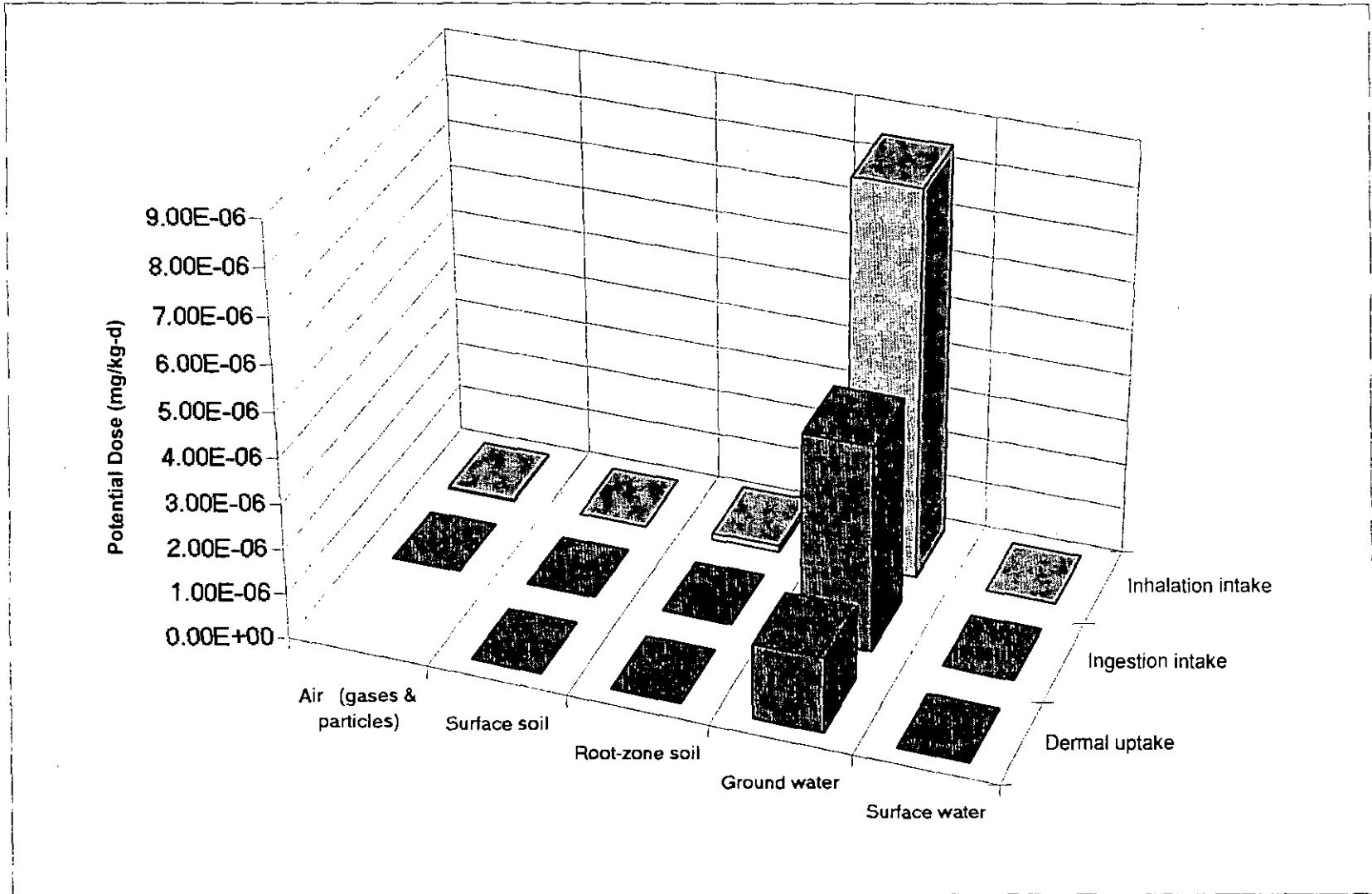
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prtn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	isww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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thisiscaltoxsheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	1	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	1	Cntmnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	1	Contamnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	1		
Transfer of soil dust to indoor air	1	Ingestion of home-grown exposed produce	1
Transfer of soil vapors to indoor air	1	Ingestion of home-grown unexposed produce	1
On-site inhalation by animals	1	Ingestion of home-grown meat	1
		Ingestion of home-grown milk	1
Use of ground water as tap water	1	Ingestion of home-grown eggs	1
Use of surface water as tap water	1	Ingestion of locally caught fish	1
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	1	Soil contact exposure at home or at work	1
Use of surface water for irrigation	1	Dermal exposure during shower/bath	1
		Dermal & ingstn exposures while swimming	1
Use of ground water for feeding animals	1		
Use of surface water for feeding animals	1	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	3.74E-08	2.19E-16	1.44E-07	8.49E-06	3.33E-11	8.67E-06	58.44
INGESTION:							
Water				4.54E-06	1.79E-11	4.54E-06	30.61
Exposed produce	1.36E-12	1.22E-13	1.98E-13	7.97E-09	3.12E-14	7.97E-09	0.05
Unexposed produce			1.81E-08	4.97E-09	1.95E-14	2.31E-08	0.16
Meat	4.68E-13	4.64E-16	2.55E-16	1.65E-10	6.45E-16	1.65E-10	0.00
Milk	9.17E-14	1.04E-16	7.07E-17	3.30E-11	1.29E-16	3.31E-11	0.00
Eggs	8.67E-14	3.33E-18	5.26E-18	4.03E-12	1.58E-17	4.12E-12	0.00
Fish					5.57E-12	5.57E-12	0.00
Soil		1.01E-16	4.04E-14			4.05E-14	0.00
Total ingestion	2.01 E-12	1.23 E-13	1.81 E-08	4.56 E-06	2.35 E-11	4.57 E-06	30.83
DERMAL UPTAKE		5.30E-14	2.11E-11	1.59E-06	1.08E-11	1.59E-06	10.74
Dose SUM	3.74E-08	1.76E-13	1.62E-07	1.46E-05	6.75E-11	1.48E-05	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	7.37 E-11	3.46 E-16	3.20 E-10	2.89 E-08	1.33 E-13	2.93 E-08
Infant dose	8.11 E-12	3.81 E-17	3.52 E-11	3.17 E-09	1.46 E-14	dose_bm 3.22 E-09

Ingestion dose used =>	4.57 E-06
Total dose used =>	1.48 E-05

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	1.79 E-07	1.71 E-15	3.60E-08	1.43 E-05	2.58 E-04	4.04 E-09

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	1.79 E-07	1.71 E-15	1.08 E-15	7.09 E-07	9.90 E-06	3.88 E-11
Bathroom air (mg/m ³)					1.27 E-03	4.99 E-09
Outdoor air (mg/m ³)	1.79 E-07	1.71 E-15				
Tap water (mg/L)					2.07 E-04	8.09 E-10
Exposed produce (mg/kg)	1.36 E-09	1.30 E-17	1.22 E-10	1.99 E-10	7.99 E-06	3.13 E-11
Unexposed produce (mg/kg)				2.91 E-05	7.97 E-06	3.12 E-11
Meat (mg/kg)	3.55 E-10	3.38 E-18	3.51 E-13	1.93 E-13	1.25 E-07	4.89 E-13
Milk (mg/kg)	3.53 E-11	3.37 E-19	3.98 E-14	2.72 E-14	1.27 E-08	4.98 E-14
Eggs (mg/kg)	4.71 E-10	4.50 E-18	1.81 E-14	2.86 E-14	2.19 E-08	8.59 E-14
Fish and seafood (mg/kg)						2.75 E-08
Household soil (mg/kg)			1.80 E-08	7.16 E-06		
Swimming water (mg/L)						4.05 E-09

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		1.52 E-01		
Indoor air (resting)		5.12 E-02		
Indoor air (shower/bath)		5.13 E-03		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	7.71 E-03
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			1.32 E-03	
Milk			2.60 E-03	
Eggs			1.84 E-04	
Fish and seafood			2.03 E-04	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			1.44 E-05	1.12 E-03

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	6.6 E-14	6.6 E-15	1.2 E-17	3.8 E-12	2.0 E-12	7.1 E-13

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	8.0 E-05	4.2 E-05	1.4 E-05	1.4 E-04	2.9 E-06	1.3 E-04
2.4	3.4 E-05	1.8 E-05	6.3 E-06	5.8 E-05	4.4 E-07	5.8 E-05
3.8	9.7 E-06	5.2 E-06	1.8 E-06	1.7 E-05	6.7 E-08	1.7 E-05
5.2	2.4 E-06	1.3 E-06	4.6 E-07	4.2 E-06	1.0 E-08	4.2 E-06
6.6	5.7 E-07	3.1 E-07	1.1 E-07	9.9 E-07	1.5 E-09	9.8 E-07
8	1.3 E-07	6.9 E-08	2.4 E-08	2.2 E-07	2.3 E-10	2.2 E-07
9.4	2.9 E-08	1.5 E-08	5.4 E-09	4.9 E-08	3.5 E-11	4.9 E-08
10.8	6.2 E-09	3.3 E-09	1.2 E-09	1.1 E-08	5.3 E-12	1.1 E-08
12.2	1.3 E-09	7.2 E-10	2.5 E-10	2.3 E-09	8.0 E-13	2.3 E-09
13.6	2.9 E-10	1.5 E-10	5.4 E-11	5.0 E-10	1.2 E-13	5.0 E-10
15	6.1 E-11	3.3 E-11	1.2 E-11	1.1 E-10	1.8 E-14	1.1 E-10
Cumulative doses				0.075839056		
over ED by route, mg/kg	4.4 E-02	2.3 E-02	8.1 E-03	7.6 E-02	1.0 E-03	7.5 E-02
fraction	0.5844	0.3083	0.1074	1.0000	0.013	0.987
Average doses						
over ED by route, mg/kg-d	8.7 E-06	4.6 E-06	1.6 E-06	1.5 E-05	2.0 E-07	1.5 E-05
Maximum doses						
over ED by route, mg/kg-d	8.0 E-05	4.2 E-05	1.4 E-05	1.4 E-04	2.9 E-06	1.3 E-04
fraction	0.5871	0.3065	0.1065	1.0000	0.022	0.978

Max breast-milk dose

3.0 E-08

mg/kg-d

Max_ing

4.2 E-05

Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.4 E+02 mol/day
 bbb2 = 6.6 E+02 bbb4 = 7.7 E-01
 bbb3 = 3.6 E-02 bbb5 = 7.9 E-04
 fugacity off-site fugacity on-site

Off-site air concentration (gases)	1.8 E-07	mg/m ³	5.5 E-09	5.5 E-09	air
Off-site concentration (particles)	1.7 E-15	mg/m ³			
Off-site surface-water concentrtn.	3.5 E-10	mg/L	2.6 E-09	3.0 E-08	water
Off-site surface soil concentration	3.6 E-10	mg/kg	5.5 E-09	5.5 E-07	ground soil
Off-site root-soil concentration	4.0 E-12	mg/kg	6.1 E-11	2.2 E-04	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.8 E-01 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	9.1 E-02 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	2.8 E-07 1/d

Calculated Properties

fugacity capacity of pure air	4.16E-04	Zair		
fugacity capacity of pure water	1.74E-03	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	1.78E-03	del_aw		
bndry lyr thickness in wtr below air (m)	4.01E-04	del_wa		
diffusion length in surface soil (m)	3.86E-02	del_g		
diffusion length in upper soil (m)	1.32E+01	del_s		
Thickness of the root-zone soil layer	1.90E+01	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	7.12E-02	del_dw		
Initial concentration in soil (mol/m ³)	2.04E-05	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	3.25E-02	tlag		
Skin/water partition coefficient	1.45E+01	Km		
Reaction rate constant in air (1/d)	1.17E-01	Ra		
Reaction rate constant, ground soil (1/d)	3.64E-03	Rg		
Reaction rate constant, root-zone soil (1/d)	3.64E-03	Rs		
Reaction rate constant, vadose-zone soil (1/d)	2.85E-03	Rv		
Reaction rate constant, ground water (1/d)	2.85E-03	Rq		
Reaction rate constant, surface water (1/d)	6.22E-02	Rw		
Reaction rate constant, sediment (1/d)	2.49E-04	Rd		
Reaction rate constant in leaf surface (1/d)	3.64E-03	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	2.93E-04	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	1.06E+02	mtc_s		
cuticular conductance (m/d)	7.79E-05	mtc_c		
air side conductance over leaf (m/d)	3.78E+02	mtc_a		
cuticle water permeance (m/d)	1.86E-05	mtc_l		
conductance air/cuticle (m/d)	7.79E-05	mtc_ct		
conductance air/stomata (m/d)	8.27E+01	mtc_st		
root-soil / stem transfer factor	1.47E-05	x_rs		
stem / leaf transfer factor	1.00E-02	x_sl		
leaf / stem transfer factor	3.18E-02	p_ls		
stem / root-soil transfer factor	5.02E-04	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge.velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	5.50E-09
Cuticle	fc	7.55E-09
Leaf	fl	6.24E-09
Ground	fg	5.47E-07
Root	fs	2.18E-04
Vadose	fv	2.89E-05
Water	fw	2.97E-08
Sediment	fd	2.96E-08
Groundwater	fq	1.90E-03

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vi	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	7.7 E+12	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhub_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)**Fugacity Capacities (mol/m³ per Pa)**

phi

9.54E-09

Zap	1.68E-01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	2.19E-03	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	2.19E-03	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	7.63E-04	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	4.99E-03	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	4.99E-03	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	7.63E-04	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	1.48E-03	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	4.16E-04	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	4.67E-02	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zi	9.99E-04	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	1.63E-03	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	1.65E-03	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	8.80E-04	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.74E-03	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	4.34E-03	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	9.59E-04	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)			Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)		
Compartment	Phase	Compartment	Phase	Y	one-sided	both-sides	Diffusion	Advection	Total	Compartment Interface	
Dair	7.56E-01	Da	7.56E-01	1.78E-03	1.77E-01	4.17E-04	2.61E-05	1.22E-07	2.62E-05	air-water, T_aw	
Dwater	9.63E-05	Dw	9.62E-05	4.01E-04	4.18E-04		4.79 E-02		4.79E-02	water-air, T_wa	
Dair_g	4.36E-02	Dg	1.12E-02	5.00E-03	6.29E-02	4.71E-04	1.59E-03	5.90E-06	1.59E-03	air-ground, T_ag	
Dwater_g	1.88E-06			3.86E-02	4.74E-04		2.89E+01	1.59E-06	2.89E+01	ground-air, T_ga	
Dair_s	3.68E-02	Ds	9.42E-03	3.86E-02	4.74E-04	1.18E-06	7.21E-02	5.96E-03	7.81E-02	ground-soil, T_gs	
Dwater_s	2.36E-06			1.32E+01	1.18E-06		3.76E-05	0.00E+00	3.76E-05	soil-ground, T_sg	
Dair_v	3.19E-02	Dv	1.52E-02	1.32E+01	1.18E-06	5.46E-07		3.11E-06	3.11E-06	soil-vadose, T_sv	
Dwater_v	2.44E-06			1.83E+01	1.02E-06					vadose-soil, T_vs	
Dwater_d	1.13E-05	Dd	4.52E-06	2.00E-02	8.39E-06	2.67E-07	3.06E-05	2.31E-03	2.34E-03	water-sediment, T_wd	
				7.12E-02	2.76E-07		1.23E-03	9.30E-02	9.42E-02	sediment-water, T_dw	
							7.93E-07	6.60E-07	1.45E-06	air-cuticle, T_ac	
							3.44E-01	2.48E-03	3.46E-01	cuticle-air, T_ca	
							4.21E-01		4.21E-01	air - leaf T_al	
							9.07E+04		9.07E+04	leaf-air, T_la	
							3.44E-01		3.44E-01	cuticle-leaf, T_cl	
							1.69E-01		1.69E-01	leaf-cuticle, T_lc	
								4.98E-02	4.98E-02	cuticle-ground T_cg	
aaa1	2.27E-04	CO_1	1.57E+08				1.57E+08	2.74E-03	2.74E-03	leaf-ground T_lg	
aaa2	4.97E-01	CO_2	0.00E+00				7.47E+05	4.94E-04	4.94E-04	leaf-soil, T_ls	
aaa3	1.32E+02	S_1	0.00E+00				-7.47E+05	1.47E-05	1.47E-05	soil-leaf, T_sl	
aaa4	6.71E-05	S_2	0.00E+00				0.00E+00		0.00E+00	ground-cuticle, T_gc	
aaa5	1.31E-06	AA	3.70E-03				0	1.98E-04	1.98E-04	vadose-aquifer, T_vq	
bbb1	0.00E+00	BB	0.00E+00				Lam1	0.003699	2.30E-05	sediment-out, T_do	
bbb2	0.00E+00	CC	3.11E-06						1.00E-01	air-out, T_ao	
bbb3	0.00E+00	DDD	3.05E-03						5.74E-02	ground-water, T_gw	
ccc1	9.07E+04	Gam1	-3.05E-03						5.36E-03	water-out, T_wo	
ccc2	4.21E-01	Gam2	-3.70E-03								
ccc3	6.40E-01	Gm1mGm2	6.52E-04								
ccc4	9.07E+04	Gam1p	3.70E-03								
ccc5	1.59E-03	Gam2p	3.05E-03								
ccc6	1.41E-02	Gm1mGm2p	6.52E-04								

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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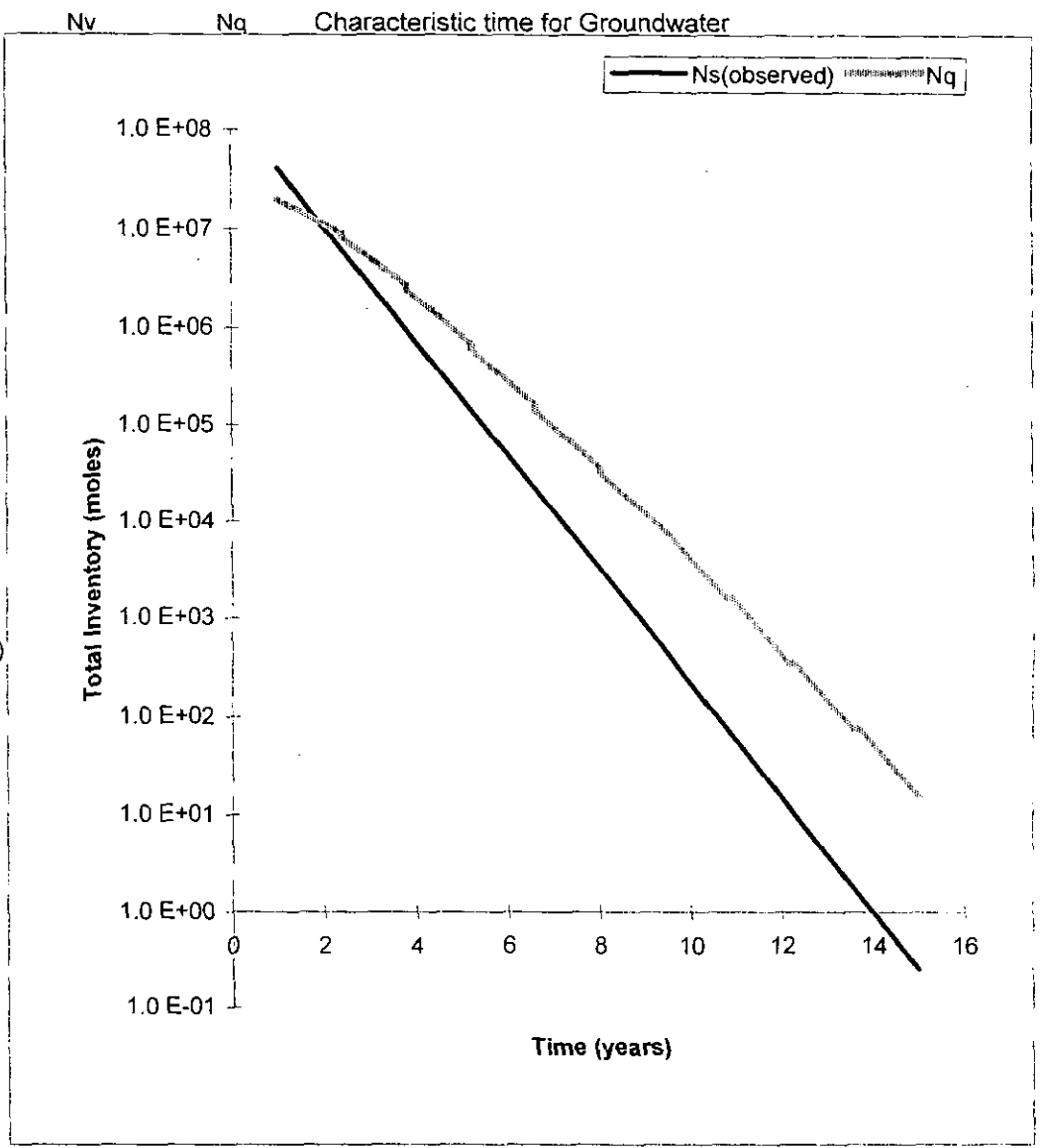
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	6.40E-01	6.60E+02	2.29E-12	0.01%	3.30E+04	3.30E+04	1.56E+00
leaf	l	9.07E+04	3.51E-03	6.24E-12	0.00%	2.49E+04	2.49E+04	1.10E-05
cuticle	c	7.43E-01	2.09E-03	3.52E-10	0.00%	1.21E-01	1.21 E-01	1.35E+00
ground-soil	g	2.90E+01	3.61E+00	8.92E-10	0.00%	8.17E+03	8.17E+03	3.45E-02
root-soil	s	3.70E-03	2.76E+06	3.59E-07	55.03%	2.20E+01	7.96E+05	2.70E+02
vadose-zone	v	3.05E-03	5.72E+03	2.54E-08	0.11%	6.69E+02	1.36E+03	3.28E+02
surface water	w	1.18E-01	1.94E+00	5.18E-11	0.00%	1.79E+01	1.79E+01	8.49E+00
sediment	d	9.45E-02	4.82E-02	1.29E-10	0.00%	3.56E-01	3.56E-01	1.06E+01
aquifer	q	2.85E-03	2.25E+06	1.82E-06	44.85%	8.86E+01	5.00E+05	3.51E+02

Mass Flows (g/d)

air-ground	8.21E+01	Tag*Na*MW	ground-water	1.62E+01	Tgw*Ng*MW
air-water	1.35E+00	Taw*Na*MW	ground-trnsfrm	1.03E+00	Rg*Ng*MW
air-out	5.17E+03	Tao*Na*MW	soil-ground	8.09E+03	Tsg*Ns*MW
air-leaves	2.17E+04	Tal*Na*MW	soil-leaves	3.16E+03	Tsl*Ns*MW
air-leaf surfaces	7.49E-02	Tac*Na*MW	soil-vadose	6.69E+02	Tsv*Ns*MW
air-transform	6.05E+03	Ra*Na*MW	soil-trnsfrm	7.84E+05	Rs*Ns*MW
leaves-air	2.49E+04	Tla*NI*MW	vadose-aquifer	8.86E+01	Tvq*Nv*MW
leaves-leaf surfaces	4.64E-02	Tlc*NI*MW	vadose-trnsfrm	1.27E+03	Rv*Nv*MW
leaves-ground	7.50E-04	Tlg*NI*MW	aquifer-removal	5.00E+05	Lq*Nq*MW
leaves-soil	1.35E-04	Tls*NI*MW	water-air	7.26E+00	Twa*Nw*MW
leaf-surface - air	5.65E-02	Tca*Nc*MW	water-sediment	3.56E-01	Twd*Nw*MW
leaf-surfaces - leaves	5.61E-02	Tcl*Nc*MW	water-out	8.14E-01	Two*Nw*MW
leaf-surfaces - ground	8.12E-03	Tcg*Nc*MW	water-trnsfrm	9.43E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	5.95E-04	Rls*Nc*MW	sediment-water	3.55E-01	Tdw*Nd*MW
ground-air	8.13E+03	Tga*Ng*MW	sedmnt-trnsfrm	9.38E-04	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	8.66E-05	Tdo*Nd*MW
ground-soil	2.20E+01	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	4.1 E+07	2.0 E+07
2.4	876	6.1 E+06	8.9 E+06
3.8	1387	9.3 E+05	2.6 E+06
5.2	1898	1.4 E+05	6.4 E+05
6.6	2409	2.1 E+04	1.5 E+05
8	2920	3.2 E+03	3.4 E+04
9.4	3431	4.8 E+02	7.6 E+03
10.8	3942	7.3 E+01	1.6 E+03
12.2	4453	1.1 E+01	3.6 E+02
13.6	4964	1.7 E+00	7.6 E+01
15	5475	2.5 E-01	1.6 E+01
		Ns(0){total}	
		1.6 E+08	
		const_sat	
		-6.02953E+11	
		Ns(sat)	
		1.6E+14	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-2.20 E+14	4.1E+07	1.1E+11
0	-3.08 E+14	6.1E+06	1.3E+11
0	-3.08 E+14	9.3E+05	1.3E+11
0	-3.08 E+14	1.4E+05	1.3E+11
0	-3.08 E+14	2.1E+04	1.3E+11
0	-3.08 E+14	3.2E+03	1.3E+11
0	-3.08 E+14	4.8E+02	1.3E+11
0	-3.08 E+14	7.3E+01	1.3E+11
0	-3.08 E+14	1.1E+01	1.3E+11
0	-3.08 E+14	1.7E+00	1.3E+11
0	-3.08 E+14	2.5E-01	1.3E+11



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Beryllium	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio	
Inhalation	7.0 E+00	2.86E-07	Risk	1.8 E-11
Ingestion	0.0 E+00	0.002	Hazard ratio	1.3 E-2
Dermal	0.0 E+00	0.002		
Total dose	0		Target Soil Concentrations (in ppm)	
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00	Based on cancer risk:	
Root-soil thickness ==>	current value 0.9	should be > 9.4 E-1	Root soil	2.3 E+3 >conc limit
Alter root soil thickness to?	9.4 E-01		Vadose soil	0.0 E+0 not avbl.
Distance off-site for air exposure=	0.0 E+00	meters		Root Soil 3.1 E+0
Time after initial concentrations when exposure begins =	3.7 E+02	days	Based on hazard:	Vadose soil n/a
Measured Concentrations (at time = 0)			Root soil	3.1 E+0
Root-zone soil	0.0416	ppm (mg/kg)	Vadose soil	0.0 E+0 not avbl.
Vadose-zone soil	0	ppm (mg/kg)	Concentration limits without NAPL	
Ground water	0	ppm (mg/L)	Root soil	1.3 E+03 mg/kg solid
Continuous inputs	Methane flux m/d	0	Vadose soil	1.3 E+03 mg/kg solid
Source term to air (mol/d)	0.0 E+00	Sa	Ground water	9.0 E+00 mg/L water
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Time avg. Conc. in on-site environmental media	
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	Air	2.3 E-09 mg/m3
Source term to surface water(mol/d)	0.0 E+00	Sw	Total Leaf	2.6 E-02 mg/kg(total)
Aquifer characteristics			Grnd-surface soil	4.1 E-02 mg/kg(total)
Distance to first well (m)	0.0 E+00	d_well	Root-zone soil	4.1 E-02 mg/kg(total)
59.63956371	Darcy veleocity (m/d)	v_darc	Vadose-zone soil	4.9 E-05 mg/kg(total)
	Water dispersion coeff. (m2/d)	D_T	Ground water	1.4 E-02 mg/L(water)
			Surface water	3.1 E-04 mg/L
			Sediment	4.3 E-02 mg/kg

Chemical Properties

0.00297

0.003

1

9.9E+01

Compound	Beryllium		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	9.00 E+00	9.00E+00	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	1.55 E+03	1.55E+03	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m ³	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H-	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	1.70 E+02	1.70E+02	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	1.70 E+02	1.70E+02	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	1.70 E+02	1.70E+02	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	1.70 E+02	1.70E+02	0.10	1	
	NOT USED	Kps -	2.94 E-03	-9.90E+01	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	6.39 E+04	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	9.10 E-07	9.10E-07	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	3.09 E-06	3.09E-06	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	BbmK -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	1.90 E+01	1.90E+01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl-	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary produciton dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m ³)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m ² -d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m ² /d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m ³)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m ³)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m ² /d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m ³)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

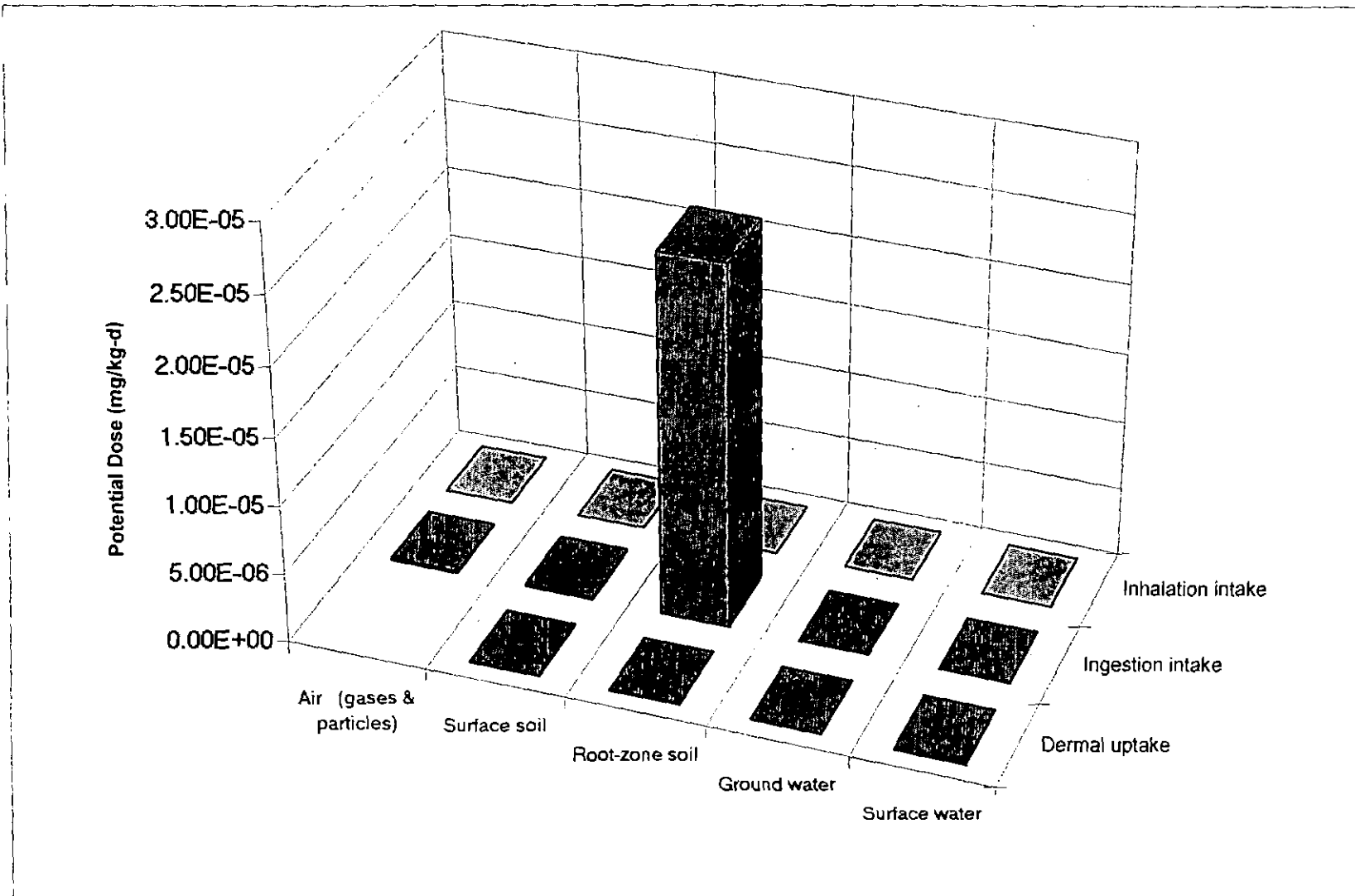
Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lgr	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lml	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbr	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	
Constants							
	Gas Constant (Pa-m ³ /mol-K)		8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contmmt. transfer, grmd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contammnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingstn exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	1.31E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-11	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	1.62E-07	1.59E-07	2.62E-05	0.00E+00	0.00E+00	2.65E-05	99.17
Unexposed produce			8.33E-08	0.00E+00	0.00E+00	8.33E-08	0.31
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		1.32E-10	1.33E-10			2.65E-10	0.00
Total ingestion	1.62 E-07	1.59 E-07	2.62 E-05	0.00 E+00	0.00 E+00	2.66 E-05	99.48
DERMAL UPTAKE		6.88E-08	6.94E-08	0.00E+00	0.00E+00	1.38E-07	0.52
Dose SUM	1.62E-07	2.28E-07	2.63E-05	0.00E+00	0.00E+00	2.67E-05	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	2.66 E-05
Total dose used =>	2.67 E-05

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	2.30 E-09	4.68E-02	4.72 E-02	1.38 E-02	2.74 E-04

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	2.30 E-09				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	1.63 E-04	1.59 E-04	2.62 E-02	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				1.34 E-04	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	3.02 E-08	8.73 E-08	4.87 E-06	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.26 E-08	2.93 E-08	2.03 E-06	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						5.21 E-03
Household soil (mg/kg)			2.34 E-02	2.36 E-02		
Swimming water (mg/L)						3.11 E-04

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.94 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	4.7 E-21	9.5 E-15	4.9 E-17	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
2.4	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
3.8	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
5.2	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
6.6	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
8	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
9.4	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
10.8	1.3 E-11	2.6 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
12.2	1.3 E-11	2.6 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
13.6	1.3 E-11	2.6 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
15	1.3 E-11	2.6 E-05	1.4 E-07	2.6 E-05	2.6 E-05	0.0 E+00
Cumulative doses				0.136461188		
over ED by route, mg/kg	6.7 E-08	1.4 E-01	7.1 E-04	1.4 E-01	1.4 E-01	0.0 E+00
fraction	0.0000	0.9948	0.0052	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	1.3 E-11	2.7 E-05	1.4 E-07	2.7 E-05	2.7 E-05	0.0 E+00
fraction	0.0000	0.9948	0.0052	1.0000	1.000	0.000

Max breast-milk dose 0.0 E+00 mg/kg-d

Max ing	2.7 E-05
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 6.5 E+01 mol/day
 bbb2 = 7.3 E+01 bbb4 = 1.5 E+07
 bbb3 = 3.2 E+03 bbb5 = 9.3 E+06
fugacity
off-site **on-site**

Off-site air concentration (gases)	0.0 E+00	mg/m ³	2.4 E-05	2.4 E-05	air
Off-site concentration (particles)	2.3 E-09	mg/m ³			
Off-site surface-water concentrtn.	1.5 E-06	mg/L	1.7 E-07	3.0 E-05	water
Off-site surface soil concentration	2.6 E-04	mg/kg	1.7 E-07	3.1 E-05	ground soil
Off-site root-soil concentration	2.5 E-04	mg/kg	1.7 E-07	3.1 E-05	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn redctn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	2.8 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	1.4 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	4.4 E-10 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	5.12E-04	del_aw		
bndry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	2.96E-03	del_dw		
Initial concentration in soil (mol/m ³)	7.45E-03	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	2.24E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	2.44E-05
Cuticle	fc	2.49E-05
Leaf	fl	4.86E-03
Ground	fg	3.06E-05
Root	fs	3.08E-05
Vadose	fv	3.64E-08
Water	fw	3.05E-05
Sediment	fd	3.04E-05
Groundwater	fq	1.53E-03

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	4.42E+02	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	4.42E+02	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	4.42E+02	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	4.42E+02	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	4.42E+02	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	4.42E+02	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	4.42E+02	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.47E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	1.05E-08	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	5.04E+00	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	2.40E+02	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	2.39E+02	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	2.49E+02	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.14E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	3.54E+02	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	3.54E+02	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment	Y		one-sided	both-sides	Diffusion	Advection	Total	
Dair	6.40E-01	Da	0.00E+00	5.12E-04	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	1.30E-04	Dw	1.14E-04	5.42E-04	2.40E-01	0.00E+00	0.00E+00	0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	2.54E-06			1.37E-02	2.11E+00	0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga	
Dair_s	3.11E-02	Ds	1.20E-04	1.37E-02	2.11E+00	4.21E-02	1.76E-02	2.33E-05	1.76E-02	ground-soil, T_gs
Dwater_s	3.19E-06			6.68E-01	4.29E-02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	4.29E-02	2.19E-02		2.48E-07	2.48E-07	soil-vadose, T_sv
Dwater_v	3.29E-06			6.68E-01	4.46E-02					vadose-soil, T_vs
Dwater_d	1.52E-05	Dd	4.30E-08	2.00E-02	7.38E-03	3.03E-03	5.33E-04	3.14E-01	3.15E-01	water-sediment, T_wd
				2.96E-03	5.13E-03		1.71E-04	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00	0.00E+00	0.00E+00	air - leaf T_al
							0.00E+00	0.00E+00	0.00E+00	leaf-air, T_la
							0.00E+00	0.00E+00	0.00E+00	cuticle-leaf, T_cl
							0.00E+00	0.00E+00	0.00E+00	leaf-cuticle, T_lc
								4.98E-02	4.98E-02	cuticle-ground T_cg
							aaa6 2.83E+09	2.74E-03	2.74E-03	leaf-ground T_lg
							aaa7 2.15E+08	1.84E-03	1.84E-03	leaf-soil, T_ls
							aaa8 -2.15E+08	2.24E-06	2.24E-06	soil-leaf, T_sl
							bbb4 0.00E+00		0.00E+00	ground-cuticle, T_gc
							bbb5 0	4.03E-07	4.03E-07	vadose-aquifer, T_vq
							Lam1 3.67E-06	2.50E-05	2.50E-05	sediment-out, T_do
								1.00E-01	1.00E-01	air-out, T_ao
								2.38E-04	2.38E-04	ground-water, T_gw
								5.36E-03	5.36E-03	water-out, T_wo

aaa1	2.66E+00	C0_1	2.83E+09
aaa2	4.38E-02	C0_2	0.00E+00
aaa3	2.48E-06	S_1	0.00E+00
aaa4	0.00E+00	S_2	0.00E+00
aaa5	1.06E-02	AA	3.76E-04
bbb1	0.00E+00	BB	0.00E+00
bbb2	0.00E+00	CC	2.48E-07
bbb3	0.00E+00	DDD	4.03E-07
ccc1	4.58E-03	Gam1	-4.03E-07
ccc2	0.00E+00	Gam2	-3.76E-04
ccc3	8.79E-01	Gm1mGm2	3.75E-04
ccc4	0.00E+00	Gam1p	3.76E-04
ccc5	7.64E-01	Gam2p	4.03E-07
ccc6	2.74E-03	Gm1mGm2p	3.75E-04

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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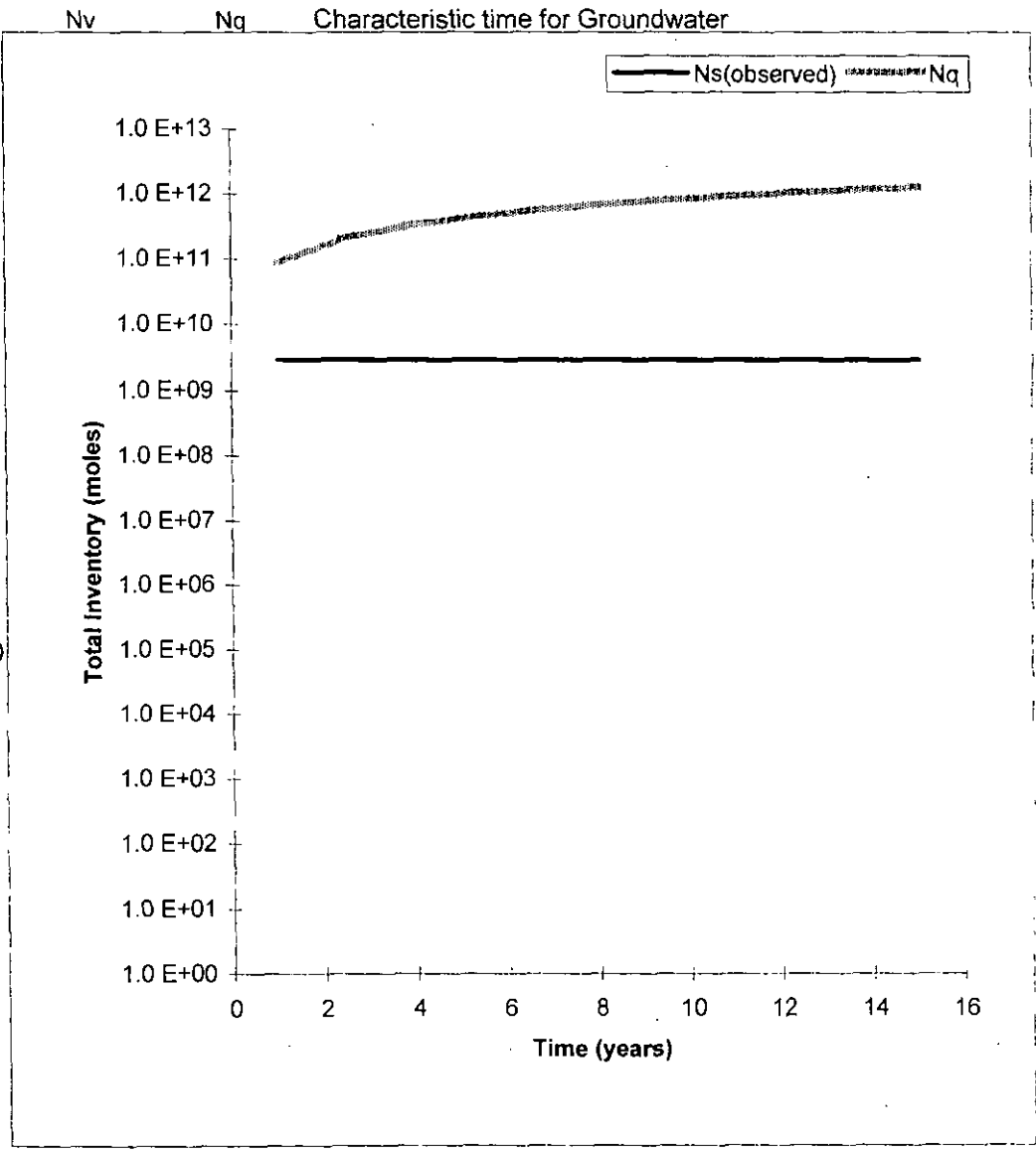
Compartment		Loss-rate constant	Total Inventory	Concentration	Mass distribution	Gains	Losses	Residence Time
Name		(1/day)	(moles)	(mol/m ³)	%	g/d	g/d	(days)
		L	N	C				
air	a	9.04E-01	7.35E+01	2.55E-13	0.00%	5.98E+02	5.98E+02	1.11E+00
leaf	l	4.58E-03	1.37E+06	2.43E-03	0.00%	5.63E+04	5.63E+04	2.18E+02
cuticle	c	5.22E-02	7.43E+02	1.25E-04	0.00%	3.50E+02	3.50 E+02	1.91E+01
ground-soil	g	1.78E-02	2.96E+07	7.33E-03	0.00%	4.75E+06	4.75E+06	5.61E+01
root-soil	s	1.90E-04	2.80E+09	7.37E-03	0.42%	4.71E+06	4.78E+06	5.27E+03
vadose-zone	v	4.03E-07	2.03E+06	9.04E-06	0.00%	6.25E+03	7.38E+00	2.48E+06
surface water	w	3.20E-01	1.30E+06	3.46E-05	0.00%	3.74E+06	3.74E+06	3.12E+00
sediment	d	1.01E-01	4.04E+06	1.08E-02	0.00%	3.68E+06	3.68E+06	9.88E+00
aquifer	q	1.00E-05	6.70E+11	5.43E-01	99.58%	7.38E+00	6.03E+07	1.00E+05

Mass Flows (g/d)

air-ground	1.72E+02	Tag*Na*MW	ground-water	6.35E+04	Tgw*Ng*MW
air-water	9.57E+00	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	6.64E+01	Tao*Na*MW	soil-ground	4.71E+06	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	5.63E+04	Tsl*Ns*MW
air-leaf surfaces	3.50E+02	Tac*Na*MW	soil-vadose	6.25E+03	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	7.38E+00	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	3.37E+04	Tlg*NI*MW	aquifer-removal	6.03E+07	Lq*Nq*MW
leaves-soil	2.27E+04	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	1.66E+01	Tca*Nc*MW	water-sediment	3.68E+06	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	6.26E+04	Two*Nw*MW
leaf-surfaces - ground	3.33E+02	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	3.68E+06	Tdw*Nd*MW
ground-air	5.81E+02	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	9.08E+02	Tdo*Nd*MW
ground-soil	4.68E+06	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.8 E+09	8.4 E+10
2.4	876	2.8 E+09	2.0 E+11
3.8	1387	2.8 E+09	3.2 E+11
5.2	1898	2.8 E+09	4.4 E+11
6.6	2409	2.8 E+09	5.5 E+11
8	2920	2.8 E+09	6.7 E+11
9.4	3431	2.8 E+09	7.9 E+11
10.8	3942	2.8 E+09	9.0 E+11
12.2	4453	2.8 E+09	1.0 E+12
13.6	4964	2.8 E+09	1.1 E+12
15	5475	2.8 E+09	1.3 E+12
		Ns(0)[total]	
		2.8 E+09	
		const_sat	
		-333499910.4	
		Ns(sat)	
		9.1E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.19 E+11	2.8E+09	8.2E+09
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10
0	-1.68 E+11	2.8E+09	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil
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Chemical ==>	Chromium	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio	
Inhalation	4.2 E+01	0.0000286	Risk	1.1 E-8
Ingestion	0.0 E+00	0.005	Hazard ratio	2.6 E-1
Dermal	0.0 E+00	0.005		
Total dose	0		Target Soil Concentrations (in ppm)	
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotient 1.00	Based on cancer risk:	
Root-soil thickness ==>	current value 0.9	should be > 9.4 E-1	Root soil	3.8 E+2
Alter root soil thickness to?	9.4 E-01		Vadose soil	0.0 E+0 not avbl.
Distance off-site for air exposure=	0.0 E+00	meters		Root Soil
Time after initial concentrations when exposure begins =	3.7 E+02	days		Vadose soil
Measured Concentrations (at time = 0)			Based on hazard:	Root Soil
Root-zone soil	4.06	ppm (mg/kg)	Root soil	1.6 E+1
Vadose-zone soil	0	ppm (mg/kg)	Vadose soil	0.0 E+0 not avbl.
Ground water	0	ppm (mg/L)	Concentration limits without NAPL	
Continuous inputs	Methane flux m/d	0	Root soil	1.6 E+04 mg/kg solid
Source term to air (mol/d)	0.0 E+00	Sa	Vadose soil	1.6 E+04 mg/kg solid
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Ground water	5.2 E+01 mg/L water
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	Time avrg. Conc. in on-site environmental media	
Source term to surface water(mol/d)	0.0 E+00	Sw	Air	2.3 E-07 mg/m3
Aquifer characteristics			Total Leaf	1.3 E+00 mg/kg(total)
Distance to first well (m)	0.0 E+00	d_well	Grnd-surface soil	4.1 E+00 mg/kg(total)
59.63956371	1.0 E-01	v_darc	Root-zone soil	4.0 E+00 mg/kg(total)
Darcy veleocity (m/d)	1.0 E-01	v_darc	Vadose-zone soil	2.4 E-03 mg/kg(total)
Water dispersion coeff. (m2/d)	5.0 E-02	D_T	Ground water	6.7 E-01 mg/L(water)
			Surface water	1.6 E-02 mg/L
			Sediment	3.9 E+00 mg/kg

Chemical Properties

0.00297

0.003

1

7.4 E+01

Compound	Chromium		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	5.20 E+01	5.20E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	2.17 E+03	2.17E+03	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H-	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	3.44 E+02	3.44E+02	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	3.44 E+02	3.44E+02	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	3.44 E+02	3.44E+02	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	3.44 E+02	3.44E+02	0.10	1	
	NOT USED	Kps -	0.00 E+00	0.00E+00	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	3.47 E+04	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.10 E-03	1.10E-03	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	9.20 E-03	9.20E-03	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	4.02 E+01	4.02E+01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl-	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfi	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

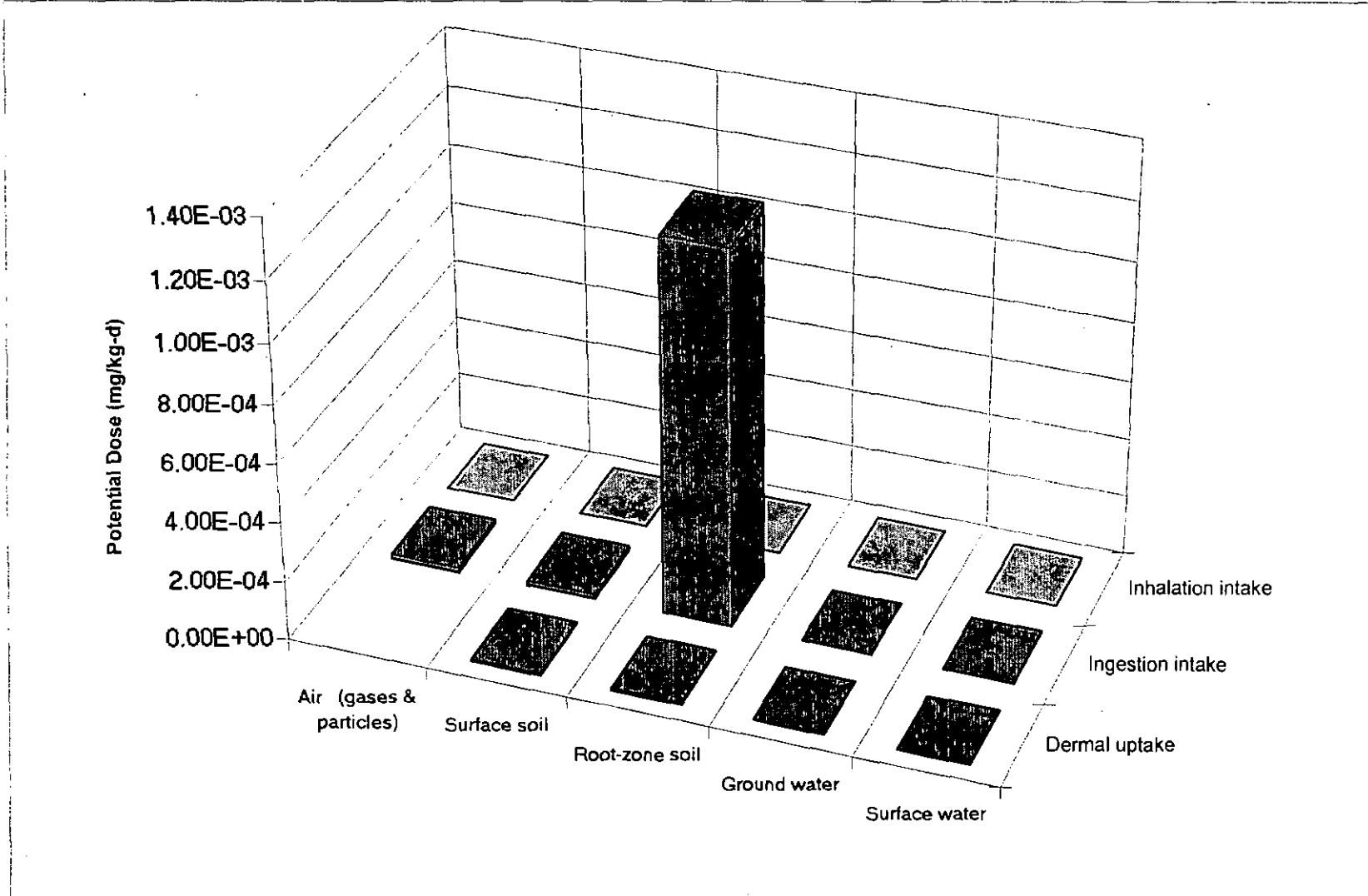
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prtn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, ground soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	1.29E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-09	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	1.59E-05	1.56E-05	1.26E-03	0.00E+00	0.00E+00	1.29E-03	98.65
Unexposed produce			4.04E-06	0.00E+00	0.00E+00	4.04E-06	0.31
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		1.30E-08	1.31E-08			2.61E-08	0.00
Total ingestion	1.59 E-05	1.56 E-05	1.27 E-03	0.00 E+00	0.00 E+00	1.30 E-03	98.96
DERMAL UPTAKE		6.79E-06	6.82E-06	0.00E+00	0.00E+00	1.36E-05	1.04
Dose SUM	1.59E-05	2.24E-05	1.27E-03	0.00E+00	0.00E+00	1.31E-03	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	1.30 E-03
Total dose used =>	1.31 E-03

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	2.26 E-07	4.61E+00	4.63 E+00	6.69 E-01	1.25 E-02

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	2.26 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	1.59 E-02	1.57 E-02	1.27 E+00	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				6.48 E-03	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	8.80 E-03	2.56 E-02	6.99 E-01	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.49 E-03	3.49 E-03	1.18 E-01	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						5.02 E-01
Household soil (mg/kg)			2.30 E+00	2.31 E+00		
Swimming water (mg/L)						1.59 E-02

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	2.7 E-20	2.7 E-14	2.9 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
2.4	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
3.8	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
5.2	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
6.6	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
8	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
9.4	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
10.8	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
12.2	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
13.6	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
15	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
Cumulative doses				6.698346709		
over ED by route, mg/kg	6.6 E-06	6.6 E+00	7.0 E-02	6.7 E+00	6.7 E+00	0.0 E+00
fraction	0.0000	0.9896	0.0104	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	1.3 E-09	1.3 E-03	1.4 E-05	1.3 E-03	1.3 E-03	0.0 E+00
fraction	0.0000	0.9896	0.0104	1.0000	1.000	0.000

Max breast-milk dose 0.0 E+00 mg/kg-d

Max_ing	1.3 E-03
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.1 E+03 mol/day
 bbb2 = 1.3 E+03 bbb4 = 5.0 E+08
 bbb3 = 5.4 E+04 bbb5 = 3.1 E+08
 fugacity off-site fugacity on-site

Off-site air concentration (gases)	0.0 E+00	mg/m ³	2.1 E-04	2.1 E-04	air
Off-site concentration (particles)	2.3 E-07	mg/m ³			
Off-site surface-water concentrtn.	1.4 E-04	mg/L	2.6 E-06	2.4 E-04	water
Off-site surface soil concentration	4.9 E-02	mg/kg	2.7 E-06	2.6 E-04	ground soil
Off-site root-soil concentration	4.9 E-02	mg/kg	2.7 E-06	2.6 E-04	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.4 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	7.0 E-05 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	2.2 E-10 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	1.23E-03	del_aw		
bndry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	1.83E-03	del_dw		
Initial concentration in soil (mol/m3)	1.26E-01	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	1.11E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	2.06E-04
Cuticle	fc	2.09E-04
Leaf	fl	4.08E-02
Ground	fg	2.58E-04
Root	fs	2.59E-04
Vadose	fv	1.51E-07
Water	fw	2.40E-04
Sediment	fd	2.40E-04
Groundwater	fq	1.29E-02

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m3/m3)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	8.94E+02	fugacity capacity of air particles in mol/m3[s]-Pa
Zgp	8.94E+02	fugacity capacity of ground soil compartment particles in mol/m3[s]-Pa
Zsp	8.94E+02	fugacity capacity of root zone compartment particles in mol/m3[s]-Pa
Zvp	8.94E+02	fugacity capacity of vadose zone compartment particles in mol/m3[s]-Pa
Zwp	8.94E+02	fugacity capacity of suspended sediment in surface water in mol/m3[s]-Pa
Zdp	8.94E+02	fugacity capacity of bottom sediment particles in mol/m3[s]-Pa
Zqp	8.94E+02	fugacity capacity of aquifer solids in mol/m3-Pa
Zleaftotal	6.01E-01	fugacity capacity of the total leaf compartment in mol/Pa/m3
Za	2.12E-08	fugacity capacity of air compartment in mol/m3-Pa
Zc	1.02E+01	fugacity capacity of leaf surface compartment in mol/Pa/m3
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m3
Zg	4.85E+02	fugacity capacity of ground soil compartment in mol/m3-Pa
Zs	4.84E+02	fugacity capacity of root-soil compartment in mol/m3-Pa
Zv	5.03E+02	fugacity capacity of vadose-zone compartment in mol/m3-Pa
Zw	1.27E+00	fugacity capacity of water compartment in mol/m3-Pa
Zd	7.16E+02	fugacity capacity of sediment compartment in mol/m3-Pa
Zq	7.16E+02	fugacity capacity of aquifer compartment in mol/m3-Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)			Fugacity mass-transfer coefficients mol/Pa-m ² -d			Overall intercompartment mass transfer rate constants (1/day)		
Compartment	Phase	Compartment		Y	one-sided	both-sides	Diffusion	Advection	Total	Compartment Interface		
Dair	6.40E-01	Da	0.00E+00	1.23E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw		
Dwater	1.30E-04	Dw	1.02E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa		
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag		
Dwater_g	2.54E-06			1.37E-02	4.26E+00		0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga		
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	4.26E+00	8.51E-02	1.76E-02	1.15E-05	1.76E-02	ground-soil, T_gs		
Dwater_s	3.19E-06			6.68E-01	8.68E-02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg		
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	8.68E-02	4.43E-02		1.23E-07	1.23E-07	soil-vadose, T_sv		
Dwater_v	3.29E-06			6.68E-01	9.03E-02					vadose-soil, T_vs		
Dwater_d	1.52E-05	Dd	2.12E-08	2.00E-02	8.29E-03	4.15E-03	6.51E-04	5.67E-01	5.67E-01	water-sediment, T_wd		
				1.83E-03	8.31E-03		1.16E-04	1.01E-01	1.01E-01	sediment-water, T_dw		
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac		
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca		
							0.00E+00		0.00E+00	air - leaf T_al		
							0.00E+00		0.00E+00	leaf-air, T_la		
							0.00E+00		0.00E+00	cuticle-leaf, T_cl		
							0.00E+00		0.00E+00	leaf-cuticle, T_lc		
aaa1	2.63E+00			CO_1	4.78E+10					cuticle-ground T_cg		
aaa2	2.27E-02			CO_2	0.00E+00					leaf-ground T_lg		
aaa3	2.48E-06			S_1	0.00E+00					leaf-soil, T_ls		
aaa4	0.00E+00			S_2	0.00E+00					soil-leaf, T_sl		
aaa5	1.06E-02			AA	3.75E-04			4.98E-02	4.98E-02	ground-cuticle, T_gc		
bbb1	0.00E+00			BB	0.00E+00	aaa6	4.78E+10	2.74E-03	2.74E-03	vadose-aquifer, T_vq		
bbb2	0.00E+00			CC	1.23E-07	aaa7	3.45E+09	1.84E-03	1.84E-03	sediment-out, T_do		
bbb3	0.00E+00			DDD	1.99E-07	aaa8	-3.45E+09	1.11E-06	1.11E-06	air-out, T_ao		
ccc1	4.58E-03			Gam1	-1.99E-07	bbb4	0.00E+00		0.00E+00	ground-water, T_gw		
ccc2	0.00E+00			Gam2	-3.75E-04	bbb5	0	1.99E-07	1.99E-07	water-out, T_wo		
ccc3	8.79E-01			Gm1mGm2	3.75E-04	Lam1	1.9E-06	2.50E-05	2.50E-05			
ccc4	0.00E+00			Gam1p	3.75E-04			1.00E-01	1.00E-01			
ccc5	7.64E-01			Gam2p	1.99E-07			1.25E-04	1.25E-04			
ccc6	2.74E-03			Gm1mGm2p	3.75E-04			5.36E-03	5.36E-03			

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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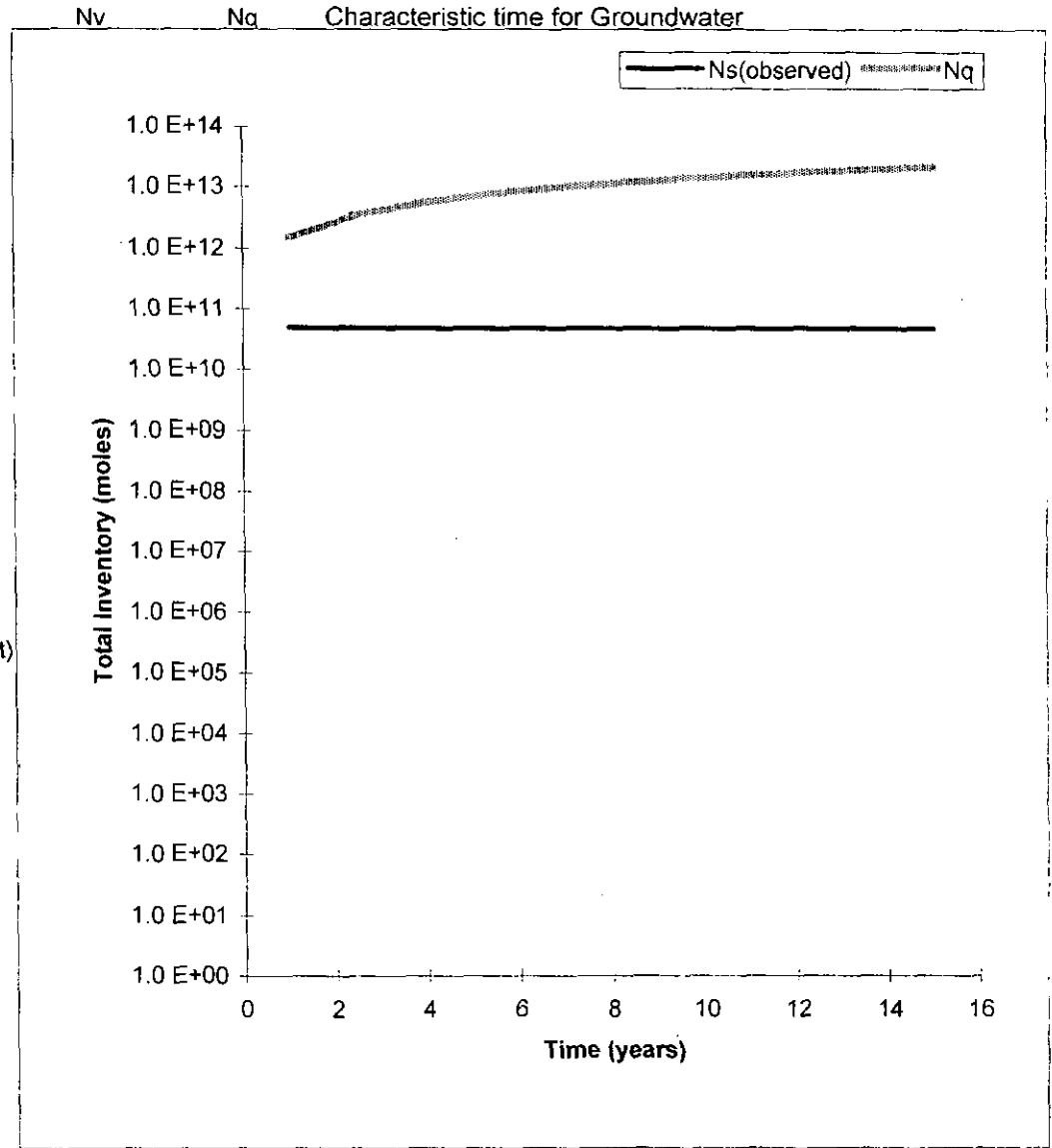
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	1.25E+03	4.35E-12	0.00%	5.89E+04	5.89E+04	1.11E+00
leaf	l	4.58E-03	1.15E+07	2.04E-02	0.00%	2.73E+06	2.73E+06	2.18E+02
cuticle	c	5.22E-02	1.27E+04	2.14E-03	0.00%	3.44E+04	3.44 E+04	1.91E+01
ground-soil	g	1.77E-02	5.05E+08	1.25E-01	0.00%	4.64E+08	4.64E+08	5.65E+01
root-soil	s	1.88E-04	4.75E+10	1.25E-01	0.42%	4.62E+08	4.66E+08	5.31E+03
vadose-zone	v	1.99E-07	1.71E+07	7.58E-05	0.00%	3.03E+05	1.77E+02	5.02E+06
surface water	w	5.73E-01	1.15E+07	3.06E-04	0.00%	3.42E+08	3.42E+08	1.75E+00
sediment	d	1.01E-01	6.43E+07	1.72E-01	0.00%	3.39E+08	3.39E+08	9.88E+00
aquifer	q	1.00E-05	1.14E+13	9.21E+00	99.58%	1.77E+02	5.91E+09	1.00E+05

Mass Flows (g/d)

air-ground	1.70E+04	Tag*Na*MW	ground-water	3.28E+06	Tgw*Ng*MW
air-water	9.42E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	6.54E+03	Tao*Na*MW	soil-ground	4.63E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	2.73E+06	Tsl*Ns*MW
air-leaf surfaces	3.44E+04	Tac*Na*MW	soil-vadose	3.03E+05	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	1.77E+02	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	1.63E+06	Tlg*NI*MW	aquifer-removal	5.91E+09	Lq*Nq*MW
leaves-soil	1.10E+06	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	1.63E+03	Tca*Nc*MW	water-sediment	3.39E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	3.20E+06	Two*Nw*MW
leaf-surfaces - ground	3.28E+04	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	3.38E+08	Tdw*Nd*MW
ground-air	5.72E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	8.36E+04	Tdo*Nd*MW
ground-soil	4.61E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	4.8 E+10	1.4 E+12
2.4	876	4.8 E+10	3.4 E+12
3.8	1387	4.8 E+10	5.4 E+12
5.2	1898	4.8 E+10	7.4 E+12
6.6	2409	4.8 E+10	9.4 E+12
8	2920	4.8 E+10	1.1 E+13
9.4	3431	4.7 E+10	1.3 E+13
10.8	3942	4.7 E+10	1.5 E+13
12.2	4453	4.7 E+10	1.7 E+13
13.6	4964	4.7 E+10	1.9 E+13
15	5475	4.7 E+10	2.1 E+13
		Ns(0)[total]	
		4.8 E+10	
		const_sat	
		-348807408.9	
		Ns(sat)	
		1.8E+14	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-7.95 E+10	4.8E+10	8.2E+09
0	-1.30 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.8E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10
0	-1.31 E+11	4.7E+10	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil
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Chemical ==>	Cobalt	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio	
Inhalation	0.0 E+00	1.4286E-06	Risk	0.0 E+0
Ingestion	0.0 E+00	0	Hazard ratio	2.8 E-4
Dermal	0.0 E+00	0		
Total dose	0			
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00		
Root-soil thickness ==>	current value 0.9	should be > 9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)			Based on cancer risk:	
Root-zone soil	1.3	ppm (mg/kg)	Root soil	0.0 E+0 not avlbl.
Vadose-zone soil	0	ppm (mg/kg)	Vadose soil	0.0 E+0 not avlbl.
Ground water	0	ppm (mg/L)		Root Soil 4.6 E+3
Continuous inputs	Methane flux m/d	0	Based on hazard:	Vadose soil n/a
Source term to air (mol/d)	0.0 E+00	Sa	Root soil	4.6 E+3 >conc limit
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Vadose soil	0.0 E+0 not avlbl.
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	Concentration limits without NAPL	
Source term to surface water(mol/d)	0.0 E+00	Sw	Root soil	2.3 E+03 mg/kg solid
Aquifer characteristics			Vadose soil	2.3 E+03 mg/kg solid
Distance to first well (m)	0.0 E+00	d_well	Ground water	5.9 E+01 mg/L water
59.63956371	Darcy veleocity (m/d)	1.0 E-01	v_darc	
	Water dispersion coeff. (m2/d)	5.0 E-02	D_T	
			Time avrg. Conc. in on-site environmental media	
			Air	6.8 E-08 mg/m3
			Total Leaf	3.0 E+00 mg/kg(total)
			Grnd-surface soil	1.2 E+00 mg/kg(total)
			Root-zone soil	1.3 E+00 mg/kg(total)
			Vadose-zone soil	5.6 E-03 mg/kg(total)
			Ground water	1.6 E+00 mg/L(water)
			Surface water	3.4 E-02 mg/L
			Sediment	1.3 E+00 mg/kg

Chemical Properties

0.00297

0.003

1

1.0 E+02

Compound	Cobalt		Value used	Mean value	Coeff. Var.	Adjustment	Notes	
		Molecular weight (g/mol)	MW	5.89 E+01	5.89E+01	0.01	1	
		Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
		Melting point (K)	Tm	1.77 E+03	1.77E+03	0.03	1	
		Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
		Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
		Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
		Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
		Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
		Organic carbon partition coefficient Koc	Koc -	n/a	-9.90E+01	0.66	1	m ² /s
		Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
		Partition coefficient in ground/root soil layer	Kd_s -	4.50 E+01	4.50E+01	0.10	1	
		Partition coefficient in vadose-zone soil layer	Kd_v -	4.50 E+01	4.50E+01	0.10	1	
		Partition coefficient in aquifer layer	Kd_q -	4.50 E+01	4.50E+01	0.10	1	
		Partition coeff. in surface wtr sediments	Kd_d -	4.50 E+01	4.50E+01	0.10	1	
		NOT USED	Kps -	6.87 E-03	6.87E-03	3.70	1	
		Leaves/phlm wtr prtn cff.(wet kg/m ³ per wet kg/m ³)	Kl_phi -	5.00 E-01	-9.90E+01	0.10	1	
		Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
		Transpiration stream cncntrn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
		Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	2.24 E+05	-9.90E+01	13.00	1	
		Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	2.90 E-03	2.90E-03	10.00	1	
		Biotransfer factor; cattle-diet/meat (d/L)	Bt -	9.70 E-03	9.70E-03	12.00	1	
		Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
		Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	-9.90E+01	10.00	1	
		Bioconcentration factor; fish/water	BCF -	9.76 E-01	9.76E-01	0.62	1	
		Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
		Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
		Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
		Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "." symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the list value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m ³)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m ² -d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m ² /d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m ³)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m ³)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m ² /d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m ³)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

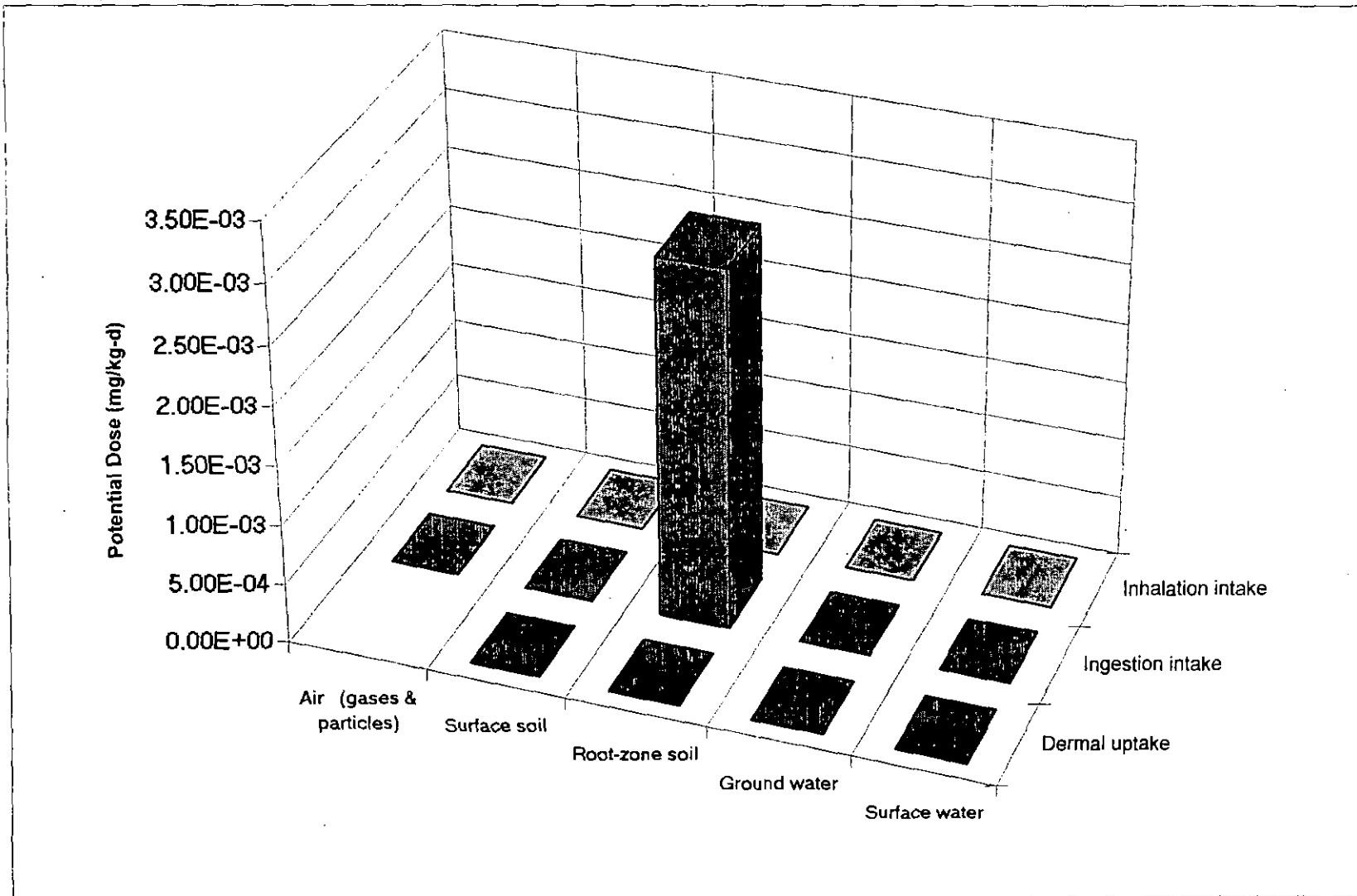
Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbr	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[pint FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1
Constants						
	Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, gmd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	3.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-10	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	4.85E-06	4.72E-06	3.01E-03	0.00E+00	0.00E+00	3.02E-03	99.55
Unexposed produce			9.54E-06	0.00E+00	0.00E+00	9.54E-06	0.31
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		3.93E-09	4.04E-09			7.97E-09	0.00
Total ingestion	4.85 E-06	4.73 E-06	3.02 E-03	0.00 E+00	0.00 E+00	3.03 E-03	99.86
DERMAL UPTAKE		2.05E-06	2.11E-06	0.00E+00	0.00E+00	4.16E-06	0.14
Dose SUM	4.85E-06	6.78E-06	3.02E-03	0.00E+00	0.00E+00	3.03E-03	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	3.03 E-03
Total dose used =>	3.03 E-03

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	6.84 E-08	1.39E+00	1.43 E+00	1.59 E+00	3.26 E-02

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	6.84 E-08				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	4.87 E-03	4.74 E-03	3.02 E+00	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				1.53 E-02	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	2.83 E-03	8.16 E-03	1.76 E+00	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.20 E-03	2.78 E-03	7.44 E-01	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						3.19 E-02
Household soil (mg/kg)			6.97 E-01	7.15 E-01		
Swimming water (mg/L)						3.38 E-02

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	3.0 E-20	2.3 E-13	3.2 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	4.0 E-10	3.1 E-03	4.3 E-06	3.1 E-03	3.1 E-03	0.0 E+00
2.4	4.0 E-10	3.1 E-03	4.3 E-06	3.1 E-03	3.1 E-03	0.0 E+00
3.8	4.0 E-10	3.1 E-03	4.2 E-06	3.1 E-03	3.1 E-03	0.0 E+00
5.2	3.9 E-10	3.1 E-03	4.2 E-06	3.1 E-03	3.1 E-03	0.0 E+00
6.6	3.9 E-10	3.0 E-03	4.2 E-06	3.1 E-03	3.1 E-03	0.0 E+00
8	3.9 E-10	3.0 E-03	4.2 E-06	3.0 E-03	3.0 E-03	0.0 E+00
9.4	3.9 E-10	3.0 E-03	4.1 E-06	3.0 E-03	3.0 E-03	0.0 E+00
10.8	3.8 E-10	3.0 E-03	4.1 E-06	3.0 E-03	3.0 E-03	0.0 E+00
12.2	3.8 E-10	3.0 E-03	4.1 E-06	3.0 E-03	3.0 E-03	0.0 E+00
13.6	3.8 E-10	2.9 E-03	4.1 E-06	3.0 E-03	3.0 E-03	0.0 E+00
15	3.8 E-10	2.9 E-03	4.0 E-06	2.9 E-03	2.9 E-03	0.0 E+00
Cumulative doses				15.49422713		
over ED by route, mg/kg	2.0 E-06	1.5 E+01	2.1 E-02	1.5 E+01	1.5 E+01	0.0 E+00
fraction	0.0000	0.9986	0.0014	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	3.9 E-10	3.0 E-03	4.2 E-06	3.0 E-03	3.0 E-03	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	4.0 E-10	3.1 E-03	4.3 E-06	3.1 E-03	3.1 E-03	0.0 E+00
fraction	0.0000	0.9986	0.0014	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max ing

3.1 E-03

Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 2.9 E+02 mol/day
 bbb2 = 3.3 E+02 bbb4 = 1.8 E+07
 bbb3 = 1.4 E+04 bbb5 = 1.1 E+07

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	0.0 E+00	mg/m ³	4.2 E-04	4.2 E-04	air
Off-site concentration (particles)	6.8 E-08	mg/m ³			
Off-site surface-water concentrtn.	5.1 E-05	mg/L	8.6 E-07	5.5 E-04	water
Off-site surface soil concentration	2.1 E-03	mg/kg	8.0 E-07	5.3 E-04	ground soil
Off-site root-soil concentration	2.0 E-03	mg/kg	7.6 E-07	5.4 E-04	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn redctn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.1 E-03 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	5.3 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	1.7 E-09 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	1.31E-03	del_aw		
bdry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.69E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	7.33E-03	del_dw		
Initial concentration in soil (mol/m ³)	3.56E-02	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	8.43E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	4.19E-04
Cuticle	fc	4.27E-04
Leaf	fl	8.50E-02
Ground	fg	5.25E-04
Root	fs	5.39E-04
Vadose	fv	2.42E-06
Water	fw	5.54E-04
Sediment	fd	5.53E-04
Groundwater	fq	2.70E-02

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)**Fugacity Capacities (mol/m³ per Pa)**

phi

#VALUE!

Zap	1.17E+02	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	1.17E+02	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	1.17E+02	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	1.17E+02	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	1.17E+02	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	1.17E+02	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	1.17E+02	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.09E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	2.77E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	1.34E+00	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	6.36E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	6.35E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	6.60E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.04E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	9.38E+01	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	9.38E+01	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface	
Compartment Phase	Compartment		Y		one-sided	both-sides	Diffusion	Advection	Total		
Dair	6.40E-01	Da	0.00E+00	1.31E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	1.30E-04	Dw	1.26E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	2.54E-06			1.37E-02	5.59E-01		0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga	
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	5.59E-01	1.12E-02	1.76E-02	8.77E-05	1.76E-02	ground-soil, T_gs	
Dwater_s	3.19E-06			6.69E-01	1.14E-02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg	
Dair_v	2.70E-02	Dv	1.20E-04	6.69E-01	1.14E-02	5.81E-03		9.35E-07	9.35E-07	soil-vadose, T_sv	
Dwater_v	3.29E-06			6.69E-01	1.18E-02					vadose-soil, T_vs	
Dwater_d	1.52E-05	Dd	1.62E-07	2.00E-02	6.73E-03	1.59E-03	3.06E-04	9.12E-02	9.15E-02	water-sediment, T_wd	
				7.33E-03	2.07E-03		3.38E-04	1.01E-01	1.01E-01	sediment-water, T_dw	
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac	
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca	
							0.00E+00		0.00E+00	air - leaf T_al	
							0.00E+00		0.00E+00	leaf-air, T_la	
							0.00E+00		0.00E+00	cuticle-leaf, T_cl	
							0.00E+00		0.00E+00	leaf-cuticle, T_lc	
								4.98E-02	4.98E-02	cuticle-ground T_cg	
aaa1	2.69E+00		C0_1	1.35E+10			aaa6	1.35E+10	2.74E-03	2.74E-03	leaf-ground T_lg
aaa2	1.59E-01		C0_2	0.00E+00			aaa7	1.08E+09	1.84E-03	1.84E-03	leaf-soil, T_ls
aaa3	2.48E-06		S_1	0.00E+00			aaa8	-1.08E+09	8.43E-06	8.43E-06	soil-leaf, T_sl
aaa4	0.00E+00		S_2	0.00E+00			bbb4	0.00E+00	0.00E+00	0.00E+00	ground-cuticle, T_gc
aaa5	1.04E-02		AA	3.80E-04			bbb5	0	1.52E-06	1.52E-06	vadose-aquifer, T_vq
bbb1	0.00E+00		BB	0.00E+00			Lam1	1.32E-05	2.49E-05	2.49E-05	sediment-out, T_do
bbb2	0.00E+00		CC	9.35E-07					1.00E-01	1.00E-01	air-out, T_ao
bbb3	0.00E+00		DDD	1.52E-06					8.58E-04	8.58E-04	ground-water, T_gw
ccc1	4.58E-03		Gam1	-1.52E-06					5.36E-03	5.36E-03	water-out, T_wo
ccc2	0.00E+00		Gam2	-3.80E-04							
ccc3	8.79E-01		Gm1mGm2	3.78E-04							
ccc4	0.00E+00		Gam1p	3.80E-04							
ccc5	7.64E-01		Gam2p	1.52E-06							
ccc6	2.74E-03		Gm1mGm2p	3.78E-04							

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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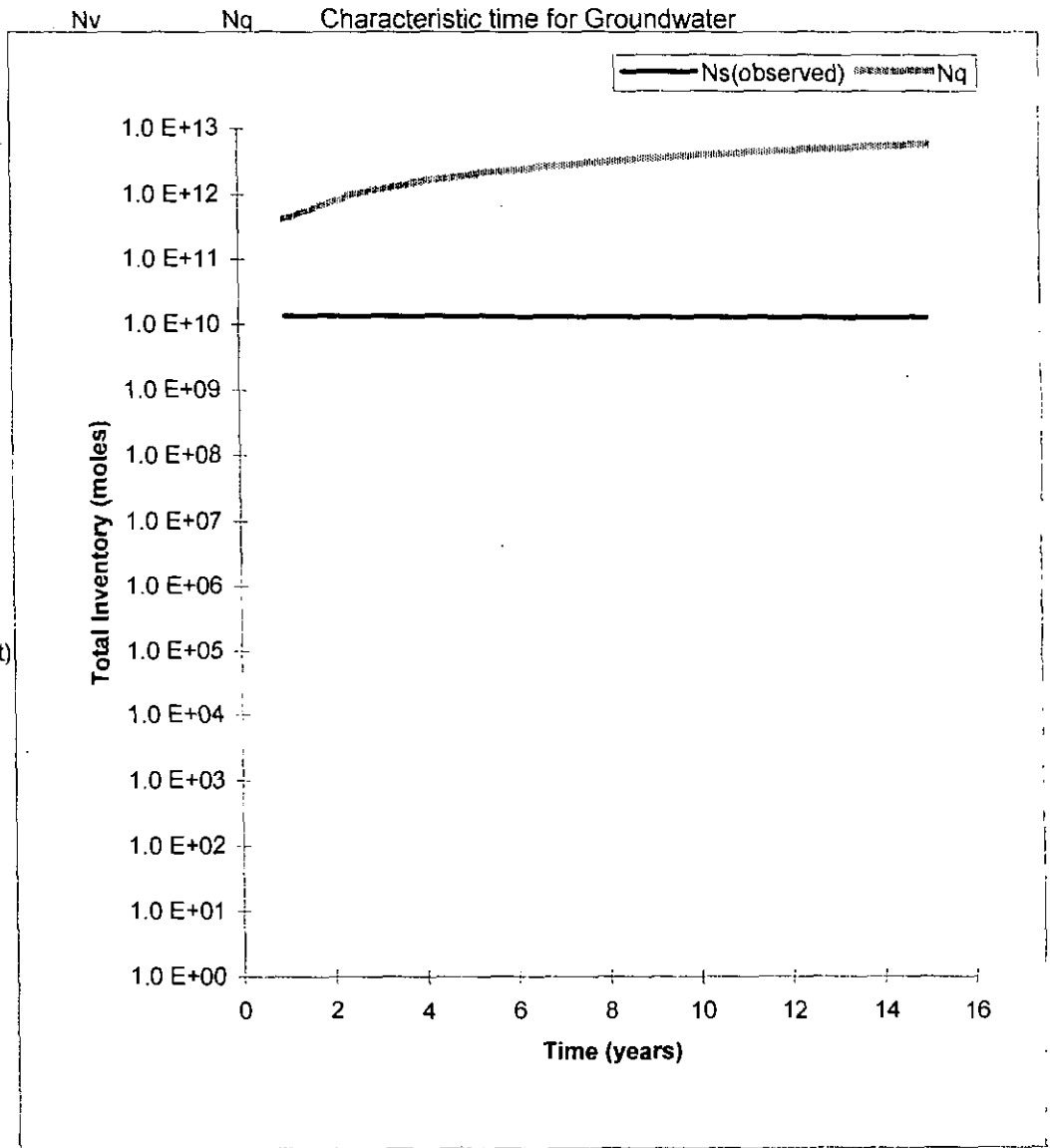
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	3.34E+02	1.16E-12	0.00%	1.78E+04	1.78E+04	1.11E+00
leaf	l	4.58E-03	2.39E+07	4.25E-02	0.00%	6.45E+06	6.45E+06	2.18E+02
cuticle	c	5.22E-02	3.38E+03	5.70E-04	0.00%	1.04E+04	1.04 E+04	1.91E+01
ground-soil	g	1.85E-02	1.35E+08	3.34E-02	0.00%	1.47E+08	1.47E+08	5.40E+01
root-soil	s	1.97E-04	1.30E+10	3.42E-02	0.41%	1.43E+08	1.50E+08	5.09E+03
vadose-zone	v	1.52E-06	3.59E+07	1.59E-04	0.00%	7.16E+05	3.21E+03	6.59E+05
surface water	w	9.69E-02	2.15E+07	5.74E-04	0.00%	1.23E+08	1.23E+08	1.03E+01
sediment	d	1.01E-01	1.95E+07	5.19E-02	0.00%	1.16E+08	1.16E+08	9.88E+00
aquifer	q	1.00E-05	3.13E+12	2.54E+00	99.58%	3.21E+03	1.85E+09	1.00E+05

Mass Flows (g/d)

air-ground	5.13E+03	Tag*Na*MW	ground-water	6.83E+06	Tgw*Ng*MW
air-water	2.85E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	1.98E+03	Tao*Na*MW	soil-ground	1.43E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	6.45E+06	Tsl*Ns*MW
air-leaf surfaces	1.04E+04	Tac*Na*MW	soil-vadose	7.16E+05	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	3.21E+03	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	3.86E+06	Tlg*NI*MW	aquifer-removal	1.85E+09	Lq*Nq*MW
leaves-soil	2.59E+06	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	4.93E+02	Tca*Nc*MW	water-sediment	1.16E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	6.80E+06	Two*Nw*MW
leaf-surfaces - ground	9.91E+03	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	1.16E+08	Tdw*Nd*MW
ground-air	1.73E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	2.86E+04	Tdo*Nd*MW
ground-soil	1.40E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	1.3 E+10	4.0 E+11
2.4	876	1.3 E+10	9.6 E+11
3.8	1387	1.3 E+10	1.5 E+12
5.2	1898	1.3 E+10	2.1 E+12
6.6	2409	1.3 E+10	2.6 E+12
8	2920	1.3 E+10	3.1 E+12
9.4	3431	1.3 E+10	3.7 E+12
10.8	3942	1.3 E+10	4.2 E+12
12.2	4453	1.3 E+10	4.7 E+12
13.6	4964	1.3 E+10	5.3 E+12
15	5475	1.3 E+10	5.8 E+12
		Ns(0)[total]	
		1.4 E+10	
		const_sat	
		-319138974	
		Ns(sat)	
		2.4E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.03 E+11	1.3E+10	8.2E+09
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10
0	-1.50 E+11	1.3E+10	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Copper	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>			Un-mitigated risk and/or hazard ratio	
	potencies	ADIs	Risk	0.0 E+0
	1/(mg/kg-d)	(mg/kg-d)	Hazard ratio	4.5 E-2
Inhalation	0.0 E+00	5.7143E-06		
Ingestion	0.0 E+00	0.037		
Dermal	0.0 E+00	0.037		
Total dose		0		
	Risk	Hazard quotie		
Target Risk/Hazard =	1.0 E-06	1.00		
	current value	should be >		
Root-soil thickness ==>	0.9	9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations				
when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
	Root-zone soil	2.24 ppm (mg/kg)		
	Vadose-zone soil	0 ppm (mg/kg)		
	Ground water	0 ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
	Source term to air (mol/d)	0.0 E+00 Sa		
	Source term to ground-surface soil (mol/d)	0.0 E+00 Sg		
	Source term to root-zone soil (mol/d)	0.0 E+00 Ss		
	Source term to surface water(mol/d)	0.0 E+00 Sw		
Aquifer characteristics				
	Distance to first well (m)	0.0 E+00 d_well		
59.63956371	Darcy veleocity (m/d)	1.0 E-01 v_darc		
	Water dispersion coeff. (m2/d)	5.0 E-02 D_T		
			Based on cancer risk:	
	Root soil	0.0 E+0 not avlbl.		
	Vadose soil	0.0 E+0 not avlbl.		
		Root Soil	5.0 E+1	
		Vadose soil	n/a	
		Root soil	5.0 E+1	
		Vadose soil	0.0 E+0 not avlbl.	
			Based on hazard:	
			Concentration limits without NAPL	
	Root soil	1.3 E+06 mg/kg solid		
	Vadose soil	1.3 E+06 mg/kg solid		
	Ground water	1.0 E+04 mg/L water		
			Time avrg. Conc. in on-site environmental media	
	Air	1.2 E-07 mg/m3		
	Total Leaf	1.6 E+00 mg/kg(total)		
	Grnd-surface soil	2.2 E+00 mg/kg(total)		
	Root-zone soil	2.2 E+00 mg/kg(total)		
	Vadose-zone soil	3.0 E-03 mg/kg(total)		
	Ground water	8.6 E-01 mg/L(water)		
	Surface water	1.9 E-02 mg/L		
	Sediment	2.3 E+00 mg/kg		

Chemical Properties

0.00267

0.003

9.5 E+01

Compound	Copper		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	6.40 E+01	6.40E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	1.36 E+03	1.36E+03	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m ³	S	1.56 E+02	1.56E+02	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H-	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	1.47 E+02	1.47E+02	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	1.47 E+02	1.47E+02	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	1.47 E+02	1.47E+02	0.10	1	
	Partition coeffic. in surface wtr sediments	Kd_d -	1.47 E+02	1.47E+02	0.10	1	
	NOT USED	Kps -	3.40 E-03	-9.90E+01	3.70	1	
	Leaves/plm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	7.29 E+04	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.70 E-03	1.70E-03	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	1.30 E-02	1.30E-02	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	2.26 E+04	2.26E+04	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl-	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m ³)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m ² -d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m ² /d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m ³)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m ³)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m ² /d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m ³)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

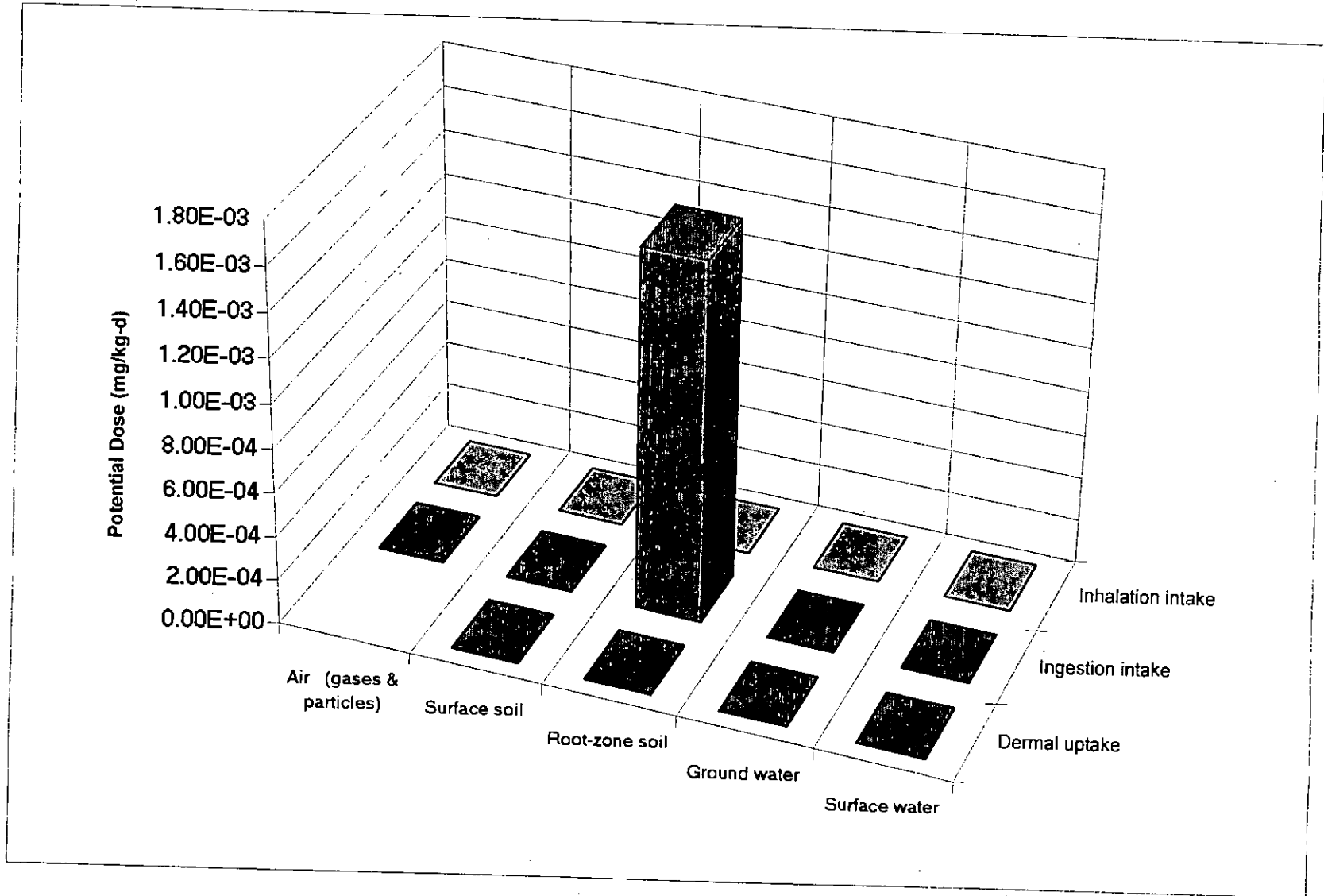
Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lgr	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbrm	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prtrn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[pint FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1
Constants						
	Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	7.03E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-10	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	8.72E-06	8.51E-06	1.63E-03	0.00E+00	0.00E+00	1.64E-03	99.24
Unexposed produce			5.18E-06	0.00E+00	0.00E+00	5.18E-06	0.31
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		7.09E-09	7.15E-09			1.42E-08	0.00
Total ingestion	8.72 E-06	8.52 E-06	1.63 E-03	0.00 E+00	0.00 E+00	1.65 E-03	99.55
DERMAL UPTAKE		3.70E-06	3.74E-06	0.00E+00	0.00E+00	7.44E-06	0.45
Dose SUM	8.72E-06	1.22E-05	1.64E-03	0.00E+00	0.00E+00	1.66E-03	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	1.65 E-03
Total dose used =>	1.66 E-03

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	1.23 E-07	2.51E+00	2.53 E+00	8.59 E-01	1.72 E-02

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	1.23 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	8.75 E-03	8.54 E-03	1.63 E+00	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				8.31 E-03	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	6.83 E-03	1.97 E-02	1.27 E+00	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.26 E-03	2.94 E-03	2.36 E-01	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						3.89 E+02
Household soil (mg/kg)			1.26 E+00	1.27 E+00		
Swimming water (mg/L)						1.92 E-02

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	3.3 E-20	7.8 E-14	3.5 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	7.1 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
2.4	7.1 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
3.8	7.1 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
5.2	7.1 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
6.6	7.0 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
8	7.0 E-10	1.6 E-03	7.4 E-06	1.7 E-03	1.7 E-03	0.0 E+00
9.4	7.0 E-10	1.6 E-03	7.4 E-06	1.7 E-03	1.7 E-03	0.0 E+00
10.8	7.0 E-10	1.6 E-03	7.4 E-06	1.7 E-03	1.7 E-03	0.0 E+00
12.2	7.0 E-10	1.6 E-03	7.4 E-06	1.6 E-03	1.6 E-03	0.0 E+00
13.6	7.0 E-10	1.6 E-03	7.4 E-06	1.6 E-03	1.6 E-03	0.0 E+00
15	7.0 E-10	1.6 E-03	7.4 E-06	1.6 E-03	1.6 E-03	0.0 E+00
Cumulative doses				8.469482052		
over ED by route, mg/kg	3.6 E-06	8.4 E+00	3.8 E-02	8.5 E+00	8.5 E+00	0.0 E+00
fraction	0.0000	0.9955	0.0045	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	7.0 E-10	1.6 E-03	7.4 E-06	1.7 E-03	1.7 E-03	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	7.1 E-10	1.7 E-03	7.5 E-06	1.7 E-03	1.7 E-03	0.0 E+00
fraction	0.0000	0.9955	0.0045	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max ing	1.7 E-03
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 4.9 E+02 mol/day
 bbb2 = 5.5 E+02 bbb4 = 9.9 E+07
 bbb3 = 2.4 E+04 bbb5 = 6.1 E+07
 fugacity fugacity
 off-site on-site

Off-site air concentration (gases)	0.0 E+00	mg/m ³	2.1 E-04	2.1 E-04	air
Off-site concentration (particles)	1.2 E-07	mg/m ³			
Off-site surface-water concentrtn.	8.4 E-05	mg/L	1.3 E-06	2.7 E-04	water
Off-site surface soil concentration	1.2 E-02	mg/kg	1.3 E-06	2.7 E-04	ground soil
Off-site root-soil concentration	1.2 E-02	mg/kg	1.3 E-06	2.7 E-04	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	3.3 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	1.6 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	5.1 E-10 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	1.36E-03	del_aw		
bdry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	3.27E-03	del_dw		
Initial concentration in soil (mol/m3)	5.64E-02	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	2.59E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	2.13E-04
Cuticle	fc	2.17E-04
Leaf	fl	4.25E-02
Ground	fg	2.67E-04
Root	fs	2.69E-04
Vadose	fv	3.68E-07
Water	fw	2.69E-04
Sediment	fd	2.68E-04
Groundwater	fg	1.34E-02

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhub_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	3.82E+02	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	3.82E+02	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	3.82E+02	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	3.82E+02	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	3.82E+02	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	3.82E+02	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	3.82E+02	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.40E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	9.04E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	4.36E+00	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	2.07E+02	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	2.07E+02	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	2.15E+02	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.12E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	3.06E+02	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	3.06E+02	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m2/d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m2-d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface	
Compartment Phase	Compartment	Compartment	Compartment		Y one-sided	Y both-sides	Diffusion	Advection	Total		
Dair	6.40E-01	Da	0.00E+00	1.36E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	1.30E-04	Dw	1.16E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	2.54E-06			1.37E-02	1.82E+00		0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga	
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	1.82E+00	3.64E-02	1.76E-02	2.69E-05	1.76E-02	ground-soil, T_gs	
Dwater_s	3.19E-06			6.68E-01	3.71E-02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg	
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	3.71E-02	1.89E-02		2.87E-07	2.87E-07	soil-vadose, T_sv	
Dwater_v	3.29E-06			6.68E-01	3.86E-02					vadose-soil, T_vs	
Dwater_d	1.52E-05	Dd	4.97E-08	2.00E-02	7.26E-03	2.83E-03	5.07E-04	2.76E-01	2.77E-01	water-sediment, T_wd	
				3.27E-03	4.65E-03		1.85E-04	1.01E-01	1.01E-01	sediment-water, T_dw	
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac	
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca	
							0.00E+00		0.00E+00	air - leaf T_al	
							0.00E+00		0.00E+00	leaf-air, T_la	
							0.00E+00		0.00E+00	cuticle-leaf, T_cl	
							0.00E+00		0.00E+00	leaf-cuticle, T_lc	
aaa1	2.66E+00			C0_1	2.14E+10			4.98E-02	4.98E-02	cuticle-ground T_cg	
aaa2	5.03E-02			C0_2	0.00E+00		aaa6	2.14E+10	2.74E-03	2.74E-03	leaf-ground T_lg
aaa3	2.48E-06			S_1	0.00E+00		aaa7	1.64E+09	1.84E-03	1.84E-03	leaf-soil, T_ls
aaa4	0.00E+00			S_2	0.00E+00		aaa8	-1.64E+09	2.59E-06	2.59E-06	soil-leaf, T_sl
aaa5	1.06E-02			AA	3.76E-04		bbb4	0.00E+00	0.00E+00	0.00E+00	ground-cuticle, T_gc
bbb1	0.00E+00			BB	0.00E+00		bbb5	0	4.66E-07	4.66E-07	vadose-aquifer, T_vq
bbb2	0.00E+00			CC	2.87E-07		Lam1	4.22E-06	2.50E-05	2.50E-05	sediment-out, T_do
bbb3	0.00E+00			DDD	4.66E-07				1.00E-01	1.00E-01	air-out, T_ao
ccc1	4.58E-03			Gam1	-4.66E-07				2.73E-04	2.73E-04	ground-water, T_gw
ccc2	0.00E+00			Gam2	-3.76E-04				5.36E-03	5.36E-03	water-out, T_wo
ccc3	8.79E-01			Gm1mGm2	3.75E-04						
ccc4	0.00E+00			Gam1p	3.76E-04						
ccc5	7.64E-01			Gam2p	4.66E-07						
ccc6	2.74E-03			Gm1mGm2p	3.75E-04						

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	5.55E+02	1.93E-12	0.00%	3.21E+04	3.21E+04	1.11E+00
leaf	l	4.58E-03	1.19E+07	2.12E-02	0.00%	3.50E+06	3.50E+06	2.18E+02
cuticle	c	5.22E-02	5.61E+03	9.47E-04	0.00%	1.88E+04	1.88 E+04	1.91E+01
ground-soil	g	1.79E-02	2.24E+08	5.54E-02	0.00%	2.56E+08	2.56E+08	5.60E+01
root-soil	s	1.90E-04	2.12E+10	5.57E-02	0.42%	2.53E+08	2.57E+08	5.26E+03
vadose-zone	v	4.66E-07	1.78E+07	7.91E-05	0.00%	3.89E+05	5.30E+02	2.15E+06
surface water	w	2.82E-01	1.13E+07	3.00E-04	0.00%	2.03E+08	2.03E+08	3.54E+00
sediment	d	1.01E-01	3.08E+07	8.21E-02	0.00%	1.99E+08	1.99E+08	9.88E+00
aquifer	q	1.00E-05	5.07E+12	4.11E+00	99.58%	5.30E+02	3.24E+09	1.00E+05

Mass Flows (g/d)

air-ground	9.25E+03	Tag*Na*MW	ground-water	3.91E+06	Tgw*Ng*MW
air-water	5.14E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	3.56E+03	Tao*Na*MW	soil-ground	2.53E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	3.50E+06	Tsl*Ns*MW
air-leaf surfaces	1.88E+04	Tac*Na*MW	soil-vadose	3.89E+05	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	5.30E+02	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	2.09E+06	Tlg*NI*MW	aquifer-removal	3.24E+09	Lq*Nq*MW
leaves-soil	1.41E+06	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	8.89E+02	Tca*Nc*MW	water-sediment	1.99E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	3.86E+06	Two*Nw*MW
leaf-surfaces - ground	1.79E+04	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	1.99E+08	Tdw*Nd*MW
ground-air	3.12E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	4.92E+04	Tdo*Nd*MW
ground-soil	2.52E+08	Tgs*Ng*MW			

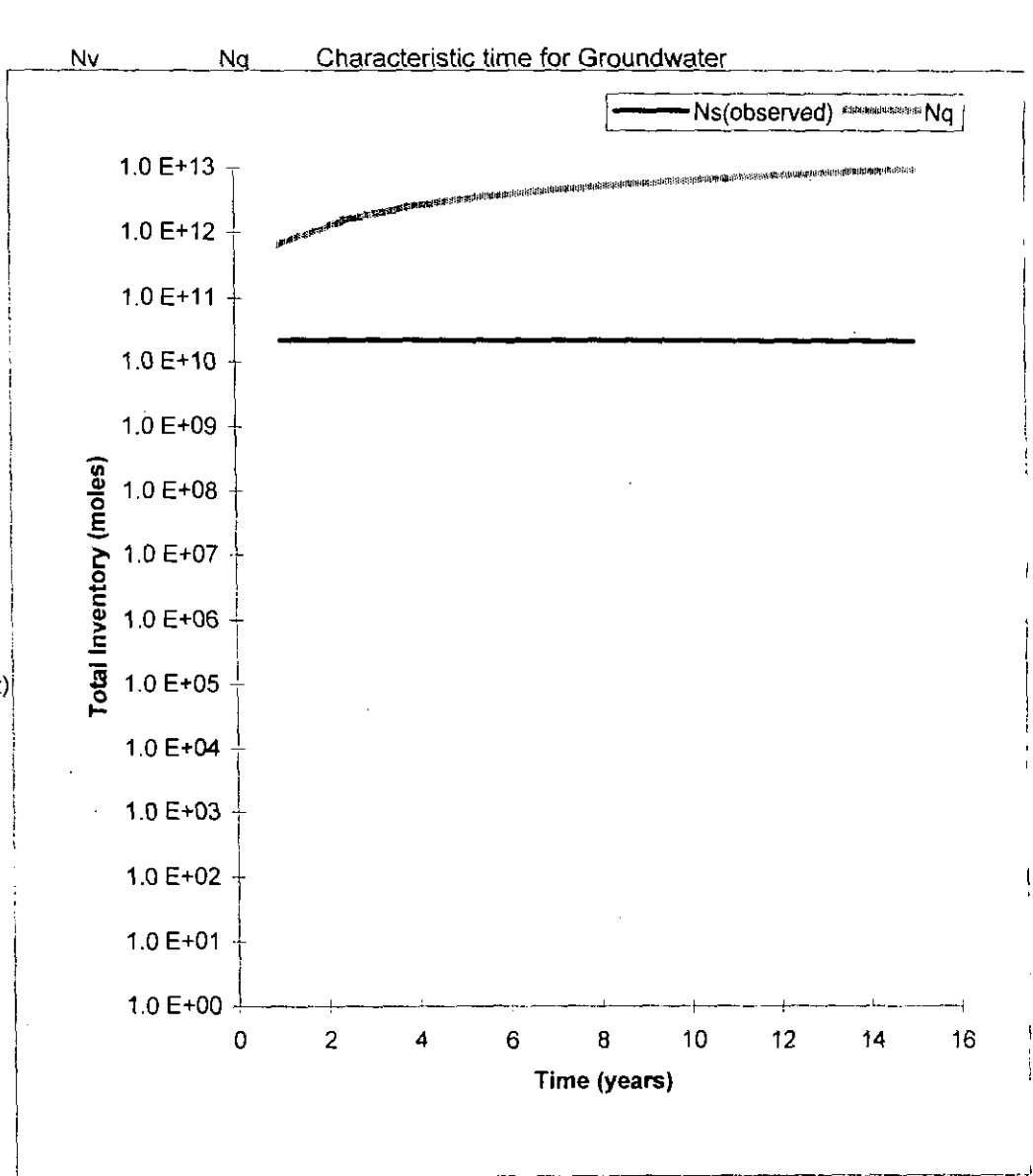
Time-dependent Compartment Inventories

Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.1 E+10	6.4 E+11
2.4	876	2.1 E+10	1.5 E+12
3.8	1387	2.1 E+10	2.4 E+12
5.2	1898	2.1 E+10	3.3 E+12
6.6	2409	2.1 E+10	4.2 E+12
8	2920	2.1 E+10	5.1 E+12
9.4	3431	2.1 E+10	6.0 E+12
10.8	3942	2.1 E+10	6.8 E+12
12.2	4453	2.1 E+10	7.7 E+12
13.6	4964	2.1 E+10	8.6 E+12
15	5475	2.1 E+10	9.5 E+12

Ns(0)[total]		Ns(sat)	
2.1 E+10		1.2E+16	

const_sat		Nv(@Ns=sat)	
-51772948902		1.3E+12	

t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.89 E+13	2.1E+10	1.3E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12
0	-2.64 E+13	2.1E+10	1.8E+12



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Lead	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>				
	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)		
Inhalation	4.2 E-02	4.2857E-05		
Ingestion	8.5 E-03	7.8614E-05		
Dermal	8.5 E-03	7.8614E-05		
Total dose		0		
	Risk	Hazard quotie		
Target Risk/Hazard =	1.0 E-06	1.00		
	current value	should be >		
Root-soil thickness ==>	0.9	9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
Root-zone soil	0.714	ppm (mg/kg)		
Vadose-zone soil	0	ppm (mg/kg)		
Ground water	0	ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
Source term to air (mol/d)	0.0 E+00	Sa		
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg		
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics				
Distance to first well (m)	0.0 E+00	d_well		
59.63956371	Darcy veleocity (m/d)	v_darc		
	Water dispersion coeff. (m2/d)	D_T		
			Un-mitigated risk and/or hazard ratio	
			Risk	9.5 E-9
			Hazard ratio	4.0 E-2
			Target Soil Concentrations (in ppm)	
			Based on cancer risk:	
			Root soil	7.5 E+1
			Vadose soil	0.0 E+0 not avlbl.
			Root Soil	1.8 E+1
			Vadose soil	n/a
			Based on hazard:	
			Root soil	1.8 E+1
			Vadose soil	0.0 E+0 not avlbl.
			Concentration limits without NAPL	
			Root soil	9.0 E+07 mg/kg solid
			Vadose soil	9.1 E+07 mg/kg solid
			Ground water	2.1 E+02 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	4.0 E-08 mg/m3
			Total Leaf	4.1 E-04 mg/kg(total)
			Gmd-surface soil	7.2 E-01 mg/kg(total)
			Root-zone soil	7.1 E-01 mg/kg(total)
			Vadose-zone soil	2.9 E-07 mg/kg(total)
			Ground water	7.8 E-08 mg/L(water)
			Surface water	3.0 E-04 mg/L
			Sediment	3.4 E-01 mg/kg

Chemical Properties

0.00297

0.003

9.6 E+01

Compound	Lead		Value used	Mean value	Coeff. Var.	Adjustment	Notes	
		Molecular weight (g/mol)	MW	2.07 E+02	2.07E+02	0.01	1	
		Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
		Melting point (K)	Tm	6.00 E+02	6.00E+02	0.03	1	
		Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
		Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
		Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
		Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
		Diffusion coefficient; pure water (m ² /d)	Dwater	6.60 E-05	6.60E-05	0.24	1	7.64 E-10
		Organic carbon partition coefficient Koc	Koc -	n/a	-9.90E+01	0.66	1	m ² /s
		Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
		Partition coefficient in ground/root soil layer	Kd_s -	5.00 E+05	5.00E+05	0.10	1	
		Partition coefficient in vadose-zone soil layer	Kd_v -	5.00 E+05	5.00E+05	0.10	1	
		Partition coefficient in aquifer layer	Kd_q -	5.00 E+05	5.00E+05	0.10	1	
		Partition coeffic. in surface wtr sediments	Kd_d -	5.00 E+05	5.00E+05	0.10	1	
		NOT USED	Kps -	6.00 E-03	6.00E-03	3.70	1	
		Leaves/plhm wtr prtn cff.(wet kg/m ³ per wet kg/m ³)	Kl_phi -	5.00 E-01	-9.90E+01	0.10	1	
		Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
		Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
		Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	0.00 E+00	0.00E+00	13.00	1	
		Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.00 E-04	1.00E-04	10.00	1	
		Biotransfer factor; cattle-diet/meat (d/L)	Bt -	4.80 E-03	4.80E-03	12.00	1	
		Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	3.00 E-01	3.00E-01	14.00	1	
		Biotransfr fctr, brst mlk/mthr intake (d/kg)	Bbmk -	1.00 E-03	1.00E-03	10.00	1	
		Bioconcentration factor; fish/water	BCF -	5.00 E+02	5.00E+02	0.62	1	
		Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
		Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	1.00E-03	2.30	1	
		Skin-water/soil partition coefficient (L/kg)	Km -	3.00 E-03	3.00E-03	1.10	1	
		Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

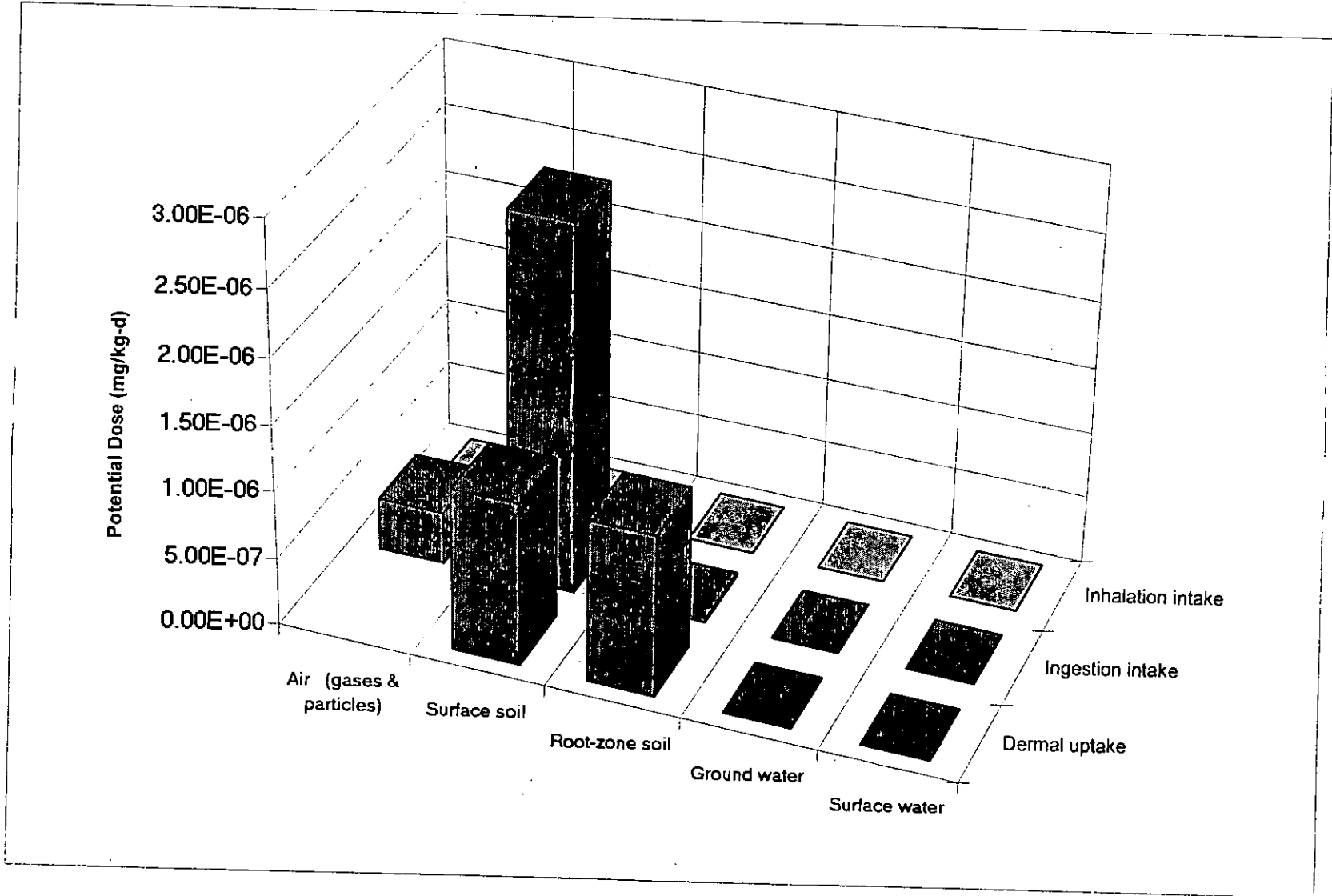
Human Exposure Factors

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes	
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbr	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[pint FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1
Constants						
	Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas			

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Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, ground soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	2.29E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-10	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	3.85E-07	2.77E-06	2.09E-08	0.00E+00	0.00E+00	3.18E-06	56.78
Unexposed produce			4.92E-10	0.00E+00	0.00E+00	4.92E-10	0.01
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		2.31E-09	2.31E-09			4.62E-09	0.08
Total ingestion	3.85 E-07	2.77 E-06	2.37 E-08	0.00 E+00	0.00 E+00	3.18 E-06	56.88
DERMAL UPTAKE		1.21E-06	1.21E-06	0.00E+00	0.00E+00	2.41E-06	43.12
Dose SUM	3.85E-07	3.98E-06	1.23E-06	0.00E+00	0.00E+00	5.59E-06	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	2.52 E-08	2.60 E-07	8.05 E-08	0.00 E+00	0.00 E+00	3.66 E-07
Infant dose	2.77 E-09	2.86 E-08	8.85 E-09	0.00 E+00	0.00 E+00	dose_bm 4.02 E-08

Ingestion dose used =>	3.18 E-06
Total dose used =>	5.59 E-06

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	4.01 E-08	8.18E-01	8.18 E-01	7.81 E-08	7.49 E-07

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	4.01 E-08				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	3.86 E-04	2.78 E-03	2.10 E-05	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				7.89 E-07	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	1.11 E-04	2.37 E-03	6.05 E-06	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	3.28 E-06	5.63 E-05	1.78 E-07	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	1.39 E-05	1.03 E-04	7.56 E-07	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						3.75 E-04
Household soil (mg/kg)			4.09 E-01	4.09 E-01		
Swimming water (mg/L)						3.00 E-04

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	1.1 E-19	1.5 E-15	1.1 E-15	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
2.4	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
3.8	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
5.2	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
6.6	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
8	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
9.4	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
10.8	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
12.2	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
13.6	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
15	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
Cumulative doses				0.028584751		
over ED by route, mg/kg	1.2 E-06	1.6 E-02	1.2 E-02	2.9 E-02	2.9 E-02	0.0 E+00
fraction	0.0000	0.5688	0.4312	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	2.3 E-10	3.2 E-06	2.4 E-06	5.6 E-06	5.6 E-06	0.0 E+00
fraction	0.0000	0.5688	0.4312	1.0000	1.000	0.000

Max breast-milk dose

4.0 E-08

mg/kg-d

Max_ing

3.2 E-06

Off-site 1-h max X/Q (mol/m3-s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 4.9 E+01 mol/day
 bbb2 = 5.6 E+01 bbb4 = 2.7 E+08
 bbb3 = 2.4 E+03 bbb5 = 1.7 E+08
 fugacity fugacity
 off-site on-site

Off-site air concentration (gases)	0.0 E+00	mg/m3	6.3 E-09	6.3 E-09	air
Off-site concentration (particles)	4.0 E-08	mg/m3			
Off-site surface-water concentrtn.	9.7 E-08	mg/L	4.7 E-10	3.6 E-09	water
Off-site surface soil concentration	1.0 E-01	mg/kg	1.0 E-09	7.9 E-09	ground soil
Off-site root-soil concentration	1.0 E-01	mg/kg	1.0 E-09	7.9 E-09	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn redctn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.0 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m2/d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	4.8 E-08 m2/d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	4.8 E-04 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	1.6 E-10 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	2.46E-03	del_aw		
bdry lyr thickness in wtr below air (m)	2.75E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	7.97E-06	del_dw		
Initial concentration in soil (mol/m3)	5.55E-03	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	1.25E-03	tlag		
Skin/water partition coefficient	3.00E-03	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	7.61E-10	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	6.30E-09
Cuticle	fc	6.41E-09
Leaf	fl	1.25E-06
Ground	fg	7.89E-09
Root	fs	7.90E-09
Vadose	fv	3.16E-15
Water	fw	3.62E-09
Sediment	fd	3.61E-09
Groundwater	fq	3.77E-10

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhub_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	1.30E+06	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	1.30E+06	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	1.30E+06	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	1.30E+06	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	1.30E+06	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	1.30E+06	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	1.30E+06	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	1.55E+02	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	3.08E-05	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	1.48E+04	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	7.04E+05	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	7.03E+05	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	7.31E+05	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	4.01E+02	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	1.04E+06	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	1.04E+06	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m2/d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m2-d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment			Y one-sided	both-sides	Diffusion	Advection	T Total	
Dair	6.40E-01	Da	0.00E+00	2.46E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw
Dwater	6.60E-05	Dw	1.65E-07	2.75E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag
Dwater_g	1.29E-06			1.37E-02	6.19E+03		0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	6.19E+03	1.24E+02	1.76E-02	7.92E-09	1.76E-02	ground-soil, T_gs
Dwater_s	1.62E-06			6.68E-01	1.26E+02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	1.26E+02	6.43E+01		8.44E-11	8.44E-11	soil-vadose, T_sv
Dwater_v	1.67E-06			6.68E-01	1.31E+02					vadose-soil, T_vs
Dwater_d	7.72E-06	Dd	7.42E-12	2.00E-02	1.32E+00	5.59E-01	2.79E-04	2.62E+00	2.62E+00	water-sediment, T_wd
				7.97E-06	9.68E-01		1.08E-05	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00		0.00E+00	air - leaf T_al
							0.00E+00		0.00E+00	leaf-air, T_la
							0.00E+00		0.00E+00	cuticle-leaf, T_cl
							0.00E+00		0.00E+00	leaf-cuticle, T_lc
								4.98E-02	4.98E-02	cuticle-ground T_cg
aaa1	2.41E+00		C0_1	2.11E+09						leaf-ground T_lg
aaa2	2.41E-03		C0_2	0.00E+00		aaa6	2.11E+09	2.74E-03	2.74E-03	leaf-soil, T_ls
aaa3	2.48E-06		S_1	0.00E+00		aaa7	1.13E+06	1.84E-03	1.84E-03	soil-leaf, T_sl
aaa4	0.00E+00		S_2	0.00E+00		aaa8	-1.13E+06	7.61E-10	7.61E-10	ground-cuticle, T_gc
aaa5	1.07E-02		AA	3.74E-04		bbb4	0.00E+00		0.00E+00	vadose-aquifer, T_vq
bbb1	0.00E+00		BB	0.00E+00		bbb5	0	1.37E-10	1.37E-10	sediment-out, T_do
bbb2	0.00E+00		CC	8.44E-11		Lam1	1.58E-07	2.50E-05	2.50E-05	air-out, T_ao
bbb3	0.00E+00		DDD	1.37E-10				1.00E-01	1.00E-01	ground-water, T_gw
ccc1	4.58E-03		Gam1	-1.37E-10				1.45E-05	1.45E-05	water-out, T_wo
ccc2	0.00E+00		Gam2	-3.74E-04				5.36E-03	5.36E-03	
ccc3	8.79E-01		Gm1mGm2	3.74E-04						
ccc4	0.00E+00		Gam1p	3.74E-04						
ccc5	7.64E-01		Gam2p	1.37E-10						
ccc6	2.74E-03		Gm1mGm2p	3.74E-04						

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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Compartment		Loss-rate	Total	Concen-	Mass			Residence
Name		constant	Inventory	tration	distrib-	Gains	Losses	Time
		(1/day)	(moles)	(mol/m3)	tion	g/d	g/d	(days)
		L	N	C	%			
air	a	9.04E-01	5.58E+01	1.94E-13	0.00%	1.04E+04	1.04E+04	1.11E+00
leaf	l	4.58E-03	3.50E+02	6.23E-07	0.00%	3.32E+02	3.32E+02	2.18E+02
cuticle	c	5.22E-02	5.64E+02	9.51E-05	0.00%	6.11E+03	6.11 E+03	1.91E+01
ground-soil	g	1.76E-02	2.25E+07	5.56E-03	0.86%	8.18E+07	8.18E+07	5.69E+01
root-soil	s	1.87E-04	2.11E+09	5.55E-03	80.58%	8.17E+07	8.18E+07	5.34E+03
vadose-zone	v	1.37E-10	5.20E+02	2.31E-09	0.00%	3.69E+01	1.48E-05	7.30E+09
surface water	w	2.62E+00	5.44E+04	1.45E-06	0.00%	2.96E+07	2.96E+07	3.81E-01
sediment	d	1.01E-01	1.41E+06	3.76E-03	0.05%	2.95E+07	2.95E+07	9.89E+00
aquifer	q	1.00E-05	4.84E+08	3.92E-04	18.51%	1.48E-05	1.00E+06	1.00E+05

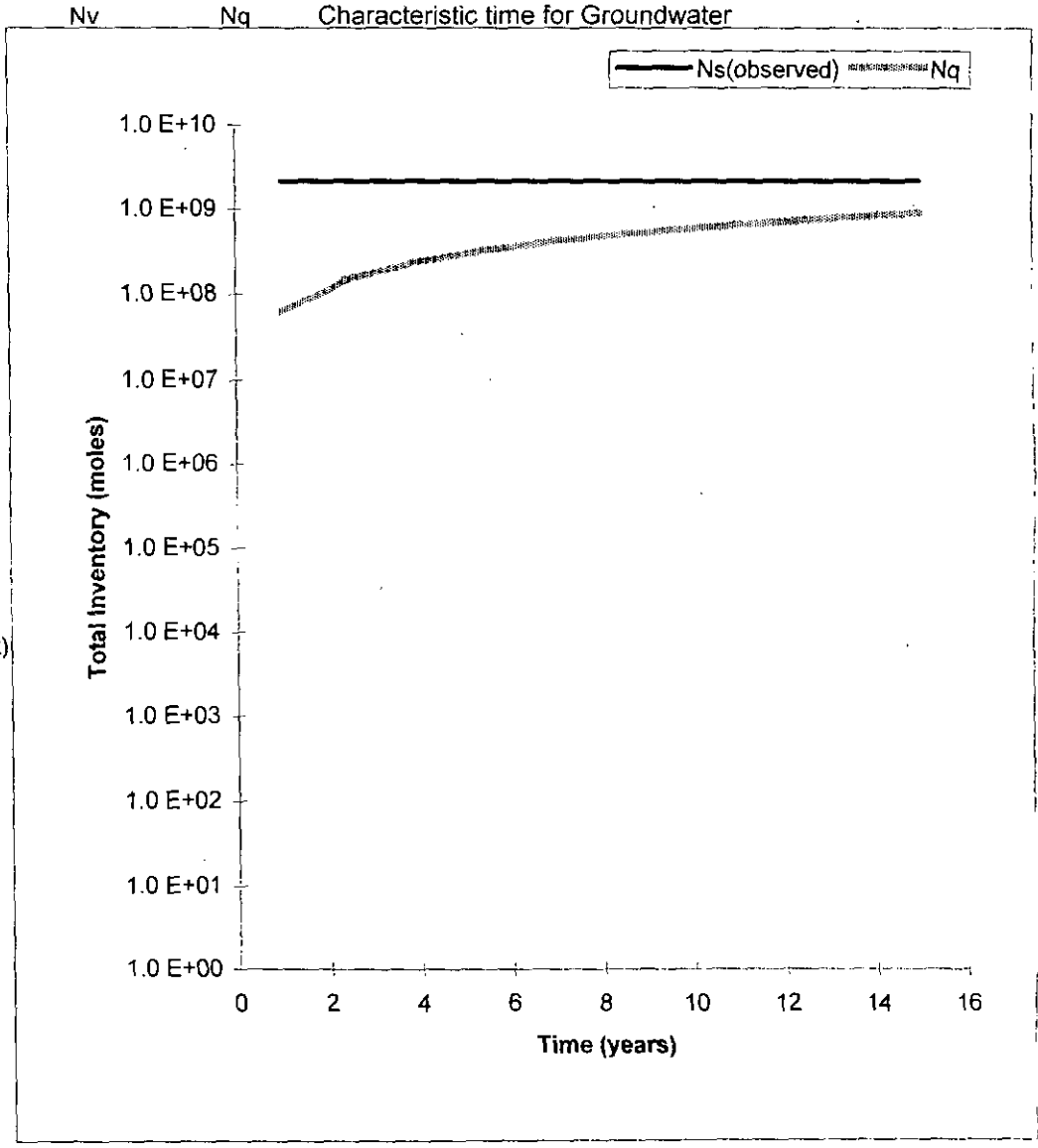
Mass Flows (g/d)

air-ground	3.01E+03	Tag*Na*MW	ground-water	6.75E+04	Tgw*Ng*MW
air-water	1.67E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	1.16E+03	Tao*Na*MW	soil-ground	8.18E+07	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	3.32E+02	Tsl*Ns*MW
air-leaf surfaces	6.11E+03	Tac*Na*MW	soil-vadose	3.69E+01	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	1.48E-05	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	1.99E+02	Tlg*NI*MW	aquifer-removal	1.00E+06	Lq*Nq*MW
leaves-soil	1.34E+02	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	2.89E+02	Tca*Nc*MW	water-sediment	2.95E+07	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	6.04E+04	Two*Nw*MW
leaf-surfaces - ground	5.82E+03	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	2.95E+07	Tdw*Nd*MW
ground-air	1.02E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	7.29E+03	Tdo*Nd*MW
ground-soil	8.17E+07	Tgs*Ng*MW			

Time-dependent Compartment Inventories

Plot

Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.1 E+09	6.1 E+07
2.4	876	2.1 E+09	1.5 E+08
3.8	1387	2.1 E+09	2.3 E+08
5.2	1898	2.1 E+09	3.1 E+08
6.6	2409	2.1 E+09	4.0 E+08
8	2920	2.1 E+09	4.8 E+08
9.4	3431	2.1 E+09	5.7 E+08
10.8	3942	2.1 E+09	6.5 E+08
12.2	4453	2.1 E+09	7.4 E+08
13.6	4964	2.1 E+09	8.2 E+08
15	5475	2.1 E+09	9.1 E+08
		Ns(0)[total]	
		2.1 E+09	
	const_sat	Ns(sat)	
	-42168807819	2.7E+17	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-1.54 E+13	2.1E+09	8.2E+09
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10
0	-2.15 E+13	2.1E+09	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Methyl ethyl ketone			Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)				
Exposure Factors Set=>	(Residential) Exposure Factors				
Toxicity Data ==>		potencies	ADIs	Un-mitigated risk and/or hazard ratio	
		1/(mg/kg-d)	(mg/kg-d)	Risk	0.0 E+0
Inhalation		0.0 E+00	0.28571428	Hazard ratio	1.6 E-29
Ingestion		0.0 E+00	0.6		
Dermal		0.0 E+00	0.6		
Total dose			0		
		Risk	Hazard quotie	Target Soil Concentrations (in ppm)	
Target Risk/Hazard =		1.0 E-06	1.00		
		current value	should be >	Based on cancer risk:	
Root-soil thickness ==>	3		OK	Root soil	0.0 E+0 not avbl.
Alter root soil thickness to?	3.0 E+00			Vadose soil	0.0 E+0 not avbl.
Distance off-site for air exposure=	0.0 E+00		meters		Root Soil 1.0 E+5
Time after initial concentrations when exposure begins =	3.7 E+02		days	Based on hazard:	Vadose soil n/a
Measured Concentrations (at time = 0)				Root soil	1.0 E+5 >conc limit
Root-zone soil	0.027		ppm (mg/kg)	Vadose soil	0.0 E+0 not avbl.
Vadose-zone soil	0		ppm (mg/kg)	Concentration limits without NAPL	
Ground water	0		ppm (mg/L)	Root soil	3.3 E+04 mg/kg solid
Continuous inputs				Vadose soil	3.0 E+04 mg/kg solid
		Methane flux m/d	0	Ground water	2.4 E+05 mg/L water
Source term to air (mol/d)	0.0 E+00		Sa	Time avrg. Conc. in on-site environmental media	
Source term to ground-surface soil (mol/d)	0.0 E+00		Sg	Air	1.5 E-33 mg/m3
Source term to root-zone soil (mol/d)	0.0 E+00		Ss	Total Leaf	7.1 E-34 mg/kg(total)
Source term to surface water(mol/d)	0.0 E+00		Sw	Grnd-surface soil	3.8 E-33 mg/kg(total)
Aquifer characteristics				Root-zone soil	4.3 E-31 mg/kg(total)
Distance to first well (m)	0.0 E+00		d_well	Vadose-zone soil	6.6 E-32 mg/kg(total)
59.63956371			v_darc	Ground water	1.3 E-29 mg/L(water)
		Darcy veleocity (m/d)	1.0 E-01	Surface water	6.0 E-34 mg/L
		Water dispersion coeff. (m2/d)	5.0 E-02	Sediment	2.7 E-35 mg/kg

Chemical Properties

0.00297

0.003

1.0 E+02

Compound	Methyl ethyl ketone		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	7.21 E+01	7.21E+01	0.01	1	
	Octanol-water partition coefficient	Kow	1.95 E+00	1.95E+00	0.37	1	
	Melting point (K)	Tm	1.86 E+02	1.86E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	1.21 E+04	1.21E+04	0.38	1	
	Solubility in mol/m3	S	3.33 E+03	3.33E+03	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	3.64 E+00	3.64E+00	0.45	1	0.0015137
	Diffusion coefficient in pure air (m ² /d)	Dair	7.91 E-01	7.91E-01	0.08	1	9.16 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	6.71 E-05	6.71E-05	0.24	1	7.76 E-10
	Organic carbon partition coefficient Koc	Koc -	9.36 E-01	-9.90E+01	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	1.29 E+03	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	9.66 E-03	-9.90E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	2.86 E-03	-9.90E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	2.86 E-03	-9.90E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	1.87 E-02	-9.90E+01	0.10	1	
	NOT USED	Kps -	5.23 E+00	-9.90E+01	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.01 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	6.95 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	4.34 E-02	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	4.02 E-01	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.55 E-08	-9.90E+01	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	4.90 E-08	-9.90E+01	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	3.09 E-07	-9.90E+01	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	3.90 E-07	-9.90E+01	10.00	1	
	Bioconcentration factor; fish/water	BCF -	9.36 E-02	-9.90E+01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.65 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "." symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	7.08 E+00	7.08E+00	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	2.29 E+00	2.29E+00	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	4.00 E+00	4.00E+00	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	4.00 E+00	4.00E+00	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	8.00 E+00	8.00E+00	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	2.29 E+00	2.29E+00	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	2.29 E+01	2.29E+01	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	7.08 E+00	-9.90E+01	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	0.00 E+00	0.00E+00	0.00	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.20	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.20	1	
	Primary produciton dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	0.20	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m ³)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m ² -d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m ² /d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m ³)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m ³)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m ² /d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m ³)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.03 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

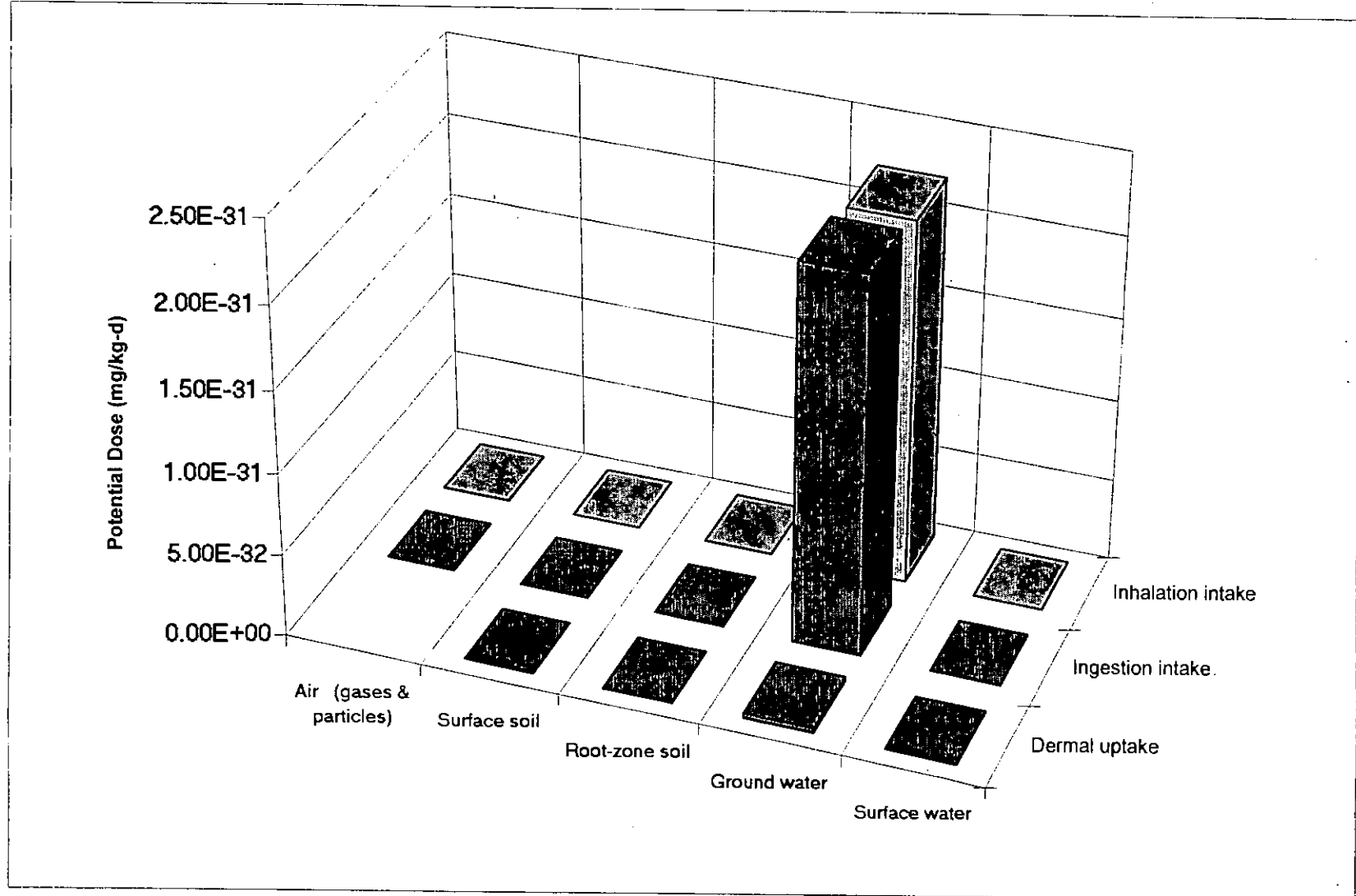
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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thisisacaltoxsheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	1	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	1	Cntmnmnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	1	Contamnmnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	1	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	1	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	1	Ingestion of home-grown meat	1
On-site inhalation by animals	1	Ingestion of home-grown milk	1
Use of ground water as tap water	1	Ingestion of home-grown eggs	1
Use of surface water as tap water	1	Ingestion of locally caught fish	1
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	1	Soil contact exposure at home or at work	1
Use of surface water for irrigation	1	Dermal exposure during shower/bath	1
Use of ground water for feeding animals	1	Dermal & ingstn exposures while swimming	1
Use of surface water for feeding animals	1	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	3.10E-34	1.74E-42	9.72E-35	2.22E-31	2.55E-36	2.22E-31	48.88
INGESTION:							
Water				2.29E-31	2.65E-36	2.29E-31	50.47
Exposed produce	6.19E-37	9.68E-40	9.15E-38	8.67E-36	9.98E-41	9.38E-36	0.00
Unexposed produce			7.16E-35	5.34E-36	6.15E-41	7.69E-35	0.02
Meat	1.41E-41	1.12E-44	3.56E-43	2.36E-38	2.72E-43	2.36E-38	0.00
Milk	9.42E-42	7.93E-45	3.14E-43	1.47E-38	1.69E-43	1.47E-38	0.00
Eggs	1.90E-43	6.84E-48	6.27E-46	4.99E-41	5.74E-46	5.01E-41	0.00
Fish					1.14E-38	1.14E-38	0.00
Soil		8.06E-43	8.62E-41			8.70E-41	0.00
Total ingestion	6.19 E-37	9.69 E-40	7.17 E-35	2.29 E-31	2.66 E-36	2.30 E-31	50.49
DERMAL UPTAKE		4.21E-40	4.50E-38	2.89E-33	4.43E-38	2.89E-33	0.64
Dose SUM	3.11E-34	1.39E-39	1.69E-34	4.54E-31	5.26E-36	4.55E-31	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	7.92 E-39	3.55 E-44	4.31 E-39	1.16 E-35	1.34 E-40	1.16 E-35
Infant dose	8.72 E-40	3.91 E-45	4.74 E-40	1.27 E-36	1.47 E-41	dose_bm 1.28 E-36

Ingestion dose used =>	2.30 E-31
Total dose used =>	4.55 E-31

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m³ (air)	Air (dust) mg/m³ (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	1.48 E-33	2.89 E-41	2.86E-34	3.05 E-32	1.30 E-29	6.00 E-34

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	1.48 E-33	2.89 E-41	8.57 E-42	4.78 E-34	2.59 E-31	2.98 E-36
Bathroom air (mg/m ³)					3.32 E-29	3.83 E-34
Outdoor air (mg/m ³)	1.48 E-33	2.89 E-41				
Tap water (mg/L)					1.04 E-29	1.20 E-34
Exposed produce (mg/kg)	6.21 E-34	1.21 E-41	9.71 E-37	9.18 E-35	8.70 E-33	1.00 E-37
Unexposed produce (mg/kg)				1.15 E-31	8.57 E-33	9.86 E-38
Meat (mg/kg)	1.07 E-38	2.08 E-46	8.45 E-42	2.70 E-40	1.79 E-35	2.06 E-40
Milk (mg/kg)	3.62 E-39	7.06 E-47	3.05 E-42	1.21 E-40	5.66 E-36	6.52 E-41
Eggs (mg/kg)	1.03 E-39	2.01 E-47	3.72 E-44	3.41 E-42	2.71 E-37	3.12 E-42
Fish and seafood (mg/kg)						5.62 E-35
Household soil (mg/kg)			1.43 E-34	1.53 E-32		
Swimming water (mg/L)						6.00 E-34

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		1.52 E-01		
Indoor air (resting)		5.12 E-02		
Indoor air (shower/bath)		5.13 E-03		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	2.77 E-04
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			1.32 E-03	
Milk			2.60 E-03	
Eggs			1.84 E-04	
Fish and seafood			2.03 E-04	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			1.44 E-05	1.83 E-05

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	3.5 E-14	6.4 E-15	7.7 E-18	4.8 E-12	5.0 E-12	6.3 E-14

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	4.4 E-30	4.6 E-30	5.8 E-32	9.1 E-30	9.7 E-33	9.1 E-30
2.4	3.2 E-68	3.3 E-68	4.2 E-70	6.5 E-68	3.1 E-71	6.5 E-68
3.8	1.5 E-106	1.6 E-106	2.0 E-108	3.1 E-106	1.0 E-109	3.1 E-106
5.2	6.2 E-145	6.4 E-145	8.1 E-147	1.3 E-144	3.2 E-148	1.3 E-144
6.6	2.4 E-183	2.5 E-183	3.1 E-185	4.9 E-183	1.0 E-186	4.9 E-183
8	8.7 E-222	9.0 E-222	1.1 E-223	1.8 E-221	3.3 E-225	1.8 E-221
9.4	3.1 E-260	3.2 E-260	4.0 E-262	6.3 E-260	1.1 E-263	6.3 E-260
10.8	3.5 E-264	6.4 E-265	7.7 E-268	4.1 E-264	4.1 E-264	2.2 E-298
12.2	3.5 E-264	6.4 E-265	7.7 E-268	4.1 E-264	4.1 E-264	1.7 E-299
13.6	3.5 E-264	6.4 E-265	7.7 E-268	4.1 E-264	4.1 E-264	1.7 E-299
15	3.5 E-264	6.4 E-265	7.7 E-268	4.1 E-264	4.1 E-264	1.7 E-299
Cumulative doses				2.32295E-27		
over ED by route, mg/kg	1.1 E-27	1.2 E-27	1.5 E-29	2.3 E-27	2.5 E-30	2.3 E-27
fraction	0.4888	0.5049	0.0064	1.0000	0.001	0.999
Average doses						
over ED by route, mg/kg-d	2.2 E-31	2.3 E-31	2.9 E-33	4.5 E-31	4.8 E-34	4.5 E-31
Maximum doses						
over ED by route, mg/kg-d	4.4 E-30	4.6 E-30	5.8 E-32	9.1 E-30	9.7 E-33	9.1 E-30
fraction	0.4888	0.5049	0.0064	1.0000	0.001	0.999

Max breast-milk dose

2.6 E-35

mg/kg-d

Max_ing

4.6 E-30

Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.2 E-24 mol/day
 bbb2 = 5.9 E-24 bbb4 = 3.5 E-27
 bbb3 = 1.1 E-26 bbb5 = 1.7 E-30

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	1.5 E-33	mg/m ³	4.9 E-35	4.9 E-35	air
Off-site concentration (particles)	2.9 E-41	mg/m ³			
Off-site surface-water concentrtn.	1.2 E-34	mg/L	5.9 E-36	3.0 E-35	water
Off-site surface soil concentration	9.3 E-36	mg/kg	4.8 E-35	1.5 E-33	ground soil
Off-site root-soil concentration	9.1 E-39	mg/kg	4.8 E-38	1.6 E-31	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	4.9 E-01 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	2.4 E-01 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	7.6 E-07 1/d

Calculated Properties

fugacity capacity of pure air	4.16E-04	Zair		
fugacity capacity of pure water	2.75E-01	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	1.79E-03	del_aw		
bndry lyr thickness in wtr below air (m)	2.79E-04	del_wa		
diffusion length in surface soil (m)	1.86E-02	del_g		
diffusion length in upper soil (m)	1.50E+00	del_s		
Thickness of the root-zone soil layer	3.00E+00	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	2.76E-01	del_dw		
Initial concentration in soil (mol/m3)	6.03E-04	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.70E-01	tlag		
Skin/water partition coefficient	1.07E+00	Km		
Reaction rate constant in air (1/d)	9.78E-02	Ra		
Reaction rate constant, ground soil (1/d)	3.02E-01	Rg		
Reaction rate constant, root-zone soil (1/d)	1.73E-01	Rs		
Reaction rate constant, vadose-zone soil (1/d)	1.73E-01	Rv		
Reaction rate constant, ground water (1/d)	8.66E-02	Rq		
Reaction rate constant, surface water (1/d)	3.02E-01	Rw		
Reaction rate constant, sediment (1/d)	2.53E-02	Rd		
Reaction rate constant in leaf surface (1/d)	9.78E-02	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	1.86E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	1.11E+02	mtc_s		
cuticular conductance (m/d)	5.76E-04	mtc_c		
air side conductance over leaf (m/d)	3.96E+02	mtc_a		
cuticle water permeance (m/d)	8.72E-07	mtc_l		
conductance air/cuticle (m/d)	5.76E-04	mtc_ct		
conductance air/stomata (m/d)	8.65E+01	mtc_st		
root-soil / stem transfer factor	3.31E-05	x_rs		
stem / leaf transfer factor	2.23E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.12E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	4.94E-35
Cuticle	fc	4.61E-34
Leaf	fl	5.62E-35
Ground	fg	1.49E-33
Root	fs	1.59E-31
Vadose	fv	2.68E-32
Water	fw	3.03E-35
Sediment	fd	1.29E-35
Groundwater	fq	6.57E-31

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	1.2 E+12	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

1.95E-08

Zap	3.43E-01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	6.91E-03	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	6.91E-03	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	2.05E-03	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	1.34E-02	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	1.34E-02	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	2.05E-03	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	1.37E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	4.16E-04	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	9.53E-02	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	1.38E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	5.67E-02	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	6.05E-02	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	5.69E-02	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	2.75E-01	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	6.57E-02	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	5.66E-02	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment	Y		one-sided	both-sides	Diffusion	Advection	Total	
Dair	7.91E-01	Da	7.91E-01	1.79E-03	1.84E-01	4.86E-02	3.04E-03	1.92E-05	3.06E-03	air-water, T_aw
Dwater	6.71E-05	Dw	6.71E-05	2.79E-04	6.60E-02		3.53 E-02		3.53E-02	water-air, T_wa
Dair_g	4.56E-02	Dg	4.61E-04	5.00E-03	6.59E-02	1.38E-03	4.64E-03	9.30E-04	5.57E-03	air-ground, T_ag
Dwater_g	1.31E-06			1.86E-02	1.41E-03		2.43E+00	1.44E-07	2.43E+00	ground-air, T_ga
Dair_s	3.85E-02	Ds	3.92E-04	1.86E-02	1.41E-03	1.56E-05	2.76E-02	2.71E-02	5.46E-02	ground-soil, T_gs
Dwater_s	1.65E-06			1.50E+00	1.58E-05		8.61E-05	0.00E+00	8.61E-05	soil-ground, T_sg
Dair_v	3.34E-02	Dv	3.72E-04	1.50E+00	1.58E-05	7.46E-06		8.45E-05	8.45E-05	soil-vadose, T_sv
Dwater_v	1.70E-06			1.45E+00	1.41E-05					vadose-soil, T_vs
Dwater_d	7.84E-06	Dd	3.28E-05	2.00E-02	9.22E-04	7.76E-06	5.64E-06	3.93E-05	4.50E-05	water-sediment, T_wd
				2.76E-01	7.82E-06		2.36E-03	1.65E-02	1.88E-02	sediment-water, T_dw
							5.87E-06	1.03E-04	1.09E-04	air-cuticle, T_ac
							1.24E+00	2.48E-03	1.25E+00	cuticle-air, T_ca
							4.40E-01		4.40E-01	air - leaf T_al
							6.90E+02		6.90E+02	leaf-air, T_la
							1.24E+00		1.24E+00	cuticle-leaf, T_cl
							9.09E-03		9.09E-03	leaf-cuticle, T_lc
								4.98E-02	4.98E-02	cuticle-ground T_cg
aaa1	8.91E-03		CO_1	7.31E+08						
aaa2	7.59E-01		CO_2	0.00E+00		aaa6	7.31E+08	2.74E-03	2.74E-03	leaf-ground T_lg
aaa3	1.19E+01		S_1	0.00E+00		aaa7	-2.19E+08	1.08E-03	1.08E-03	leaf-soil, T_ls
aaa4	1.60E-04		S_2	0.00E+00		aaa8	2.19E+08	3.30E-05	3.30E-05	soil-leaf, T_sl
aaa5	2.92E-05		AA	1.73E-01		bbb4	0.00E+00		0.00E+00	ground-cuticle, T_gc
bbb1	0.00E+00		BB	0.00E+00		bbb5	0	4.84E-04	4.84E-04	vadose-aquifer, T_vq
bbb2	0.00E+00		CC	8.45E-05		Lam1	0.173452	4.07E-06	4.07E-06	sediment-out, T_do
bbb3	0.00E+00		DDD	1.74E-01				1.00E-01	1.00E-01	air-out, T_ao
ccc1	6.90E+02		Gam1	-1.73E-01				2.60E-01	2.60E-01	ground-water, T_gw
ccc2	4.40E-01		Gam2	-1.74E-01				5.36E-03	5.36E-03	water-out, T_wo
ccc3	6.47E-01		Gm1mGm2	2.79E-04						
ccc4	6.90E+02		Gam1p	1.74E-01						
ccc5	5.57E-03		Gam2p	1.73E-01						
ccc6	2.91E-03		Gm1mGm2p	2.79E-04						

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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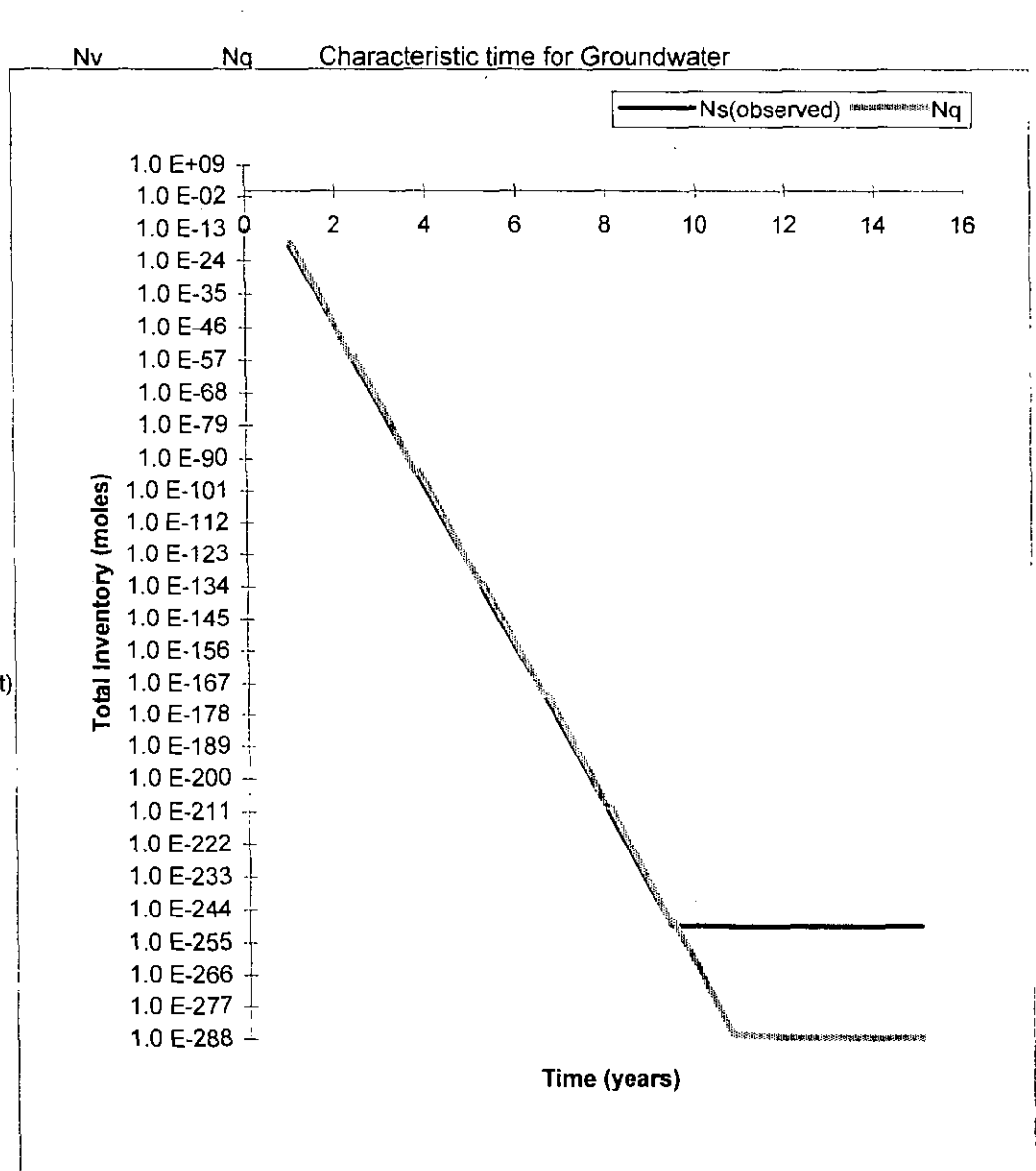
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	6.47E-01	5.93E-24	2.06E-38	0.01%	2.77E-22	2.77E-22	1.54E+00
leaf	l	6.90E+02	4.35E-27	7.73E-36	0.00%	2.16E-22	2.16E-22	1.45E-03
cuticle	c	2.64E+00	2.60E-28	4.39E-35	0.00%	4.96E-26	4.96 E-26	3.79E-01
ground-soil	g	3.05E+00	3.42E-25	8.46E-35	0.00%	7.50E-23	7.50E-23	3.28E-01
root-soil	s	1.73E-01	1.17E-20	9.65E-33	20.16%	1.35E-24	1.46E-19	5.77E+00
vadose-zone	v	1.74E-01	3.43E-22	1.52E-33	0.59%	7.12E-23	4.29E-21	5.76E+00
surface water	w	3.43E-01	3.12E-25	8.32E-36	0.00%	7.72E-24	7.72E-24	2.91E+00
sediment	d	4.41E-02	3.18E-28	8.48E-37	0.00%	1.01E-27	1.01E-27	2.27E+01
aquifer	q	8.66E-02	4.60E-20	3.72E-32	79.24%	1.20E-23	2.87E-19	1.15E+01

Mass Flows (g/d)

air-ground	2.38E-24	Tag*Na*MW	ground-water	6.41E-24	Tgw*Ng*MW
air-water	1.31E-24	Taw*Na*MW	ground-trnsfrm	7.45E-24	Rg*Ng*MW
air-out	4.29E-23	Tao*Na*MW	soil-ground	7.26E-23	Tsg*Ns*MW
air-leaves	1.88E-22	Tal*Na*MW	soil-leaves	2.78E-23	Tsl*Ns*MW
air-leaf surfaces	4.67E-26	Tac*Na*MW	soil-vadose	7.12E-23	Tsv*Ns*MW
air-transform	4.18E-23	Ra*Na*MW	soil-trnsfrm	1.46E-19	Rs*Ns*MW
leaves-air	2.16E-22	Tla*Ni*MW	vadose-aquifer	1.20E-23	Tvq*Nv*MW
leaves-leaf surfaces	2.85E-27	Tlc*Ni*MW	vadose-trnsfrm	4.28E-21	Rv*Nv*MW
leaves-ground	8.59E-28	Tlg*Ni*MW	aquifer-removal	2.87E-19	Lq*Nq*MW
leaves-soil	3.40E-28	Tls*Ni*MW	water-air	7.95E-25	Twa*Nw*MW
leaf-surface - air	2.34E-26	Tca*Nc*MW	water-sediment	1.01E-27	Twd*Nw*MW
leaf-surfaces - leaves	2.34E-26	Tcl*Nc*MW	water-out	1.21E-25	Two*Nw*MW
leaf-surfaces - ground	9.35E-28	Tcg*Nc*MW	water-trnsfrm	6.80E-24	Rw*Nw*MW
leaf surfaces-trnsfrm	1.84E-27	Rls*Nc*MW	sediment-water	4.31E-28	Tdw*Nd*MW
ground-air	5.98E-23	Tga*Ng*MW	sedmnt-trnsfrm	5.80E-28	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	9.33E-32	Tdo*Nd*MW
ground-soil	1.35E-24	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.3 E-19	9.2 E-19
2.4	876	7.5 E-58	6.6 E-57
3.8	1387	2.4 E-96	3.1 E-95
5.2	1898	7.7 E-135	1.3 E-133
6.6	2409	2.5 E-173	4.9 E-172
8	2920	8.0 E-212	1.8 E-210
9.4	3431	2.6 E-250	6.4 E-249
10.8	3942	1.0 E-250	2.2 E-287
12.2	4453	1.0 E-250	1.7 E-288
13.6	4964	1.0 E-250	1.7 E-288
15	5475	1.0 E-250	1.7 E-288
		Ns(0)[total]	
		7.3 E+08	
		const_sat	
		-1.54027E+14	
		Ns(sat)	
		8.9E+14	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-5.62 E+16	2.3E-19	4.3E+11
0	-7.87 E+16	7.5E-58	4.3E+11
0	-7.87 E+16	2.4E-96	4.3E+11
0	-7.87 E+16	7.7E-135	4.3E+11
0	-7.87 E+16	2.5E-173	4.3E+11
0	-7.87 E+16	8.0E-212	4.3E+11
0	-7.87 E+16	2.6E-250	4.3E+11
0	-7.87 E+16	1.0E-250	4.3E+11
424.7952	-7.87 E+16	1.0E-250	4.3E+11
935.7952	-7.87 E+16	1.0E-250	4.3E+11
1446.7952	-7.87 E+16	1.0E-250	4.3E+11



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil
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Chemical ==>	Nickel	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>			Un-mitigated risk and/or hazard ratio	
	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Risk	1.1 E-10
Inhalation	9.1 E-01	1.4286E-05	Hazard ratio	4.0 E-1
Ingestion	0.0 E+00	0.02		
Dermal	0.0 E+00	0.02		
Total dose	0			
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00		
	current value	should be >		
Root-soil thickness ==>	0.9	9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
	Root-zone soil	2.02 ppm (mg/kg)		
	Vadose-zone soil	0 ppm (mg/kg)		
	Ground water	0 ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
	Source term to air (mol/d)	0.0 E+00 Sa		
	Source term to ground-surface soil (mol/d)	0.0 E+00 Sg		
	Source term to root-zone soil (mol/d)	0.0 E+00 Ss		
	Source term to surface water(mol/d)	0.0 E+00 Sw		
Aquifer characteristics				
	Distance to first well (m)	0.0 E+00 d_well		
59.63956371	Darcy veleocity (m/d)	1.0 E-01 v_darc		
	Water dispersion coeff. (m2/d)	5.0 E-02 D_T		
			Based on cancer risk:	
	Root soil	1.9 E+4 >conc limit		
	Vadose soil	0.0 E+0 not avlbl.		
		Root Soil	5.0 E+0	
		Vadose soil	n/a	
			Based on hazard:	
	Root soil	5.0 E+0		
	Vadose soil	0.0 E+0 not avlbl.		
			Concentration limits without NAPL	
	Root soil	1.4 E+03 mg/kg solid		
	Vadose soil	1.4 E+03 mg/kg solid		
	Ground water	5.9 E+01 mg/L water		
			Time avrg. Conc. in on-site environmental media	
	Air	1.0 E-07 mg/m3		
	Total Leaf	7.6 E+00 mg/kg(total)		
	Grnd-surface soil	1.8 E+00 mg/kg(total)		
	Root-zone soil	1.9 E+00 mg/kg(total)		
	Vadose-zone soil	1.4 E-02 mg/kg(total)		
	Ground water	4.0 E+00 mg/L(water)		
	Surface water	8.4 E-02 mg/L		
	Sediment	2.0 E+00 mg/kg		

Chemical Properties

0.00297

0.003

1

6.0 E+01

Compound	Nickel		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	5.90 E+01	5.90E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	1.73 E+03	1.73E+03	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.50 E-09	1.50E-09	0.24	1	1.74 E-14
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	2.70 E+01	2.70E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	2.70 E+01	2.70E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	2.70 E+01	2.70E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	2.70 E+01	2.70E+01	0.10	1	
	NOT USED	Kps -	2.40 E-03	2.40E-03	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	3.70 E+05	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	2.50 E-03	2.50E-03	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	3.00 E-03	3.00E-03	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	1.80 E-01	1.80E-01	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	8.00 E-01	8.00E-01	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the list value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sedmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lml	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbr	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

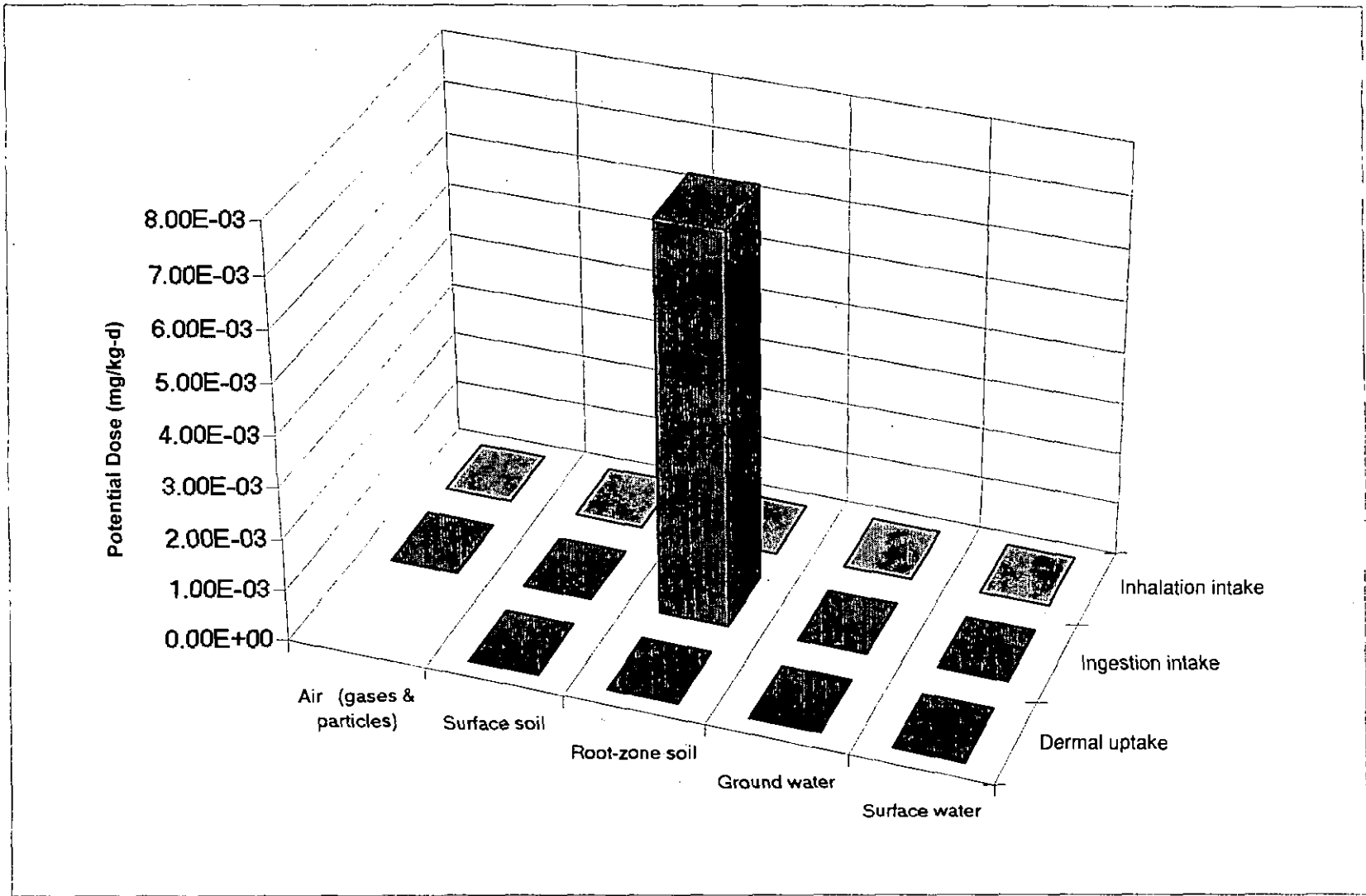
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m2-d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prttn fctr, particles, m3/kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m3/min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m3/h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m^3)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm^2)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	

Constants

Gas Constant (Pa-m^3/mol-K)	8.31E+00	Rgas
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thisisacaltoxsheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Cntmnrnt. transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contamnrnt. transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingstrn exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	5.80E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-10	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	7.23E-06	7.03E-06	7.59E-03	0.00E+00	0.00E+00	7.61E-03	99.60
Unexposed produce			2.41E-05	0.00E+00	0.00E+00	2.41E-05	0.32
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		5.86E-09	6.11E-09			1.20E-08	0.00
Total ingestion	7.23 E-06	7.04 E-06	7.62 E-03	0.00 E+00	0.00 E+00	7.63 E-03	99.92
DERMAL UPTAKE		3.06E-06	3.19E-06	0.00E+00	0.00E+00	6.25E-06	0.08
Dose SUM	7.23E-06	1.01E-05	7.62E-03	0.00E+00	0.00E+00	7.64E-03	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	7.63 E-03
Total dose used =>	7.64 E-03

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	1.02 E-07	2.08E+00	2.16 E+00	4.05 E+00	8.18 E-02

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	1.02 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	7.26 E-03	7.06 E-03	7.62 E+00	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				3.86 E-02	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	1.31 E-03	3.76 E-03	1.37 E+00	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.54 E-03	3.58 E-03	1.62 E+00	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	1.57 E-04	1.57 E-04	1.65 E-01	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						6.54 E-02
Household soil (mg/kg)			1.04 E+00	1.08 E+00		
Swimming water (mg/L)						8.35 E-02

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	2.9 E-20	3.9 E-13	3.2 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	6.1 E-10	8.1 E-03	6.6 E-06	8.1 E-03	8.1 E-03	0.0 E+00
2.4	6.1 E-10	8.0 E-03	6.5 E-06	8.0 E-03	8.0 E-03	0.0 E+00
3.8	6.0 E-10	7.9 E-03	6.5 E-06	7.9 E-03	7.9 E-03	0.0 E+00
5.2	5.9 E-10	7.8 E-03	6.4 E-06	7.8 E-03	7.8 E-03	0.0 E+00
6.6	5.9 E-10	7.7 E-03	6.3 E-06	7.7 E-03	7.7 E-03	0.0 E+00
8	5.8 E-10	7.6 E-03	6.2 E-06	7.6 E-03	7.6 E-03	0.0 E+00
9.4	5.7 E-10	7.5 E-03	6.2 E-06	7.5 E-03	7.5 E-03	0.0 E+00
10.8	5.7 E-10	7.5 E-03	6.1 E-06	7.5 E-03	7.5 E-03	0.0 E+00
12.2	5.6 E-10	7.4 E-03	6.0 E-06	7.4 E-03	7.4 E-03	0.0 E+00
13.6	5.6 E-10	7.3 E-03	6.0 E-06	7.3 E-03	7.3 E-03	0.0 E+00
15	5.5 E-10	7.2 E-03	5.9 E-06	7.2 E-03	7.2 E-03	0.0 E+00
Cumulative doses				39.02164697		
over ED by route, mg/kg	3.0 E-06	3.9 E+01	3.2 E-02	3.9 E+01	3.9 E+01	0.0 E+00
fraction	0.0000	0.9992	0.0008	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	5.8 E-10	7.6 E-03	6.2 E-06	7.6 E-03	7.6 E-03	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	6.1 E-10	8.1 E-03	6.6 E-06	8.1 E-03	8.1 E-03	0.0 E+00
fraction	0.0000	0.9992	0.0008	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00 mg/kg-d

Max ing	8.1 E-03
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 4.4 E+02 mol/day
 bbb2 = 5.0 E+02 bbb4 = 1.6 E+07
 bbb3 = 2.0 E+04 bbb5 = 1.0 E+07

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	0.0 E+00	mg/m ³	1.0 E-03	1.0 E-03	air
Off-site concentration (particles)	1.0 E-07	mg/m ³			
Off-site surface-water concentrtn.	7.7 E-05	mg/L	1.3 E-06	1.4 E-03	water
Off-site surface soil concentration	1.9 E-03	mg/kg	1.2 E-06	1.3 E-03	ground soil
Off-site root-soil concentration	1.8 E-03	mg/kg	1.1 E-06	1.4 E-03	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velocity of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.8 E-03 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	8.9 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	2.8 E-09 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdnry lyr thickness in air above wtr (m)	1.31E-03	del_aw		
bdnry lyr thickness in wtr below air (m)	6.25E-09	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.68E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bdnry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdnry lyr thickness with wtr (m)	4.40E-06	del_dw		
Initial concentration in soil (mol/m3)	5.52E-02	Cs0		
Initial conc. in the vadose zone (mol/m3)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m2-d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m3)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m3)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tflag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m3(organic)/m3(soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	1.40E-05	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	1.04E-03
Cuticle	fc	1.06E-03
Leaf	fl	2.14E-01
Ground	fg	1.30E-03
Root	fs	1.36E-03
Vadose	fv	1.02E-05
Water	fw	1.39E-03
Sediment	fd	1.38E-03
Groundwater	fq	6.86E-02

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	7.02E+01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	7.02E+01	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	7.02E+01	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	7.02E+01	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	7.02E+01	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	7.02E+01	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	7.02E+01	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.03E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	1.66E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	8.01E-01	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	3.82E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	3.82E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	3.97E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.02E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	5.64E+01	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	5.64E+01	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment	Y		one-sided	both-sides	Diffusion	Advection	Total	
Dair	6.40E-01	Da	0.00E+00	1.31E-03	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	1.50E-09	Dw	1.47E-09	6.25E-09	2.40E-01	0.00E+00	0.00E+00	0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	2.93E-11			1.37E-02	3.36E-01	0.00E+00	2.17E-06	2.17E-06	ground-air, T_ga	
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	3.36E-01	6.71E-03	1.76E-02	1.77E-02	ground-soil, T_gs	
Dwater_s	3.68E-11			6.68E-01	6.85E-03		1.87E-04	1.87E-04	soil-ground, T_sg	
Dair_v	2.70E-02	Dv	1.20E-04	6.68E-01	6.85E-03	3.49E-03	1.56E-06	1.56E-06	soil-vadose, T_sv	
Dwater_v	3.80E-11			6.68E-01	7.12E-03				vadose-soil, T_vs	
Dwater_d	1.75E-10	Dd	3.11E-12	2.00E-02	7.66E-08	7.64E-08	1.50E-08	5.55E-02	5.55E-02	water-sediment, T_wd
				4.40E-06	3.98E-05		2.71E-08	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00	0.00E+00	0.00E+00	air - leaf T_al
							0.00E+00	0.00E+00	0.00E+00	leaf-air, T_la
							0.00E+00	0.00E+00	0.00E+00	cuticle-leaf, T_cl
							0.00E+00	0.00E+00	0.00E+00	leaf-cuticle, T_lc
aaa1	2.69E+00		C0_1	2.10E+10				4.98E-02	4.98E-02	cuticle-ground T_cg
aaa2	2.64E-01		C0_2	0.00E+00		aaa6	2.10E+10	2.74E-03	2.74E-03	leaf-ground T_lg
aaa3	2.47E-06		S_1	0.00E+00		aaa7	1.70E+09	1.84E-03	1.84E-03	leaf-soil, T_ls
aaa4	0.00E+00		S_2	0.00E+00		aaa8	-1.70E+09	1.40E-05	1.40E-05	soil-leaf, T_sl
aaa5	1.02E-02		AA	3.84E-04		bbb4	0.00E+00	0.00E+00	0.00E+00	ground-cuticle, T_gc
bbb1	0.00E+00		BB	0.00E+00		bbb5	0	2.53E-06	2.53E-06	vadose-aquifer, T_vq
bbb2	0.00E+00		CC	1.56E-06		Lam1	2.17E-05	2.49E-05	2.49E-05	sediment-out, T_do
bbb3	0.00E+00		DDD	2.53E-06				1.00E-01	1.00E-01	air-out, T_ao
ccc1	4.58E-03		Gam1	-2.53E-06				1.42E-03	1.42E-03	ground-water, T_gw
ccc2	0.00E+00		Gam2	-3.84E-04				5.36E-03	5.36E-03	water-out, T_wo
ccc3	8.79E-01		Gm1mGm2	3.81E-04						
ccc4	0.00E+00		Gam1p	3.84E-04						
ccc5	7.64E-01		Gam2p	2.53E-06						
ccc6	2.74E-03		Gm1mGm2p	3.81E-04						

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	4.97E+02	1.73E-12	0.00%	2.65E+04	2.65E+04	1.11E+00
leaf	l	4.58E-03	6.02E+07	1.07E-01	0.00%	1.63E+07	1.63E+07	2.18E+02
cuticle	c	5.22E-02	5.03E+03	8.48E-04	0.00%	1.55E+04	1.55 E+04	1.91E+01
ground-soil	g	1.91E-02	2.01E+08	4.98E-02	0.00%	2.27E+08	2.27E+08	5.23E+01
root-soil	s	2.03E-04	1.97E+10	5.18E-02	0.41%	2.17E+08	2.35E+08	4.93E+03
vadose-zone	v	2.53E-06	9.10E+07	4.05E-04	0.00%	1.81E+06	1.36E+04	3.96E+05
surface water	w	6.09E-02	5.31E+07	1.42E-03	0.00%	1.91E+08	1.91E+08	1.64E+01
sediment	d	1.01E-01	2.93E+07	7.80E-02	0.00%	1.74E+08	1.74E+08	9.93E+00
aquifer	q	1.00E-05	4.77E+12	3.87E+00	99.58%	1.36E+04	2.82E+09	1.00E+05

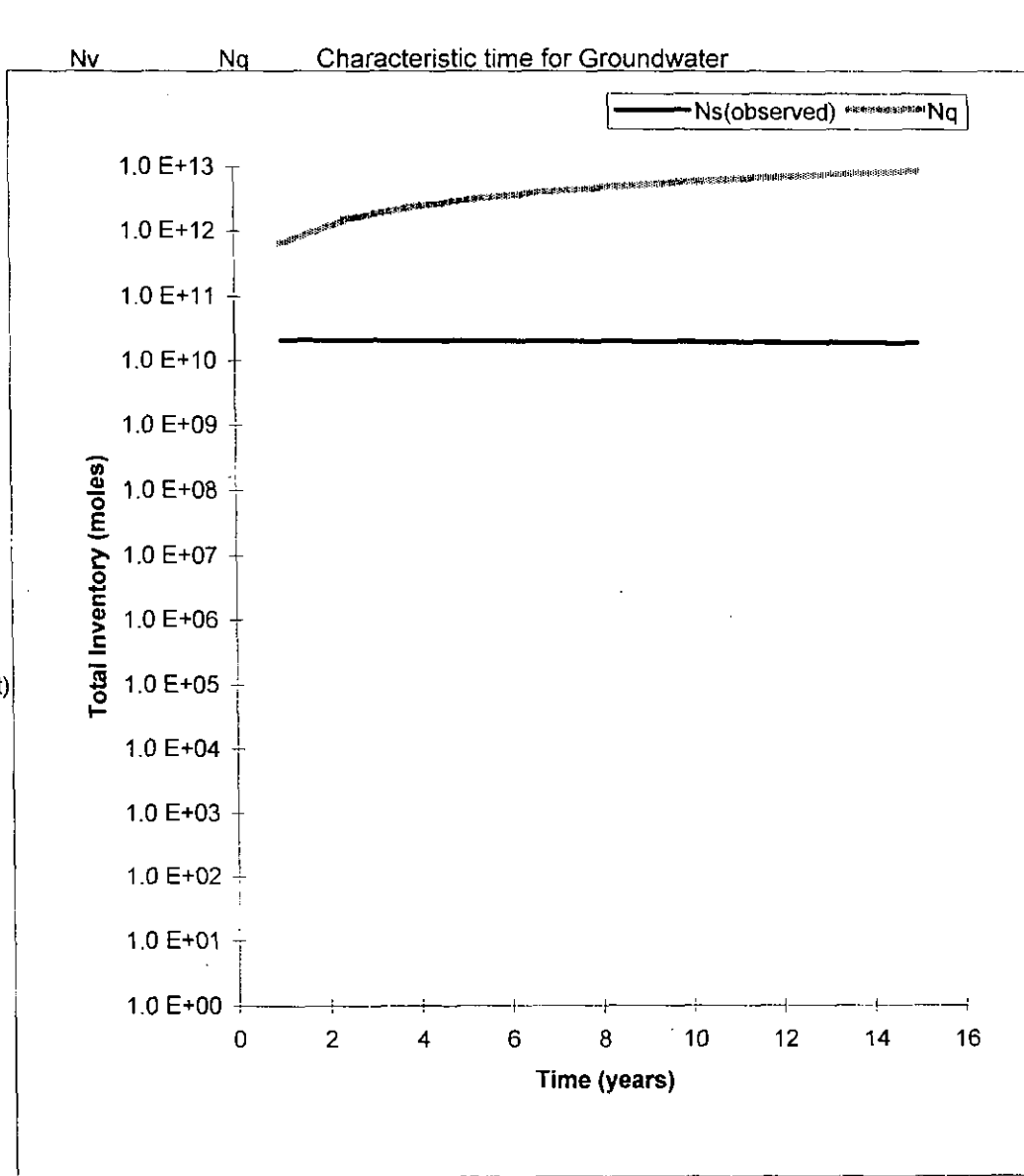
Mass Flows (g/d)

air-ground	7.64E+03	Tag*Na*MW	ground-water	1.68E+07	Tgw*Ng*MW
air-water	4.24E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	2.94E+03	Tao*Na*MW	soil-ground	2.17E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	1.63E+07	Tsl*Ns*MW
air-leaf surfaces	1.55E+04	Tac*Na*MW	soil-vadose	1.81E+06	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	1.36E+04	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	9.73E+06	Tlg*NI*MW	aquifer-removal	2.82E+09	Lq*Nq*MW
leaves-soil	6.54E+06	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	7.35E+02	Tca*Nc*MW	water-sediment	1.74E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	1.68E+07	Two*Nw*MW
leaf-surfaces - ground	1.48E+04	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	1.74E+08	Tdw*Nd*MW
ground-air	2.58E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	4.30E+04	Tdo*Nd*MW
ground-soil	2.10E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

Time (y)	Time (d)	Ns(observed)	Nq
1	365	2.1 E+10	6.2 E+11
2.4	876	2.1 E+10	1.5 E+12
3.8	1387	2.0 E+10	2.3 E+12
5.2	1898	2.0 E+10	3.2 E+12
6.6	2409	2.0 E+10	4.0 E+12
8	2920	2.0 E+10	4.8 E+12
9.4	3431	1.9 E+10	5.6 E+12
10.8	3942	1.9 E+10	6.4 E+12
12.2	4453	1.9 E+10	7.2 E+12
13.6	4964	1.9 E+10	8.0 E+12
15	5475	1.9 E+10	8.8 E+12

		Ns(0)[total]	Nv
		2.1 E+10	
const_sat		Ns(sat)	
-314349985.4		1.4E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-9.38 E+10	2.1E+10	8.2E+09
0	-1.40 E+11	2.1E+10	1.2E+10
0	-1.40 E+11	2.0E+10	1.2E+10
0	-1.40 E+11	2.0E+10	1.2E+10
0	-1.41 E+11	2.0E+10	1.2E+10
0	-1.41 E+11	2.0E+10	1.2E+10
0	-1.41 E+11	2.0E+10	1.2E+10
0	-1.41 E+11	1.9E+10	1.2E+10
0	-1.41 E+11	1.9E+10	1.2E+10
0	-1.41 E+11	1.9E+10	1.2E+10
0	-1.41 E+11	1.9E+10	1.2E+10
0	-1.42 E+11	1.9E+10	1.2E+10
0	-1.42 E+11	1.9E+10	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Vanadium (fume or dust)	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)		
Inhalation	0.0 E+00	0.007		
Ingestion	0.0 E+00	0.007		
Dermal	0.0 E+00	0.007		
Total dose	0			
Target Risk/Hazard =	Risk 1.0 E-06	Hazard quotie 1.00		
Root-soil thickness ==>	current value 0.9	should be > 9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)				
Root-zone soil	4.12	ppm (mg/kg)		
Vadose-zone soil	0	ppm (mg/kg)		
Ground water	0	ppm (mg/L)		
Continuous inputs	Methane flux m/d	0		
Source term to air (mol/d)	0.0 E+00	Sa		
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg		
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics				
Distance to first well (m)	0.0 E+00	d_well		
Darcy veleocity (m/d)	1.0 E-01	v_darc		
Water dispersion coeff. (m2/d)	5.0 E-02	D_T		
59.63956371				
			Un-mitigated risk and/or hazard ratio	
			Risk	0.0 E+0
			Hazard ratio	9.4 E-1
			Target Soil Concentrations (in ppm)	
			Based on cancer risk:	
			Root soil	0.0 E+0 not avlbl.
			Vadose soil	0.0 E+0 not avlbl.
			Root Soil	4.4 E+0
			Vadose soil	n/a
			Based on hazard:	
			Root soil	4.4 E+0
			Vadose soil	0.0 E+0 not avlbl.
			Concentration limits without NAPL	
			Root soil	3.0 E+03 mg/kg solid
			Vadose soil	3.1 E+03 mg/kg solid
			Ground water	5.1 E+01 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	2.2 E-07 mg/m3
			Total Leaf	6.4 E+00 mg/kg(total)
			Grnd-surface soil	4.0 E+00 mg/kg(total)
			Root-zone soil	4.0 E+00 mg/kg(total)
			Vadose-zone soil	1.2 E-02 mg/kg(total)
			Ground water	3.4 E+00 mg/L(water)
			Surface water	7.3 E-02 mg/L
			Sediment	4.3 E+00 mg/kg

Chemical Properties

0.00297

0.003

5.8 E+00

Compound	Vanadium (fume or dust)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	5.10 E+01	5.10E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	2.19 E+03	2.19E+03	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	6.80 E+01	6.80E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	6.80 E+01	6.80E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	6.80 E+01	6.80E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	6.80 E+01	6.80E+01	0.10	1	
	NOT USED	Kps -	7.35 E-03	-9.90E+01	3.70	1	
	Leaves/phlm wtr prtn cff. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn cff (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	1.50 E+05	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.90 E-04	1.90E-04	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	6.46 E-04	6.46E-04	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	2.00 E+02	2.00E+02	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
	Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
	Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
	Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
	Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
	Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
	Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
	Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
	Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
	Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
	Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
	Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
	Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
	Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
	Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
	Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
	Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
	Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
	Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
	Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
	Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
	Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
	Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
	Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
	Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
	Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
	Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
	Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
	Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
	Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
	Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
	Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
	Bndry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
	Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1	
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1	
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1	
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1	
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1	
	Fruit and vegetable intake (kg/kg-d)	lfv	4.90 E-03	4.90E-03	0.20	1	
	Grain intake (kg/kg-d)	lg	3.70 E-03	3.70E-03	0.20	1	
	Milk intake (kg/kg-d)	lmk	6.50 E-03	6.50E-03	0.20	1	
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1	
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1	
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1	
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1	
	Breast milk ingestion by infants (kg/kg-d)	lbn	1.10 E-01	1.10E-01	0.20	1	
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1	
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1	
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1	
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1	
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1	
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1	
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1	
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1	
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1	

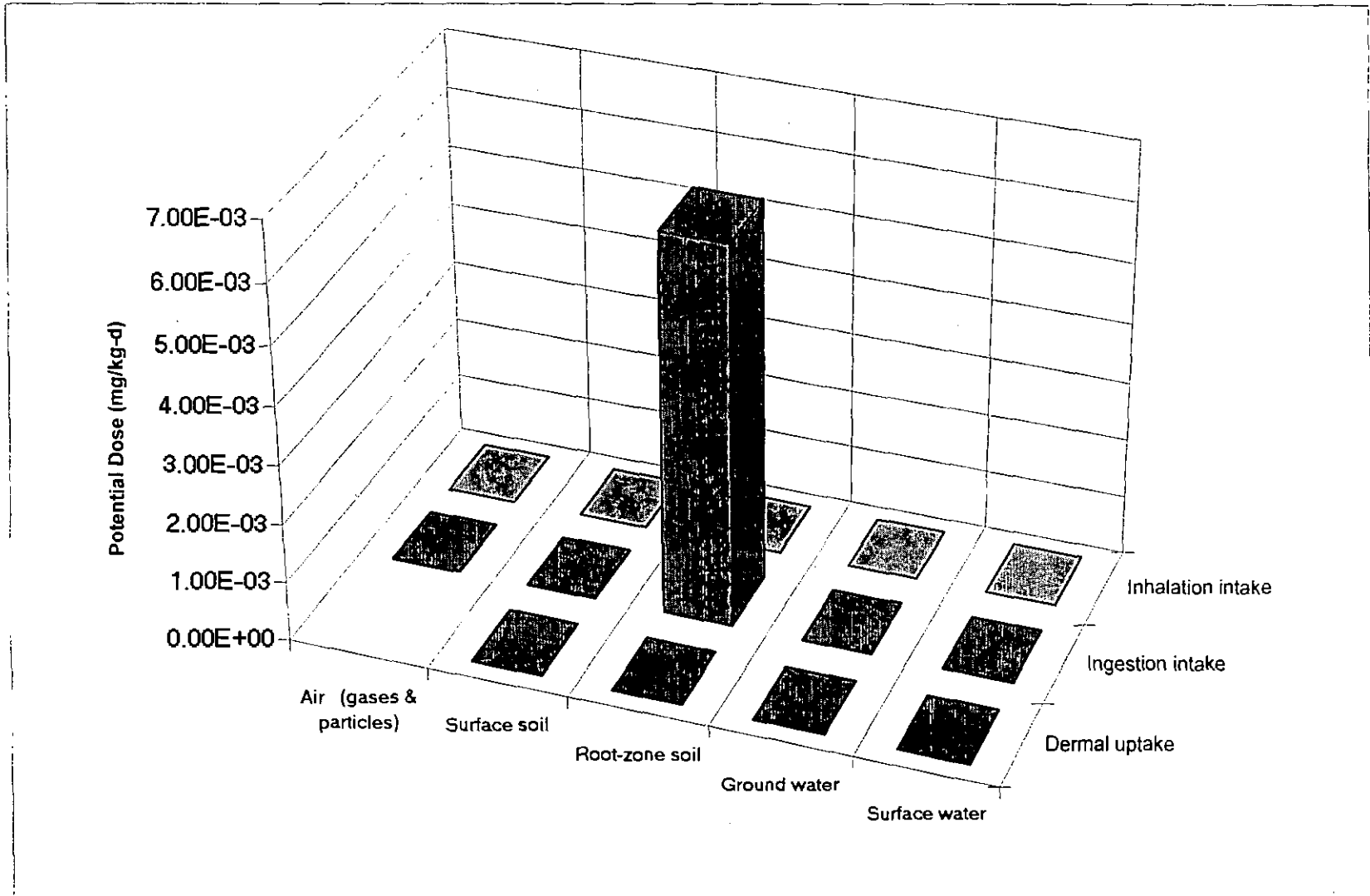
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1	
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1	
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1	
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1	
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1	
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1	
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1	
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1	
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1	
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1	
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1	
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1	
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1	
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1	
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1	
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1	
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1	
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1	
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1	
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1	
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1	
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1	
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1	
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1	
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1	
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1	
	Water ingestion while swimming (L/kg-h)	Isww	7.00 E-04	7.00E-04	1.00	1	
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1	
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1	

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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thisisacaltosheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, ground soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	1.26E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-09	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	1.57E-05	1.53E-05	6.39E-03	0.00E+00	0.00E+00	6.42E-03	99.48
Unexposed produce			2.03E-05	0.00E+00	0.00E+00	2.03E-05	0.31
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		1.27E-08	1.30E-08			2.57E-08	0.00
Total ingestion	1.57 E-05	1.53 E-05	6.41 E-03	0.00 E+00	0.00 E+00	6.44 E-03	99.79
DERMAL UPTAKE		6.65E-06	6.77E-06	0.00E+00	0.00E+00	1.34E-05	0.21
Dose SUM	1.57E-05	2.20E-05	6.42E-03	0.00E+00	0.00E+00	6.46E-03	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	6.44 E-03
Total dose used =>	6.46 E-03

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	2.21 E-07	4.51E+00	4.59 E+00	3.38 E+00	6.92 E-02

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	2.21 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	1.58 E-02	1.53 E-02	6.41 E+00	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				3.26 E-02	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	6.11 E-04	1.76 E-03	2.49 E-01	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	2.55 E-04	5.91 E-04	1.04 E-01	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						1.38 E+01
Household soil (mg/kg)			2.26 E+00	2.30 E+00		
Swimming water (mg/L)						7.30 E-02

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	2.6 E-20	1.3 E-13	2.8 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	1.3 E-09	6.6 E-03	1.4 E-05	6.6 E-03	6.6 E-03	0.0 E+00
2.4	1.3 E-09	6.6 E-03	1.4 E-05	6.6 E-03	6.6 E-03	0.0 E+00
3.8	1.3 E-09	6.5 E-03	1.4 E-05	6.5 E-03	6.5 E-03	0.0 E+00
5.2	1.3 E-09	6.5 E-03	1.4 E-05	6.5 E-03	6.5 E-03	0.0 E+00
6.6	1.3 E-09	6.5 E-03	1.3 E-05	6.5 E-03	6.5 E-03	0.0 E+00
8	1.3 E-09	6.4 E-03	1.3 E-05	6.5 E-03	6.5 E-03	0.0 E+00
9.4	1.3 E-09	6.4 E-03	1.3 E-05	6.4 E-03	6.4 E-03	0.0 E+00
10.8	1.3 E-09	6.4 E-03	1.3 E-05	6.4 E-03	6.4 E-03	0.0 E+00
12.2	1.2 E-09	6.4 E-03	1.3 E-05	6.4 E-03	6.4 E-03	0.0 E+00
13.6	1.2 E-09	6.3 E-03	1.3 E-05	6.3 E-03	6.3 E-03	0.0 E+00
15	1.2 E-09	6.3 E-03	1.3 E-05	6.3 E-03	6.3 E-03	0.0 E+00
Cumulative doses				33.00083352		
over ED by route, mg/kg	6.5 E-06	3.3 E+01	6.9 E-02	3.3 E+01	3.3 E+01	0.0 E+00
fraction	0.0000	0.9979	0.0021	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	1.3 E-09	6.4 E-03	1.3 E-05	6.5 E-03	6.5 E-03	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	1.3 E-09	6.6 E-03	1.4 E-05	6.6 E-03	6.6 E-03	0.0 E+00
fraction	0.0000	0.9979	0.0021	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max_ing	6.6 E-03
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.1 E+03 mol/day
 bbb2 = 1.3 E+03 bbb4 = 1.0 E+08
 bbb3 = 5.3 E+04 bbb5 = 6.4 E+07

			fugacity off-site	fugacity on-site	
Off-site air concentration (gases)	0.0 E+00	mg/m ³	1.0 E-03	1.0 E-03	air
Off-site concentration (particles)	2.2 E-07	mg/m ³			
Off-site surface-water concentrtn.	1.6 E-04	mg/L	3.2 E-06	1.4 E-03	water
Off-site surface soil concentration	1.0 E-02	mg/kg	3.0 E-06	1.3 E-03	ground soil
Off-site root-soil concentration	9.9 E-03	mg/kg	2.9 E-06	1.3 E-03	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn reductn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	7.1 E-04 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	3.5 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	1.1 E-09 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bdry lyr thickness in air above wtr (m)	1.22E-03	del_aw		
bdry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.69E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bdry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bdry lyr thickness with wtr (m)	5.53E-03	del_dw		
Initial concentration in soil (mol/m ³)	1.30E-01	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	5.59E-06	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	1.04E-03
Cuticle	fc	1.06E-03
Leaf	fl	2.09E-01
Ground	fg	1.30E-03
Root	fs	1.32E-03
Vadose	fv	3.92E-06
Water	fw	1.36E-03
Sediment	fd	1.36E-03
Groundwater	fq	6.62E-02

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	1.77E+02	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	1.77E+02	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	1.77E+02	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	1.77E+02	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	1.77E+02	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	1.77E+02	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	1.77E+02	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.16E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	4.18E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	2.02E+00	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	9.60E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	9.58E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	9.96E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.05E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	1.42E+02	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	1.42E+02	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m2/d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m2-d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment Phase	Compartment		Y		one-sided	both-sides	Diffusion	Advection	Total	
Dair	6.40E-01	Da	0.00E+00	1.22E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw
Dwater	1.30E-04	Dw	1.23E-04	5.42E-04	2.40E-01		0.00E+00		0.00E+00	water-air, T_wa
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag
Dwater_g	2.54E-06			1.37E-02	8.43E-01		0.00E+00	2.18E-06	2.18E-06	ground-air, T_ga
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	8.43E-01	1.69E-02	1.76E-02	5.81E-05	1.76E-02	ground-soil, T_gs
Dwater_s	3.19E-06			6.69E-01	1.72E-02		1.87E-04	0.00E+00	1.87E-04	soil-ground, T_sg
Dair_v	2.70E-02	Dv	1.20E-04	6.69E-01	1.72E-02	8.76E-03		6.20E-07	6.20E-07	soil-vadose, T_sv
Dwater_v	3.29E-06			6.69E-01	1.79E-02					vadose-soil, T_vs
Dwater_d	1.52E-05	Dd	1.07E-07	2.00E-02	6.85E-03	1.96E-03	3.72E-04	1.35E-01	1.36E-01	water-sediment, T_wd
				5.53E-03	2.75E-03		2.77E-04	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00		0.00E+00	air - leaf T_al
							0.00E+00		0.00E+00	leaf-air, T_la
							0.00E+00		0.00E+00	cuticle-leaf, T_cl
							0.00E+00		0.00E+00	leaf-cuticle, T_lc
								4.98E-02	4.98E-02	cuticle-ground T_cg
							aaa6 4.94E+10	2.74E-03	2.74E-03	leaf-ground T_lg
							aaa7 3.89E+09	1.84E-03	1.84E-03	leaf-soil, T_ls
							aaa8 -3.89E+09	5.58E-06	5.58E-06	soil-leaf, T_sl
							bbb4 0.00E+00		0.00E+00	ground-cuticle, T_gc
							bbb5 0	1.01E-06	1.01E-06	vadose-aquifer, T_vq
							Lam1 8.88E-06	2.50E-05	2.50E-05	sediment-out, T_do
								1.00E-01	1.00E-01	air-out, T_ao
								5.74E-04	5.74E-04	ground-water, T_gw
								5.36E-03	5.36E-03	water-out, T_wo

aaa1	2.68E+00	C0_1	4.94E+10
aaa2	1.06E-01	C0_2	0.00E+00
aaa3	2.48E-06	S_1	0.00E+00
aaa4	0.00E+00	S_2	0.00E+00
aaa5	1.05E-02	AA	3.78E-04
bbb1	0.00E+00	BB	0.00E+00
bbb2	0.00E+00	CC	6.20E-07
bbb3	0.00E+00	DDD	1.01E-06
ccc1	4.58E-03	Gam1	-1.01E-06
ccc2	0.00E+00	Gam2	-3.78E-04
ccc3	8.79E-01	Gm1mGm2	3.77E-04
ccc4	0.00E+00	Gam1p	3.78E-04
ccc5	7.64E-01	Gam2p	1.01E-06
ccc6	2.74E-03	Gm1mGm2p	3.77E-04

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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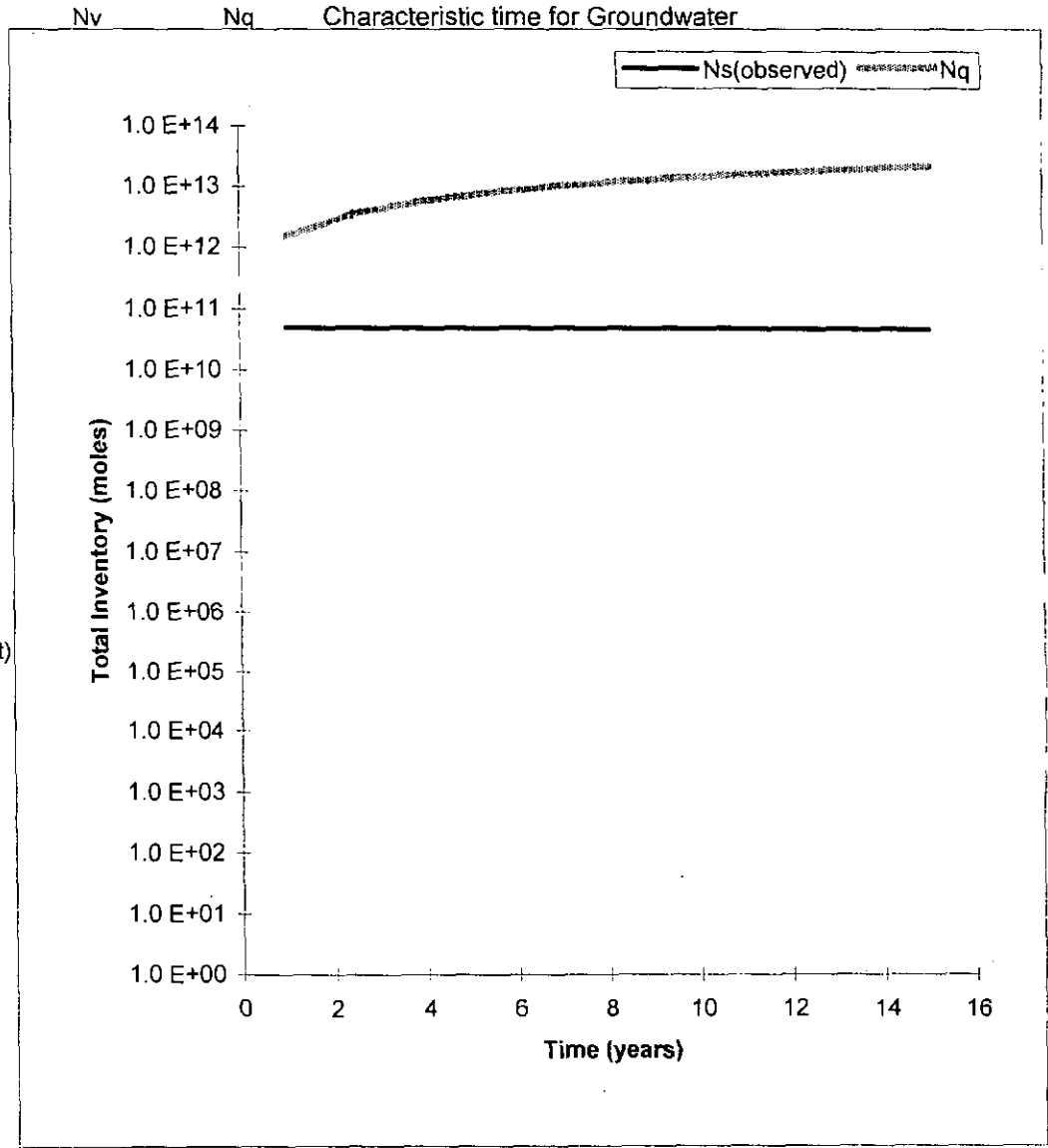
Compartment Name		Loss-rate constant (1/day) L	Total Inventory (moles) N	Concentration (mol/m3) C	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
air	a	9.04E-01	1.25E+03	4.34E-12	0.00%	5.77E+04	5.77E+04	1.11E+00
leaf	l	4.58E-03	5.87E+07	1.04E-01	0.00%	1.37E+07	1.37E+07	2.18E+02
cuticle	c	5.22E-02	1.27E+04	2.13E-03	0.00%	3.37E+04	3.37 E+04	1.91E+01
ground-soil	g	1.82E-02	5.05E+08	1.25E-01	0.00%	4.68E+08	4.68E+08	5.50E+01
root-soil	s	1.93E-04	4.82E+10	1.27E-01	0.41%	4.59E+08	4.75E+08	5.17E+03
vadose-zone	v	1.01E-06	8.78E+07	3.90E-04	0.00%	1.52E+06	4.51E+03	9.94E+05
surface water	w	1.41E-01	5.36E+07	1.43E-03	0.00%	3.86E+08	3.86E+08	7.08E+00
sediment	d	1.01E-01	7.20E+07	1.92E-01	0.00%	3.72E+08	3.72E+08	9.88E+00
aquifer	q	1.00E-05	1.16E+13	9.38E+00	99.58%	4.51E+03	5.91E+09	1.00E+05

Mass Flows (g/d)

air-ground	1.66E+04	Tag*Na*MW	ground-water	1.48E+07	Tgw*Ng*MW
air-water	9.23E+02	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	6.40E+03	Tao*Na*MW	soil-ground	4.60E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	1.37E+07	Tsl*Ns*MW
air-leaf surfaces	3.37E+04	Tac*Na*MW	soil-vadose	1.52E+06	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	4.51E+03	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	8.20E+06	Tlg*NI*MW	aquifer-removal	5.91E+09	Lq*Nq*MW
leaves-soil	5.52E+06	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	1.60E+03	Tca*Nc*MW	water-sediment	3.72E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	1.47E+07	Two*Nw*MW
leaf-surfaces - ground	3.21E+04	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	3.72E+08	Tdw*Nd*MW
ground-air	5.61E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	9.17E+04	Tdo*Nd*MW
ground-soil	4.53E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	4.9 E+10	1.5 E+12
2.4	876	4.9 E+10	3.5 E+12
3.8	1387	4.9 E+10	5.6 E+12
5.2	1898	4.9 E+10	7.6 E+12
6.6	2409	4.8 E+10	9.6 E+12
8	2920	4.8 E+10	1.2 E+13
9.4	3431	4.8 E+10	1.4 E+13
10.8	3942	4.8 E+10	1.6 E+13
12.2	4453	4.8 E+10	1.8 E+13
13.6	4964	4.7 E+10	2.0 E+13
15	5475	4.7 E+10	2.2 E+13
		Ns(0)[total]	
		4.9 E+10	
		const_sat	
		-322818930.4	
		Ns(sat)	
		3.6E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-6.84 E+10	4.9E+10	8.2E+09
0	-1.16 E+11	4.9E+10	1.2E+10
0	-1.16 E+11	4.9E+10	1.2E+10
0	-1.16 E+11	4.9E+10	1.2E+10
0	-1.16 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.8E+10	1.2E+10
0	-1.17 E+11	4.7E+10	1.2E+10
0	-1.18 E+11	4.7E+10	1.2E+10



CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Zinc	▼	Summary of Results:	
Landscape ==>	Calif. Residential Site (CA Res.)	▼		
Exposure Factors Set=>	(Residential) Exposure Factors	▼		
Toxicity Data ==>	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Un-mitigated risk and/or hazard ratio	
Inhalation	0.0 E+00	0.00025714	Risk	0.0 E+0
Ingestion	0.0 E+00	0.3	Hazard ratio	6.2 E-2
Dermal	0.0 E+00	0.3		
Total dose	0			
Target Risk/Hazard =	Risk	Hazard quotie		
	1.0 E-06	1.00		
	current value	should be >		
Root-soil thickness ==>	0.9	9.4 E-1		
Alter root soil thickness to?	9.4 E-01			
Distance off-site for air exposure=	0.0 E+00	meters		
Time after initial concentrations when exposure begins =	3.7 E+02	days		
Measured Concentrations (at time = 0)			Based on cancer risk:	
Root-zone soil	5.37	ppm (mg/kg)	Root soil	0.0 E+0 not avlbl.
Vadose-zone soil	0	ppm (mg/kg)	Vadose soil	0.0 E+0 not avlbl.
Ground water	0	ppm (mg/L)		Root Soil 8.6 E+1
				Vadose soil n/a
Continuous inputs	Methane flux m/d	0	Based on hazard:	
Source term to air (mol/d)	0.0 E+00	Sa	Root soil	8.6 E+1
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Vadose soil	0.0 E+0 not avlbl.
Source term to root-zone soil (mol/d)	0.0 E+00	Ss		
Source term to surface water(mol/d)	0.0 E+00	Sw		
Aquifer characteristics			Concentration limits without NAPL	
Distance to first well (m)	0.0 E+00	d_well	Root soil	1.8 E+03 mg/kg solid
Darcy velecocity (m/d)	1.0 E-01	v_darc	Vadose soil	1.8 E+03 mg/kg solid
Water dispersion coeff. (m2/d)	5.0 E-02	D_T	Ground water	6.5 E+01 mg/L water
			Time avrg. Conc. in on-site environmental media	
			Air	2.7 E-07 mg/m3
			Total Leaf	1.8 E+01 mg/kg(total)
			Grnd-surface soil	4.9 E+00 mg/kg(total)
			Root-zone soil	5.1 E+00 mg/kg(total)
			Vadose-zone soil	3.3 E-02 mg/kg(total)
			Ground water	9.4 E+00 mg/L(water)
			Surface water	2.0 E-01 mg/L
			Sediment	5.4 E+00 mg/kg

Chemical Properties

0.00297

0.003

9.4 E+01

Compound	Zinc		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Molecular weight (g/mol)	MW	6.50 E+01	6.50E+01	0.01	1	
	Octanol-water partition coefficient	Kow	0.00 E+00	0.00E+00	0.37	1	
	Melting point (K)	Tm	6.93 E+02	6.93E+02	0.03	1	
	Vapor Pressure in (Pa)	VP	0.00 E+00	0.00E+00	0.38	1	
	Solubility in mol/m3	S	1.00 E+00	1.00E+00	0.37	1	Kaw
	Henry's law constant (Pa-m ³ /mol)	H -	n/a	-9.90E+01	0.45	1	#VALUE!
	Diffusion coefficient in pure air (m ² /d)	Dair	6.40 E-01	6.40E-01	0.08	1	7.41 E-06
	Diffusion coefficient; pure water (m ² /d)	Dwater	1.30 E-04	1.30E-04	0.24	1	1.50 E-09
	Organic carbon partition coefficient Koc	Koc -	0.00 E+00	0.00E+00	0.66	1	m ² /s
	Octanol/air partition coefficient	Koa -	n/a	-9.90E+01	0.10	1	
	Partition coefficient in ground/root soil layer	Kd_s -	3.10 E+01	3.10E+01	0.10	1	
	Partition coefficient in vadose-zone soil layer	Kd_v -	3.10 E+01	3.10E+01	0.10	1	
	Partition coefficient in aquifer layer	Kd_q -	3.10 E+01	3.10E+01	0.10	1	
	Partition coeff. in surface wtr sediments	Kd_d -	3.10 E+01	3.10E+01	0.10	1	
	NOT USED	Kps -	9.16 E-02	9.16E-02	3.70	1	
	Leaves/phlm wtr prtn off. (wet kg/m ³ per wet kg/m ³)	Kl_phl -	5.00 E-01	-9.90E+01	0.10	1	
	Stem/xylem-fluid prtn off (m ³ [xylem]/m ³ [stem])	Ks_x -	4.00 E-01	-9.90E+01	0.10	1	
	Transpiration stream cncntrtn fctr (m ³ [wtr]/m ³ [ts])	TSCF -	1.00 E+00	-9.90E+01	0.10	1	
	Biotransfr fctr, plant/air (m ³ [a]/kg[pFM])	Kpa -	3.23 E+05	-9.90E+01	13.00	1	
	Biotransfer factor; cattle-diet/milk (d/kg[milk])	Bk -	1.00 E-02	1.00E-02	10.00	1	
	Biotransfer factor; cattle-diet/meat (d/L)	Bt -	1.20 E-01	1.20E-01	12.00	1	
	Biotransfer fctr; hen-diet/eggs (d/kg[egg contents])	Be -	0.00 E+00	0.00E+00	14.00	1	
	Biotransfr fctr; brst mlk/mthr intake (d/kg)	Bbmk -	0.00 E+00	0.00E+00	10.00	1	
	Bioconcentration factor; fish/water	BCF -	1.26 E+02	1.26E+02	0.62	1	
	Particle scavenging ratio of rain drops	Psr_rain -	5.00 E+04	5.00E+04	2.40	1	
	Skin permeability coefficient; cm/h	Kp_w -	1.00 E-03	-9.90E+01	2.30	1	
	Skin-water/soil partition coefficient (L/kg)	Km -	1.00 E+00	-9.90E+01	1.10	1	
	Fraction dermal uptake from soil	dfct_sl -	2.01 E-01	2.01E-01	1.00	1	

A parameter with a "-" symbol after it, indicates a parameter that can be calculated by a default algorithm when the value of mean for this parameter is <0. Otherwise the listed value is used.

nc

Chemical Properties (continued)

Reaction half-life in air (d)	Thalf_a	n/a	n/a	1.00	1	
Reaction half-life in surface soil (d)	Thalf_g	n/a	n/a	1.20	1	
Reaction half-life in root-zone soil (d)	Thalf_s	n/a	n/a	1.20	1	
Reaction half-life in vadose-zone soil (d)	Thalf_v	n/a	n/a	1.00	1	
Reaction half-life in ground water (d)	Thalf_q	n/a	n/a	1.30	1	
Reaction half-life in surface water (d)	Thalf_w	n/a	n/a	1.20	1	
Reaction half-life in sediments (d)	Thalf_d	n/a	n/a	1.40	1	
Reaction half-life in the leaf surface (d)	Thalf_ls	n/a	n/a	1.00	1	

Landscape properties

site name	Calif. Residential Site (CA Res.)		Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Contaminated area in m2	Area	4.11 E+11	4.11E+11	0.10	1	(m/y)
	Annual average precipitation (m/d)	rain	1.12 E-03	1.12E-03	0.56	1	4.07 E-01
	Not currently used	rain_days	2.00 E+01	2.00E+01	0.20	1	
	Flux; surface water into landscape (m/d)	inflow	0.00 E+00	0.00E+00	0.10	1	0.00 E+00
	Land surface runoff (m/d)	runoff	5.37 E-04	6.10E-04	1.00	1	1.96 E-01
	Atmospheric dust load (kg/m3)	rhob_a	6.15 E-08	6.15E-08	0.20	1	
	Dry deposition velocity, air particles (m/d)	v_d	5.00 E+02	5.00E+02	0.30	1	
	Aerosol organic fraction	foc_ap	2.00 E-01	2.00E-01	1.00	1	
	Volume fraction of water in leaf	beta_leaf	5.00 E-01	5.00E-01	0.05	1	
	Volume fraction of air in leaf	alpha_leaf	1.80 E-01	1.80E-01	0.20	1	
	Volume fraction of lipid in leaf	lipid_leaf	2.00 E-03	2.00E-03	0.20	1	
	Volume fraction of water in stem	beta_stem	4.00 E-01	4.00E-01	0.15	1	
	Volume fraction of water in root	beta_root	6.00 E-01	6.00E-01	0.15	1	
	Primary production dry vegetation(kg/m2/y)	veg_prod	9.00 E-01	9.00E-01	1.00	1	
	One-sided Leaf Area Index	LAI -	3.63 E+00	-9.90E+01	0.40	1	
	Wet interception fraction	IF_w	1.00 E-01	1.00E-01	0.10	1	
	Avg thickness of leaf surface(cuticle)(m)	d_cuticle	2.00 E-06	2.00E-06	0.20	1	
	Stem wet density (kg/m3)	rho_stm	8.30 E+02	8.30E+02	0.20	1	
	Leaf wet density (kg/m3)	rho_leaf	8.20 E+02	8.20E+02	0.30	1	
	Root wet density (kg/m3)	rho_root	8.00 E+02	8.00E+02	0.05	1	
	Veg attenuation fctr, dry interception(m2/kg)	atf_leaf	2.90 E+00	2.90E+00	0.01	1	

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes
Stomata area frctn(area stomata/area leaf)	na_st	7.00 E-03	7.00E-03	0.20	1	
Effective pore depth	del_st	2.50 E-05	2.50E-05	0.20	1	
Boundary layer thickness over leaf	del_a	2.00 E-03	2.00E-03	1.00	1	
Leaf surface erosion half-life (d)	Thalf_le	1.40 E+01	1.40E+01	1.00	1	
Ground-water recharge (m/d)	recharge	5.58 E-05	5.58E-05	1.00	1	2.04 E-02
Evaporation of water from surface wtr (m/d)	evaporate	6.85 E-05	6.85E-05	1.00	1	
Thickness of the ground soil layer (m)	d_g	1.00 E-02	1.00E-02	1.00	1	
Soil particle density (kg/m3)	rhos_s	2.60 E+03	2.60E+03	0.05	1	
Water content in surface soil (vol fraction)	beta_g	1.92 E-01	1.92E-01	0.33	1	
Air content in the surface soil (vol frctn)	alpha_g	2.66 E-01	2.66E-01	0.29	1	cm/y
Erosion of surface soil (kg/m2-d)	erosion_g	2.03 E-04	2.03E-04	1.00	1	0.0047216
Bioturbation (m^2/d)	D_bio	1.20 E-04	1.20E-04	1.00	1	
Thickness of the root-zone soil (m)	d_s	7.85 E-01	7.85E-01	0.47	1	
Water content of root-zone soil (vol. frctn.)	beta_s	2.06 E-01	2.06E-01	0.34	1	
Air content of root-zone soil (vol. frctn.)	alpha_s	2.53 E-01	2.53E-01	0.31	1	
Thickness of the vadose-zone soil (m)	d_v	5.57 E-01	5.57E-01	0.37	1	
Water content; vadose-zone soil (vol. frctn.)	beta_v	2.02 E-01	2.02E-01	0.32	1	
Air content of vadose-zone soil (vol. frctn.)	alpha_v	2.36 E-01	2.36E-01	0.30	1	
Thickness of the aquifer layer (m)	d_q	3.00 E+00	3.00E+00	0.30	1	
Solid material density in aquifer (kg/m3)	rhos_q	2.60 E+03	2.60E+03	0.05	1	
Porosity of the aquifer zone	beta_q	2.00 E-01	2.00E-01	0.20	1	
Fraction of land area in surface water	f_arw	1.82 E-02	1.82E-02	0.20	1	
Average depth of surface waters (m)	d_w	5.00 E+00	5.00E+00	1.00	1	
Suspended sedmnt in surface wtr (kg/m3)	rhob_w	8.00 E-01	8.00E-01	1.00	1	
Suspended sdmnt deposition (kg/m2/d)	deposit	1.05 E+01	1.05E+01	0.30	1	(m/s)
Thickness of the sediment layer (m)	d_d	5.00 E-02	5.00E-02	1.00	1	
Solid material density in sediment (kg/m3)	rhos_d	2.60 E+03	2.60E+03	0.05	1	
Porosity of the sediment zone	beta_d	2.00 E-01	2.00E-01	0.20	1	m/y
Sediment burial rate (m/d)	bury_d	1.00 E-06	1.00E-06	5.00	1	3.65 E-04
Ambient environmental temperature (K)	Temp	2.89 E+02	2.89E+02	0.06	1	(m/s)
Surface water current in m/d	current_w	0.00 E+00	0.00E+00	1.00	1	0.00 E+00

Landscape properties (continued)

site name	Calif. Residential Site (CA Res.)	Value used	Mean value	Coeff. Var.	Adjustment	Notes
Organic carbon fraction in upper soil zone	foc_s	1.44 E-02	8.47E-03	1.98	1	
Organic carbon fraction in vadose zone	foc_v	3.06 E-03	3.06E-03	0.96	1	
Organic carbon fraction in aquifer zone	foc_q	3.06 E-03	3.06E-03	0.96	1	
Organic carbon fraction in sediments	foc_d	2.00 E-02	2.00E-02	1.00	1	
Bdry lyr thickness in air above soil (m)	del_ag	5.00 E-03	5.00E-03	0.20	1	(m/s)
Yearly average wind speed (m/d)	v_w	2.80 E+05	2.80E+05	0.17	1	3.24 E+00

Human Exposure Factors

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Body weight (kg)	BW	6.20 E+01	6.20E+01	0.20	1
	Surface area (m2/kg)	SAb	2.60 E-02	2.60E-02	0.07	1
	Active breathing rate (m3/kg-h)	BRa	1.90 E-02	1.90E-02	0.30	1
	Resting breathing rate (m3/kg-h)	BRr	6.40 E-03	6.40E-03	0.20	1
	Fluid Intake (L/kg-d)	lfl	2.20 E-02	2.20E-02	0.20	1
	Fruit and vegetable intake (kg/kg-d)	lfr	4.90 E-03	4.90E-03	0.20	1
	Grain intake (kg/kg-d)	lgr	3.70 E-03	3.70E-03	0.20	1
	Milk intake (kg/kg-d)	lml	6.50 E-03	6.50E-03	0.20	1
	Meat intake (kg/kg-d)	lmt	3.00 E-03	3.00E-03	0.20	1
	Egg intake (kg/kg-d)	legg	4.60 E-04	4.60E-04	0.30	1
	Fish intake (kg/kg-d)	lfsh	2.90 E-04	2.90E-04	0.40	1
	Soil ingestion (kg/d)	lsl	3.50 E-07	3.50E-07	3.00	1
	Breast milk ingestion by infants (kg/kg-d)	lbr	1.10 E-01	1.10E-01	0.20	1
	Inhalation by cattle (m3/d)	lnc	1.22 E+02	1.22E+02	0.30	1
	Inhalation by hens (m3/d)	lnh	2.20 E+00	2.20E+00	0.30	1
	Ingestion of pasture, dairy cattle (kg[FM]/d)	lvdc	8.50 E+01	8.50E+01	0.20	1
	Ingestion of pasture, beef cattle (kg[FM]/d)	lvbc	6.00 E+01	6.00E+01	0.40	1
	Ingestion of pasture by hens (kg[FM]/d)	lvh	1.20 E-01	1.20E-01	0.04	1
	Ingestion of water by dairy cattle (L/d)	lwdc	3.50 E+01	3.50E+01	0.20	1
	Ingestion of water by beef cattle (L/d)	lwbc	3.50 E+01	3.50E+01	0.20	1
	Ingestion of water by hens (L/d)	lwh	8.40 E-02	8.40E-02	0.10	1
	Ingestion of soil by cattle (kg/d)	lsc	4.00 E-01	4.00E-01	0.70	1
	Ingestion of soil by hens (kg/d)	lsh	1.30 E-05	1.30E-05	1.00	1

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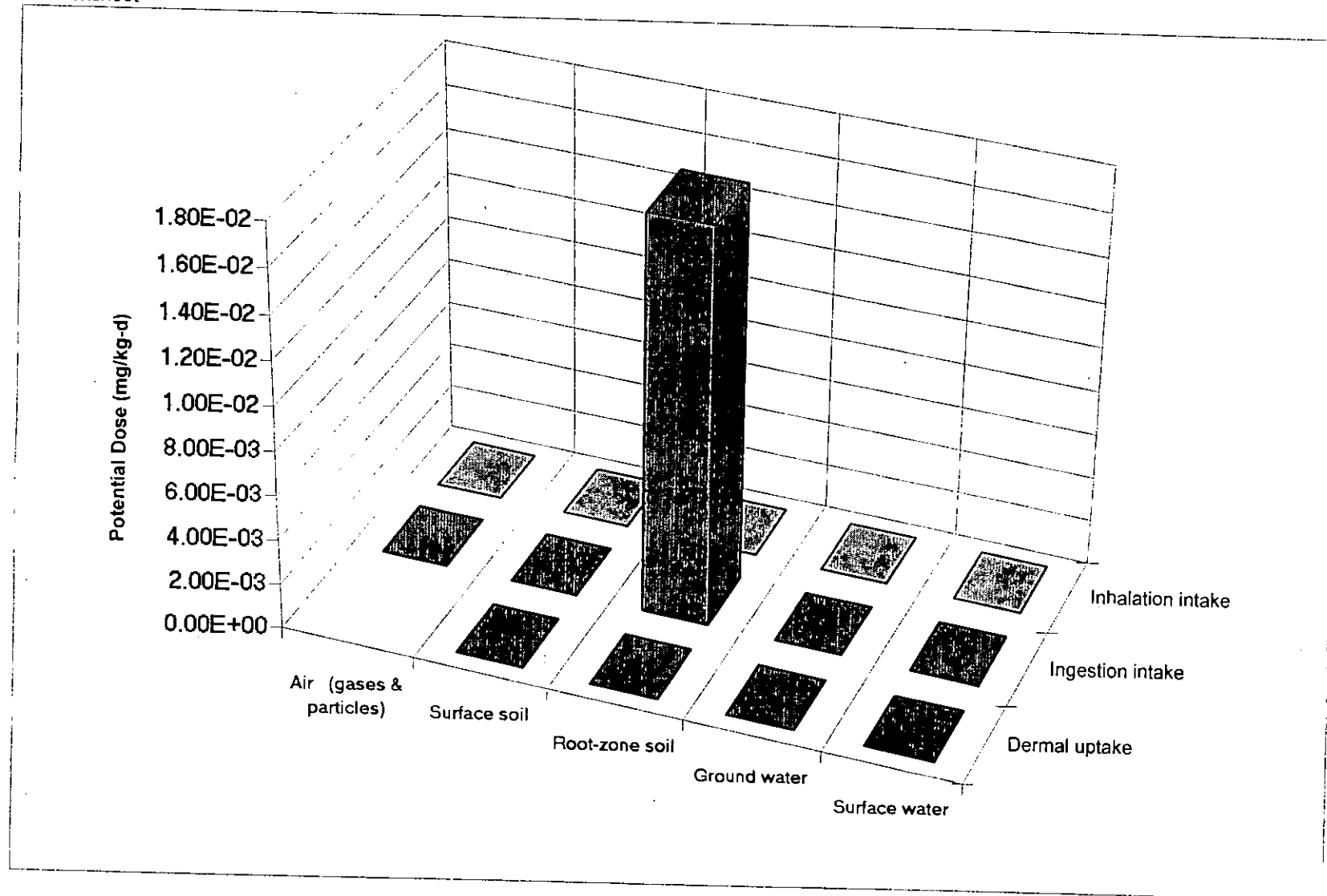
Human Exposure Factors (continued)

scenario	(Residential) Exposure Factors	Value used	Mean value	Coeff. Var.	Adjustment	Notes
	Fraction of water needs from ground water	fw_gw	8.00 E-01	8.00E-01	0.10	1
	Fraction of water needs from surface water	fw_sw	2.00 E-01	2.00E-01	0.10	1
	Water irrigation rate applied to agr.soil (l/m ² -d)	R_irr	2.59 E+00	2.59E+00	1.00	1
	Frctn frts & vgtbls that are exposed produce	fabv_grd_v	4.70 E-01	4.70E-01	0.10	1
	Fraction of fruits and vegetables local	flocal_v	2.40 E-01	2.40E-01	0.70	1
	Fraction of grains local	flocal_g	1.20 E-01	1.20E-01	0.70	1
	Fraction of milk local	flocal_mk	4.00 E-01	4.00E-01	0.70	1
	Fraction of meat local	flocal_mt	4.40 E-01	4.40E-01	0.50	1
	Fraction of eggs local	flocal_egg	4.00 E-01	4.00E-01	0.70	1
	Fraction of fish local	flocal_fsh	7.00 E-01	7.00E-01	0.30	1
	Plant-air prttn fctr, particles, m ³ /kg[FM]	Kpa_part	3.30 E+03	3.30E+03	1.80	1
	Rainsplash (mg/kg[plnt FM])/(mg/kg[dry soil])	rainsplash	3.40 E-03	3.40E-03	1.00	1
	Water use in the shower (L/min)	Wshower	8.00 E+00	8.00E+00	0.40	1
	Water use in the House (L/h)	Whouse	4.00 E+01	4.00E+01	0.40	1
	Room ventilation rate, bathroom (m ³ /min)	VRbath	1.00 E+00	1.00E+00	0.40	1
	Room ventilation rate, house (m ³ /h)	VRhouse	7.50 E+02	7.50E+02	0.30	1
	Exposure time, in shower or bath (h/day)	ETsb	2.70 E-01	2.70E-01	0.60	1
	Exposure time, active indoors (h/day)	ETai	8.00 E+00	8.00E+00	0.14	1
	Exposure time, outdoors at home (h/day)	ETao	3.00 E-01	3.00E-01	0.14	1
	Exposure time, indoors resting (h/day)	ETri	8.00 E+00	8.00E+00	0.04	1
	Indoor dust load (kg/m ³)	dust_in	3.00 E-08	3.00E-08	0.40	1
	Exposure frequency to soil on skin, (d/y)	EFsl	1.37 E+02	1.37E+02	0.60	1
	Soil adherence to skin (mg/cm ²)	Slsk	5.00 E-01	5.00E-01	0.40	1
	Ratio of indoor gas conc. to soil gas conc.	alpha_inair	1.00 E-04	1.00E-04	2.00	1
	Exposure time swimming (h/d)	ETsw	5.00 E-01	5.00E-01	0.50	1
	Exposure frequency, swimming (d/y)	EFsw	1.50 E+01	1.50E+01	4.00	1
	Water ingestion while swimming (L/kg-h)	lsww	7.00 E-04	7.00E-04	1.00	1
	Exposure duration (years)	ED	1.40 E+01	1.40E+01	1.15	1
	Averaging time (days)	AT	2.56 E+04	2.56E+04	0.10	1

Constants

Gas Constant (Pa-m ³ /mol-K)	8.31E+00	Rgas
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thisisacaltoxsheet



Exposure Pathway-Include-and-Exclude Toggles

All inhalation exposures indoors active	0	Contaminant transfer, air to plants surfaces	1
All inhalation exposures indoors resting	0	Contaminant transfer, grnd. soil to plant surfaces	1
Inhalation exposure in shower/bath	0	Contaminant transfer, root soil to plant tissues	1
Inhalation exposures outdoors active	1	On-site grazing of animals	1
Inhalation of air particles indoors	0	Ingestion of home-grown exposed produce	1
Transfer of soil dust to indoor air	0	Ingestion of home-grown unexposed produce	1
Transfer of soil vapors to indoor air	0	Ingestion of home-grown meat	0
On-site inhalation by animals	1	Ingestion of home-grown milk	0
Use of ground water as tap water	0	Ingestion of home-grown eggs	0
Use of surface water as tap water	0	Ingestion of locally caught fish	0
Ingestion of tap water	1	Direct soil ingestion	1
Use of ground water for irrigation	0	Soil contact exposure at home or at work	1
Use of surface water for irrigation	0	Dermal exposure during shower/bath	0
Use of ground water for feeding animals	0	Dermal & ingestion exposures while swimming	0
Use of surface water for feeding animals	0	Breast-milk ingestion by infants	1

MEDIA AND CORRESPONDING POTENTIAL DOSES IN mg/kg-d (averaged over the exposure duration)

PATHWAYS	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	Totals	%
INHALATION	1.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-09	0.00
INGESTION:							
Water				0.00E+00	0.00E+00	0.00E+00	0.00
Exposed produce	1.95E-05	1.90E-05	1.77E-02	0.00E+00	0.00E+00	1.78E-02	99.59
Unexposed produce			5.62E-05	0.00E+00	0.00E+00	5.62E-05	0.32
Meat	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Milk	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Eggs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00
Fish					0.00E+00	0.00E+00	0.00
Soil		1.58E-08	1.64E-08			3.22E-08	0.00
Total ingestion	1.95 E-05	1.90 E-05	1.78 E-02	0.00 E+00	0.00 E+00	1.78 E-02	99.91
DERMAL UPTAKE		8.24E-06	8.55E-06	0.00E+00	0.00E+00	1.68E-05	0.09
Dose SUM	1.95E-05	2.72E-05	1.78E-02	0.00E+00	0.00E+00	1.78E-02	100.0

Breast milk concentration	Air (gases & particles)	Surface soil	Root-zone soil	Ground water	Surface water	total
	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Infant dose	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	dose_bm 0.00 E+00

Ingestion dose used =>	1.78 E-02
Total dose used =>	1.78 E-02

ENVIRONMENTAL Media CONCENTRATIONS	Air (gases) mg/m^3 (air)	Air (dust) mg/m^3 (air)	Ground soil mg/kg(soil solids)	Root soil mg/kg(soil solids)	Ground water mg/L (pure)	Surface water mg/L (pure)
	0.00 E+00	2.74 E-07	5.59E+00	5.80 E+00	9.43 E+00	1.92 E-01

EXPOSURE MEDIA CONCENTRATIONS (averaged over the exposure duration)

EXPOSURE	Air (gases)	Air (dust)	Ground soil	Root soil	Ground water	Surface water
Indoor air (mg/m ³)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Bathroom air (mg/m ³)					0.00 E+00	0.00 E+00
Outdoor air (mg/m ³)	0.00 E+00	2.74 E-07				
Tap water (mg/L)					0.00 E+00	0.00 E+00
Exposed produce (mg/kg)	0.00 E+00	1.96 E-02	1.90 E-02	1.78 E+01	0.00 E+00	0.00 E+00
Unexposed produce (mg/kg)				9.02 E-02	0.00 E+00	0.00 E+00
Meat (mg/kg)	0.00 E+00	1.41 E-01	4.05 E-01	1.28 E+02	0.00 E+00	0.00 E+00
Milk (mg/kg)	0.00 E+00	1.66 E-02	3.85 E-02	1.51 E+01	0.00 E+00	0.00 E+00
Eggs (mg/kg)	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Fish and seafood (mg/kg)						2.42 E+01
Household soil (mg/kg)			2.80 E+00	2.90 E+00		
Swimming water (mg/L)						1.96 E-01

PATHWAY CONTACT FACTORS (CR/BW*FI)

EXPOSURE Media	Units	Inhalation	Ingestion	Dermal
Indoor air (active)		0.00 E+00		
Indoor air (resting)		0.00 E+00		
Indoor air (shower/bath)		0.00 E+00		
Outdoor air (active)		5.70 E-03		
Tap water			2.20 E-02	0.00 E+00
Exposed produce			9.97 E-04	
Unexposed produce			6.23 E-04	
Meat			0.00 E+00	
Milk			0.00 E+00	
Eggs			0.00 E+00	
Fish and seafood			0.00 E+00	
Household soil			5.65 E-09	2.95 E-06
Swimming wtr			0.00 E+00	0.00 E+00

Dose ratios	inh-dose/Ns	ing-dose/Ns	drml-dose/Ns	inh-dose/Nq	ing-dose/Nq	drml-dose/Nq
	3.3 E-20	3.7 E-13	3.5 E-16	0.0 E+00	0.0 E+00	0.0 E+00

Time (y)	Total inhalation dose	Total ingestion dose	Total dermal dose	Total dose	Total dose from root soil	Total dose from ground water
1	1.6 E-09	1.9 E-02	1.8 E-05	1.9 E-02	1.9 E-02	0.0 E+00
2.4	1.6 E-09	1.9 E-02	1.7 E-05	1.9 E-02	1.9 E-02	0.0 E+00
3.8	1.6 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
5.2	1.6 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
6.6	1.6 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
8	1.6 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
9.4	1.5 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
10.8	1.5 E-09	1.7 E-02	1.6 E-05	1.7 E-02	1.7 E-02	0.0 E+00
12.2	1.5 E-09	1.7 E-02	1.6 E-05	1.7 E-02	1.7 E-02	0.0 E+00
13.6	1.5 E-09	1.7 E-02	1.6 E-05	1.7 E-02	1.7 E-02	0.0 E+00
15	1.5 E-09	1.7 E-02	1.6 E-05	1.7 E-02	1.7 E-02	0.0 E+00
Cumulative doses				91.14865555		
over ED by route, mg/kg	8.0 E-06	9.1 E+01	8.6 E-02	9.1 E+01	9.1 E+01	0.0 E+00
fraction	0.0000	0.9991	0.0009	1.0000	1.000	0.000
Average doses						
over ED by route, mg/kg-d	1.6 E-09	1.8 E-02	1.7 E-05	1.8 E-02	1.8 E-02	0.0 E+00
Maximum doses						
over ED by route, mg/kg-d	1.6 E-09	1.9 E-02	1.8 E-05	1.9 E-02	1.9 E-02	0.0 E+00
fraction	0.0000	0.9991	0.0009	1.0000	1.000	0.000

Max breast-milk dose

0.0 E+00

mg/kg-d

Max ing	1.9 E-02
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Off-site 1-h max X/Q (mol/m ³ -s)	6.7 E-06
Off-site Long-term X/Q	5.4 E-07
On-site Long-term X/Q	3.0 E-09
Off-site air dilution factor	1.0 E+00

Off-site pseudo Sa = 1.1 E+03 mol/day
 bbb2 = 1.2 E+03 bbb4 = 4.6 E+07
 bbb3 = 4.9 E+04 bbb5 = 2.8 E+07
 fugacity off-site fugacity on-site

Off-site air concentration (gases)	0.0 E+00	mg/m ³	2.2 E-03	2.2 E-03	air
Off-site concentration (particles)	2.7 E-07	mg/m ³			
Off-site surface-water concentrtn.	2.1 E-04	mg/L	3.2 E-06	2.9 E-03	water
Off-site surface soil concentration	5.9 E-03	mg/kg	2.9 E-06	2.8 E-03	ground soil
Off-site root-soil concentration	5.5 E-03	mg/kg	2.8 E-06	2.9 E-03	root soil

Off-site ground-water dilution	0
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w	erf(w)
0.0 E+00	0.0 E+00
Dispsn redctn	1.0 E+00
decay reductn.	1.0 E+00

Darcy velociy of water	v_darc	1.0 E-01 m/d
Contaminant velocity	Vc	1.5 E-03 m/d
Trnsvrs. disprsn. coeff. (water)	D_T	5.0 E-02 m ² /d
Trnsvrs. disprsn. coeff. (chem)	D_Tc	7.7 E-04 m ² /d
Dispersion depth	dzz	3.0 m
Thickness of aquifer	d_q	3 m
Transverse dispersivity (chem)	alpha_t	5.0 E-01 m
Width of the contaminated area	Y	641459 m
Distrance to off-site location	X	0 m
Mass tranfer rate, aquifer - out	T_qo	2.4 E-09 1/d

Calculated Properties

fugacity capacity of pure air	0.00E+00	Zair		
fugacity capacity of pure water	1.00E+00	Zwater		
height of the air compartment (m)	7.00E+02	d_a		
evapotranspiration of water from soil (m/d)	5.03E-04	evapotrans	1.84 E-01	m/y
transpiration of water from plants (m/d)	5.03E-04	transpire	1.84 E-01	m/y
Total surface water runoff (m/d)	4.89E-04	outflow	1.78 E-01	m/y
bndry lyr thickness in air above wtr (m)	1.38E-03	del_aw		
bndry lyr thickness in wtr below air (m)	5.42E-04	del_wa		
diffusion length in surface soil (m)	1.37E-02	del_g		
diffusion length in upper soil (m)	6.69E-01	del_s		
Thickness of the root-zone soil layer	9.40E-01	d_s		
wtr-side bndry lyr thickness with sed (m)	2.00E-02	del_wd		
sed-side bndry lyr thickness with wtr (m)	9.45E-03	del_dw		
Initial concentration in soil (mol/m ³)	1.33E-01	Cs0		
Initial conc. in the vadose zone (mol/m ³)	0.00E+00	Cv0		
Sediment resuspension rate (kg/m ² -d)	1.05E+01	resuspend		
soil particle density; surface layer(kg/m ³)	2.60E+03	rhos_g		
soil particle density; vadose layer(kg/m ³)	2.60E+03	rhos_v		
Initial inventory in groundwater zone	0.00E+00	Nq0		
diffusion lag time in skin (h)	2.67E-02	tlag		
Skin/water partition coefficient	6.40E-02	Km		
Reaction rate constant in air (1/d)	0.00E+00	Ra		
Reaction rate constant, ground soil (1/d)	0.00E+00	Rg		
Reaction rate constant, root-zone soil (1/d)	0.00E+00	Rs		
Reaction rate constant, vadose-zone soil (1/d)	0.00E+00	Rv		
Reaction rate constant, ground water (1/d)	0.00E+00	Rq		
Reaction rate constant, surface water (1/d)	0.00E+00	Rw		
Reaction rate constant, sediment (1/d)	0.00E+00	Rd		
Reaction rate constant in leaf surface (1/d)	0.00E+00	Rls		
Continuous source term to air (mol/d)	0.00E+00	Sa		
Root lipid in root-zone soil(m ³ (organic)/m ³ (soil))	5.93E-03	RootLipid		

Leaf wet mass per area of soil (kg/m ²)	1.15E+00	bm_leaf		
Wood and stem wet mass per area of soil(kg/m ²)	2.69E+01	bm_stem		
Root wet mass per area of root-zone soil(kg/m ²)	1.11E+01	bm_root		
Interception fraction for dry deposition on leaf	7.29E-01	IF_d		
Volume of the stem (m ³)	1.31E+10	Vstm		
stomatal conductance (m/d)	n/a	mtc_s		
cuticular conductance (m/d)	n/a	mtc_c		
air side conductance over leaf (m/d)	n/a	mtc_a		
cuticle water permeance (m/d)	n/a	mtc_l		
conductance air/cuticle (m/d)	n/a	mtc_ct		
conductance air/stomata (m/d)	n/a	mtc_st		
root-soil / stem transfer factor	1.22E-05	x_rs		
stem / leaf transfer factor	3.88E-02	x_sl		
leaf / stem transfer factor	3.65E-02	p_ls		
stem / root-soil transfer factor	1.94E-03	p_sr		

Warnings

- 0 Ground soil depth greater than 2 cm
- 0 Root-zone soil too shallow for accuracy of diffusion model (must be at least 1.4*del_s)
- 0 Starting time cannot be 0 and should be greater than 365 day
- 0 Recharge velocity is negative
- 0 Recharge velocity is too large accuracy of model
- 0 Concentration in root-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in vadose-zone soil-water <0 or exceeds solubility when there are non-zero sources
- 0 Concentration in groundwater exceeds solubility or < 0
- 0 Concentration in surface water exceeds solubility
- 0 Concentration in sediment-zone water exceeds solubility
- 0 Exposure time indoors and outdoors at home or at work exceeds 24 h
- 0 Risk from breast milk exposure is large compared to other ingestion pathways
- 0 Hazard from breast milk exposure is large compared to other ingestion pathways
- 0 Fraction of water from groundwater plus fraction from surface >1
- 0 total

Fugacity (Pa)

Air	fa	2.21E-03
Cuticle	fc	2.26E-03
Leaf	fl	4.54E-01
Ground	fg	2.78E-03
Root	fs	2.88E-03
Vadose	fv	1.88E-05
Water	fw	2.95E-03
Sediment	fd	2.94E-03
Groundwater	fq	1.45E-01

Compartment Volumes (m³)

Va	2.9 E+14	Air compartment
Vc	5.93E+06	Cuticle compartment
Vl	5.62E+08	Leaf compartment
Vg	4.0 E+09	Ground-soil compartment
Vs	3.8 E+11	Root-zone compartment
Vv	2.3 E+11	Vadose compartment volume
Vw	3.7 E+10	Water compartment
Vd	3.7 E+08	Sediment compartment
Vq	1.2 E+12	aquifer compartment

rhob_c 0.01141113 Volume fraction of atmospheric particles on cuticle (m³/m³)

Fugacity Capacities (mol/m³ per Pa)

phi

#VALUE!

Zap	8.06E+01	fugacity capacity of air particles in mol/m ³ [s]-Pa
Zgp	8.06E+01	fugacity capacity of ground soil compartment particles in mol/m ³ [s]-Pa
Zsp	8.06E+01	fugacity capacity of root zone compartment particles in mol/m ³ [s]-Pa
Zvp	8.06E+01	fugacity capacity of vadose zone compartment particles in mol/m ³ [s]-Pa
Zwp	8.06E+01	fugacity capacity of suspended sediment in surface water in mol/m ³ [s]-Pa
Zdp	8.06E+01	fugacity capacity of bottom sediment particles in mol/m ³ [s]-Pa
Zqp	8.06E+01	fugacity capacity of aquifer solids in mol/m ³ -Pa
Zleaftotal	5.04E-01	fugacity capacity of the total leaf compartment in mol/Pa/m ³
Za	1.91E-09	fugacity capacity of air compartment in mol/m ³ -Pa
Zc	9.20E-01	fugacity capacity of leaf surface compartment in mol/Pa/m ³
Zl	5.00E-01	fugacity capacity of internal leaf compartment in mol/Pa/m ³
Zg	4.39E+01	fugacity capacity of ground soil compartment in mol/m ³ -Pa
Zs	4.38E+01	fugacity capacity of root-soil compartment in mol/m ³ -Pa
Zv	4.55E+01	fugacity capacity of vadose-zone compartment in mol/m ³ -Pa
Zw	1.02E+00	fugacity capacity of water compartment in mol/m ³ -Pa
Zd	6.47E+01	fugacity capacity of sediment compartment in mol/m ³ -Pa
Zq	6.47E+01	fugacity capacity of aquifer compartment in mol/m ³ -Pa

Diffusion coefficients in m ² /d				Boundary-layer thickness (del)	Fugacity mass-transfer coefficients mol/Pa-m ² -d		Overall intercompartment mass transfer rate constants (1/day)			Compartment Interface
Compartment	Phase	Compartment	Y		Diffusion	Advection	Total			
			one-sided					both-sides		
Dair	6.40E-01	Da	0.00E+00	1.38E-03	0.00E+00	0.00E+00	1.45E-02	1.45E-02	air-water, T_aw	
Dwater	1.30E-04	Dw	1.27E-04	5.42E-04	2.40E-01	0.00E+00	0.00E+00	0.00E+00	water-air, T_wa	
Dair_g	3.69E-02	Dg	1.20E-04	5.00E-03	0.00E+00	0.00E+00	2.61E-01	2.61E-01	air-ground, T_ag	
Dwater_g	2.54E-06			1.37E-02	3.85E-01	0.00E+00	2.17E-06	2.17E-06	ground-air, T_ga	
Dair_s	3.12E-02	Ds	1.20E-04	1.37E-02	3.85E-01	7.70E-03	1.76E-02	1.77E-02	ground-soil, T_gs	
Dwater_s	3.19E-06			6.69E-01	7.86E-03		1.87E-04	1.87E-04	soil-ground, T_sg	
Dair_v	2.70E-02	Dv	1.20E-04	6.69E-01	7.86E-03	4.01E-03		1.36E-06	soil-vadose, T_sv	
Dwater_v	3.29E-06			6.69E-01	8.17E-03				vadose-soil, T_vs	
Dwater_d	1.52E-05	Dd	2.35E-07	2.00E-02	6.66E-03	1.30E-03	2.53E-04	6.35E-02	6.38E-02	water-sediment, T_wd
				9.45E-03	1.61E-03		4.01E-04	1.01E-01	1.01E-01	sediment-water, T_dw
							0.00E+00	5.29E-01	5.29E-01	air-cuticle, T_ac
							0.00E+00	2.48E-03	2.48E-03	cuticle-air, T_ca
							0.00E+00		0.00E+00	air - leaf T_al
							0.00E+00		0.00E+00	leaf-air, T_la
							0.00E+00		0.00E+00	cuticle-leaf, T_cl
							0.00E+00		0.00E+00	leaf-cuticle, T_lc
aaa1	2.69E+00		C0_1	5.06E+10						cuticle-ground T_cg
aaa2	2.30E-01		C0_2	0.00E+00		aaa6	5.06E+10	2.74E-03	2.74E-03	leaf-ground T_lg
aaa3	2.47E-06		S_1	0.00E+00		aaa7	4.08E+09	1.84E-03	1.84E-03	leaf-soil, T_ls
aaa4	0.00E+00		S_2	0.00E+00		aaa8	-4.08E+09	1.22E-05	1.22E-05	soil-leaf, T_sl
aaa5	1.03E-02		AA	3.83E-04		bbb4	0.00E+00		0.00E+00	ground-cuticle, T_gc
bbb1	0.00E+00		BB	0.00E+00		bbb5	0	2.20E-06	2.20E-06	vadose-aquifer, T_vq
bbb2	0.00E+00		CC	1.36E-06		Lam1	1.9E-05	2.49E-05	2.49E-05	sediment-out, T_do
bbb3	0.00E+00		DDD	2.20E-06				1.00E-01	1.00E-01	air-out, T_ao
ccc1	4.58E-03		Gam1	-2.20E-06				1.24E-03	1.24E-03	ground-water, T_gw
ccc2	0.00E+00		Gam2	-3.83E-04				5.36E-03	5.36E-03	water-out, T_wo
ccc3	8.79E-01		Gm1mGm2	3.80E-04						
ccc4	0.00E+00		Gam1p	3.83E-04						
ccc5	7.64E-01		Gam2p	2.20E-06						
ccc6	2.74E-03		Gm1mGm2p	3.80E-04						

Source terms (g/d)

air	0.0 E+00	ground	0.0 E+00	water	0.0 E+00
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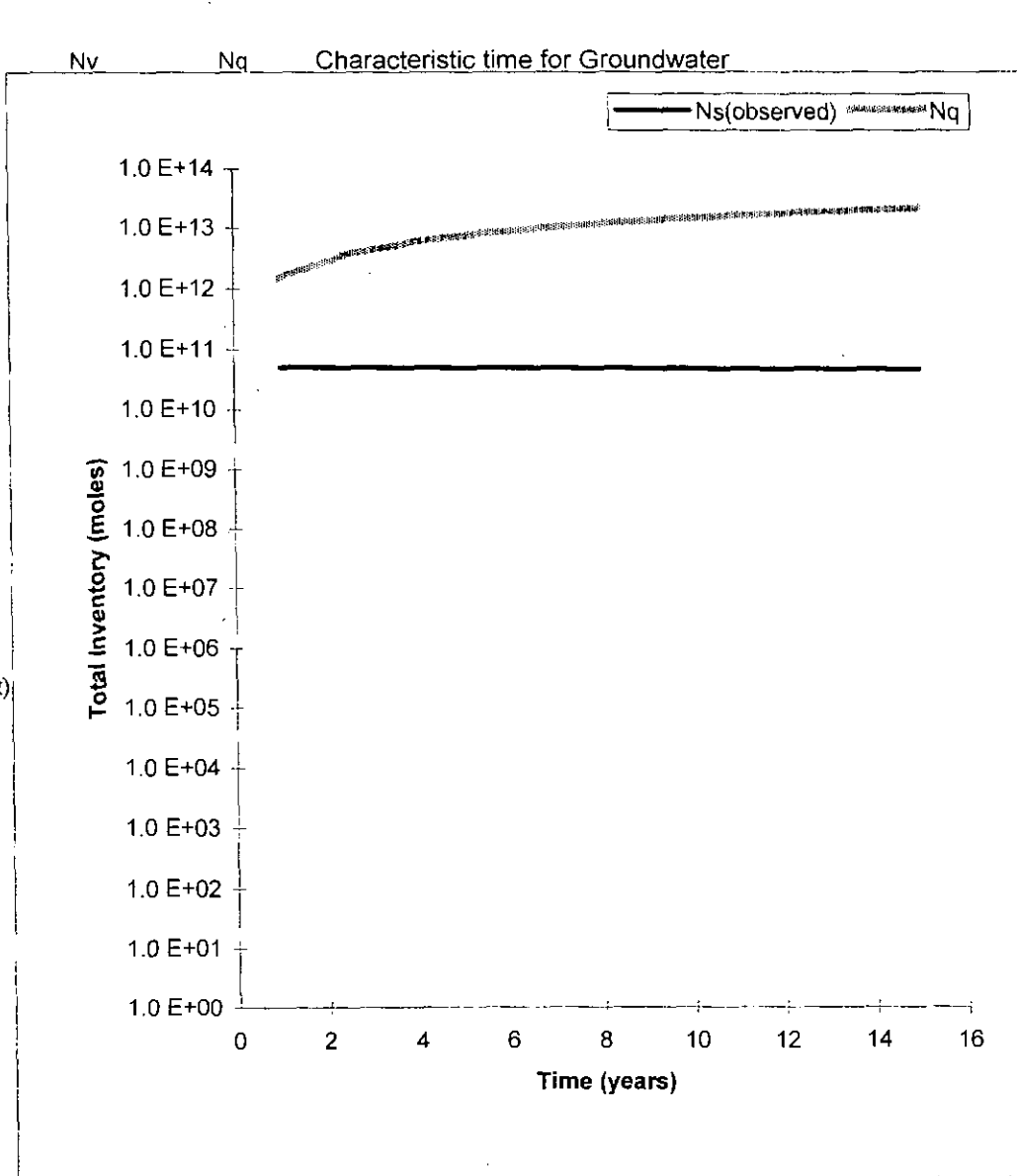
Compartment Name		Loss-rate constant (1/day)	Total Inventory (moles)	Concentration (mol/m3)	Mass distribution %	Gains g/d	Losses g/d	Residence Time (days)
		L	N	C				
air	a	9.04E-01	1.22E+03	4.22E-12	0.00%	7.14E+04	7.14E+04	1.11E+00
leaf	l	4.58E-03	1.28E+08	2.27E-01	0.00%	3.80E+07	3.80E+07	2.18E+02
cuticle	c	5.22E-02	1.23E+04	2.07E-03	0.00%	4.18E+04	4.18 E+04	1.91E+01
ground-soil	g	1.89E-02	4.92E+08	1.22E-01	0.00%	6.05E+08	6.05E+08	5.28E+01
root-soil	s	2.01E-04	4.79E+10	1.26E-01	0.41%	5.81E+08	6.25E+08	4.98E+03
vadose-zone	v	2.20E-06	1.93E+08	8.56E-04	0.00%	4.22E+06	2.75E+04	4.54E+05
surface water	w	6.92E-02	1.13E+08	3.02E-03	0.00%	5.09E+08	5.09E+08	1.45E+01
sediment	d	1.01E-01	7.14E+07	1.90E-01	0.00%	4.69E+08	4.69E+08	9.88E+00
aquifer	q	1.00E-05	1.16E+13	9.38E+00	99.58%	2.75E+04	7.53E+09	1.00E+05

Mass Flows (g/d)

air-ground	2.06E+04	Tag*Na*MW	ground-water	3.96E+07	Tgw*Ng*MW
air-water	1.14E+03	Taw*Na*MW	ground-trnsfrm	0.00E+00	Rg*Ng*MW
air-out	7.93E+03	Tao*Na*MW	soil-ground	5.82E+08	Tsg*Ns*MW
air-leaves	0.00E+00	Tal*Na*MW	soil-leaves	3.80E+07	Tsl*Ns*MW
air-leaf surfaces	4.18E+04	Tac*Na*MW	soil-vadose	4.22E+06	Tsv*Ns*MW
air-transform	0.00E+00	Ra*Na*MW	soil-trnsfrm	0.00E+00	Rs*Ns*MW
leaves-air	0.00E+00	Tla*NI*MW	vadose-aquifer	2.75E+04	Tvq*Nv*MW
leaves-leaf surfaces	0.00E+00	Tlc*NI*MW	vadose-trnsfrm	0.00E+00	Rv*Nv*MW
leaves-ground	2.27E+07	Tlg*NI*MW	aquifer-removal	7.53E+09	Lq*Nq*MW
leaves-soil	1.53E+07	Tls*NI*MW	water-air	0.00E+00	Twa*Nw*MW
leaf-surface - air	1.98E+03	Tca*Nc*MW	water-sediment	4.69E+08	Twd*Nw*MW
leaf-surfaces - leaves	0.00E+00	Tcl*Nc*MW	water-out	3.95E+07	Two*Nw*MW
leaf-surfaces - ground	3.98E+04	Tcg*Nc*MW	water-trnsfrm	0.00E+00	Rw*Nw*MW
leaf surfaces-trnsfrm	0.00E+00	Rls*Nc*MW	sediment-water	4.69E+08	Tdw*Nd*MW
ground-air	6.95E+04	Tga*Ng*MW	sedmnt-trnsfrm	0.00E+00	Rd*Nd*MW
ground-leaf surface	0.00E+00	T_gc*Ng*MW	sediment-out	1.16E+05	Tdo*Nd*MW
ground-soil	5.65E+08	Tgs*Ng*MW			

Time-dependent Compartment Inventories

		Plot	
Time (y)	Time (d)	Ns(observed)	Nq
1	365	5.0 E+10	1.5 E+12
2.4	876	5.0 E+10	3.6 E+12
3.8	1387	4.9 E+10	5.6 E+12
5.2	1898	4.9 E+10	7.7 E+12
6.6	2409	4.8 E+10	9.7 E+12
8	2920	4.8 E+10	1.2 E+13
9.4	3431	4.7 E+10	1.4 E+13
10.8	3942	4.7 E+10	1.6 E+13
12.2	4453	4.6 E+10	1.8 E+13
13.6	4964	4.6 E+10	1.9 E+13
15	5475	4.6 E+10	2.1 E+13
		Ns(0)[total]	
		5.1 E+10	
		const_sat	
		-315720078.6	
		Ns(sat)	
		1.7E+13	
t*	Ns(@Ns>=Nsat)	Ns(total)	Nv(@Ns=sat)
0	-6.47 E+10	5.0E+10	8.2E+09
0	-1.11 E+11	5.0E+10	1.2E+10
0	-1.12 E+11	4.9E+10	1.2E+10
0	-1.12 E+11	4.9E+10	1.2E+10
0	-1.13 E+11	4.8E+10	1.2E+10
0	-1.13 E+11	4.8E+10	1.2E+10
0	-1.13 E+11	4.7E+10	1.2E+10
0	-1.14 E+11	4.7E+10	1.2E+10
0	-1.14 E+11	4.6E+10	1.2E+10
0	-1.15 E+11	4.6E+10	1.2E+10
0	-1.15 E+11	4.6E+10	1.2E+10



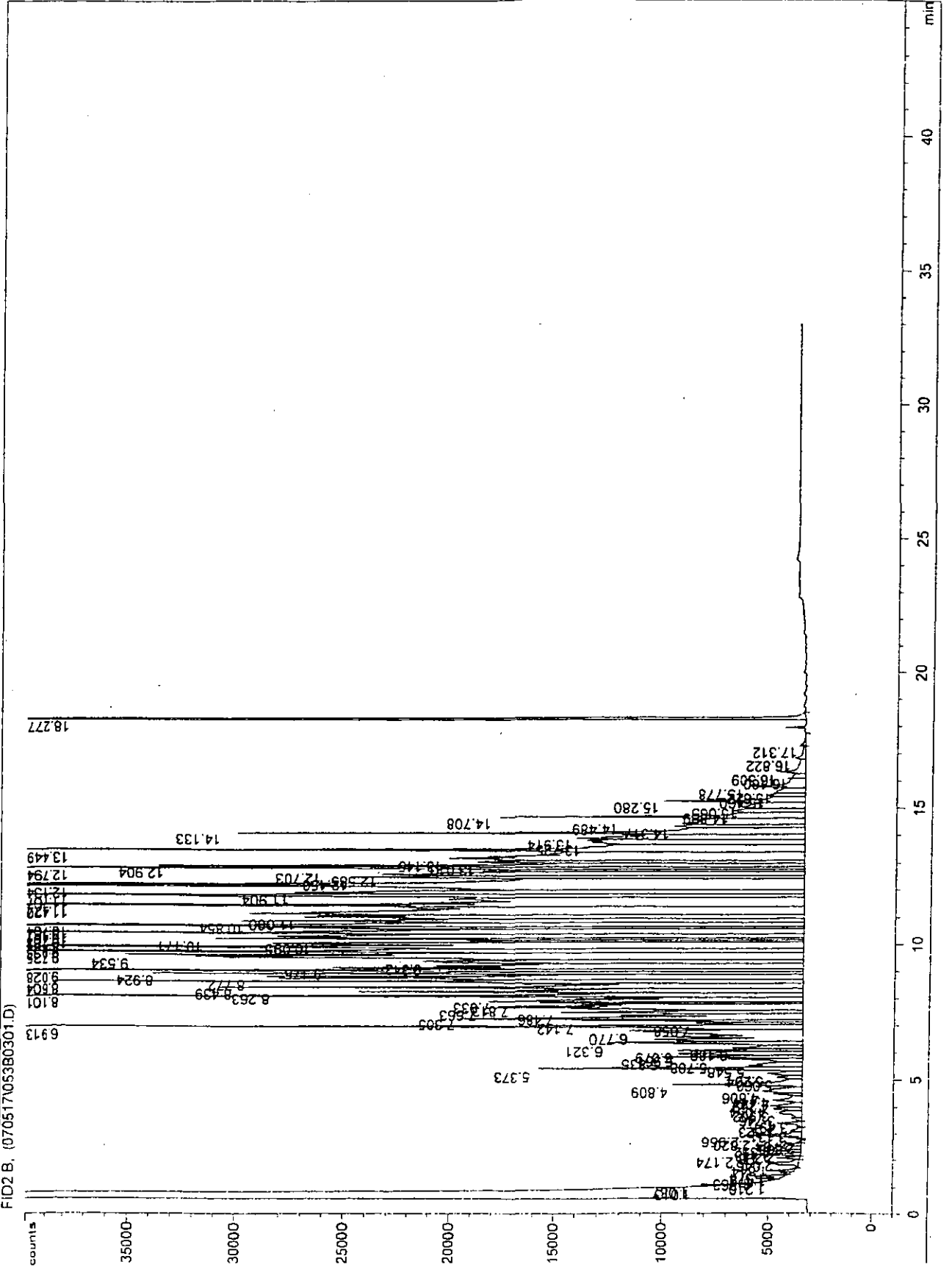
CalTOX™ 4.0 beta: Eight-Compartment Multimedia Exposure Model - Contaminated Soil

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Chemical ==>	Acetone	▼	Summary of Results:		
Landscape ==>	Calif. Residential Site (CA Res.)	▼			
Exposure Factors Set=>	(Residential) Exposure Factors	▼			
Toxicity Data ==>			Un-mitigated risk and/or hazard ratio		
	potencies 1/(mg/kg-d)	ADIs (mg/kg-d)	Risk	0.0 E+0	
Inhalation	0.0 E+00	8.82	Hazard ratio	6.0 E-10	
Ingestion	0.0 E+00	0.1			
Dermal	0.0 E+00	0.1			
Total dose		0			
	Risk	Hazard quotie	Target Soil Concentrations (in ppm)		
Target Risk/Hazard =	1.0 E-06	1.00	Based on cancer risk:		
	current value	should be >	Root soil	0.0 E+0 not avlbl.	
Root-soil thickness ==>	3	OK	Vadose soil	0.0 E+0 not avlbl.	
Alter root soil thickness to?	3.0 E+00			Root Soil 1.0 E+5	
Distance off-site for air exposure=	0.0 E+00	meters	Based on hazard:	Vadose soil n/a	
Time after initial concentrations			Root soil	1.0 E+5 >conc limit	
when exposure begins =	3.7 E+02	days	Vadose soil	0.0 E+0 not avlbl.	
Measured Concentrations (at time = 0)			Concentration limits without NAPL		
Root-zone soil	0.12	ppm (mg/kg)	Root soil	7.9 E+04 mg/kg solid	
Vadose-zone soil	0	ppm (mg/kg)	Vadose soil	7.4 E+04 mg/kg solid	
Ground water	0	ppm (mg/L)	Ground water	6.0 E+05 mg/L water	
Continuous inputs	Methane flux m/d	0	Time avrg. Conc. in on-site environmental media		
Source term to air (mol/d)	0.0 E+00	Sa	Air	1.1 E-32 mg/m3	
Source term to ground-surface soil (mol/d)	0.0 E+00	Sg	Total Leaf	4.2 E-33 mg/kg(total)	
Source term to root-zone soil (mol/d)	0.0 E+00	Ss	Grnd-surface soil	1.6 E-32 mg/kg(total)	
Source term to surface water(mol/d)	0.0 E+00	Sw	Root-zone soil	1.9 E-30 mg/kg(total)	
Aquifer characteristics			Vadose-zone soil	8.6 E-13 mg/kg(total)	
	Distance to first well (m)	0.0 E+00	d_well	Ground water	1.7 E-10 mg/L(water)
59.63956371	Darcy veleocity (m/d)	1.0 E-01	v_darc	Surface water	4.6 E-33 mg/L
	Water dispersion coeff. (m2/d)	5.0 E-02	D_T	Sediment	6.9 E-35 mg/kg

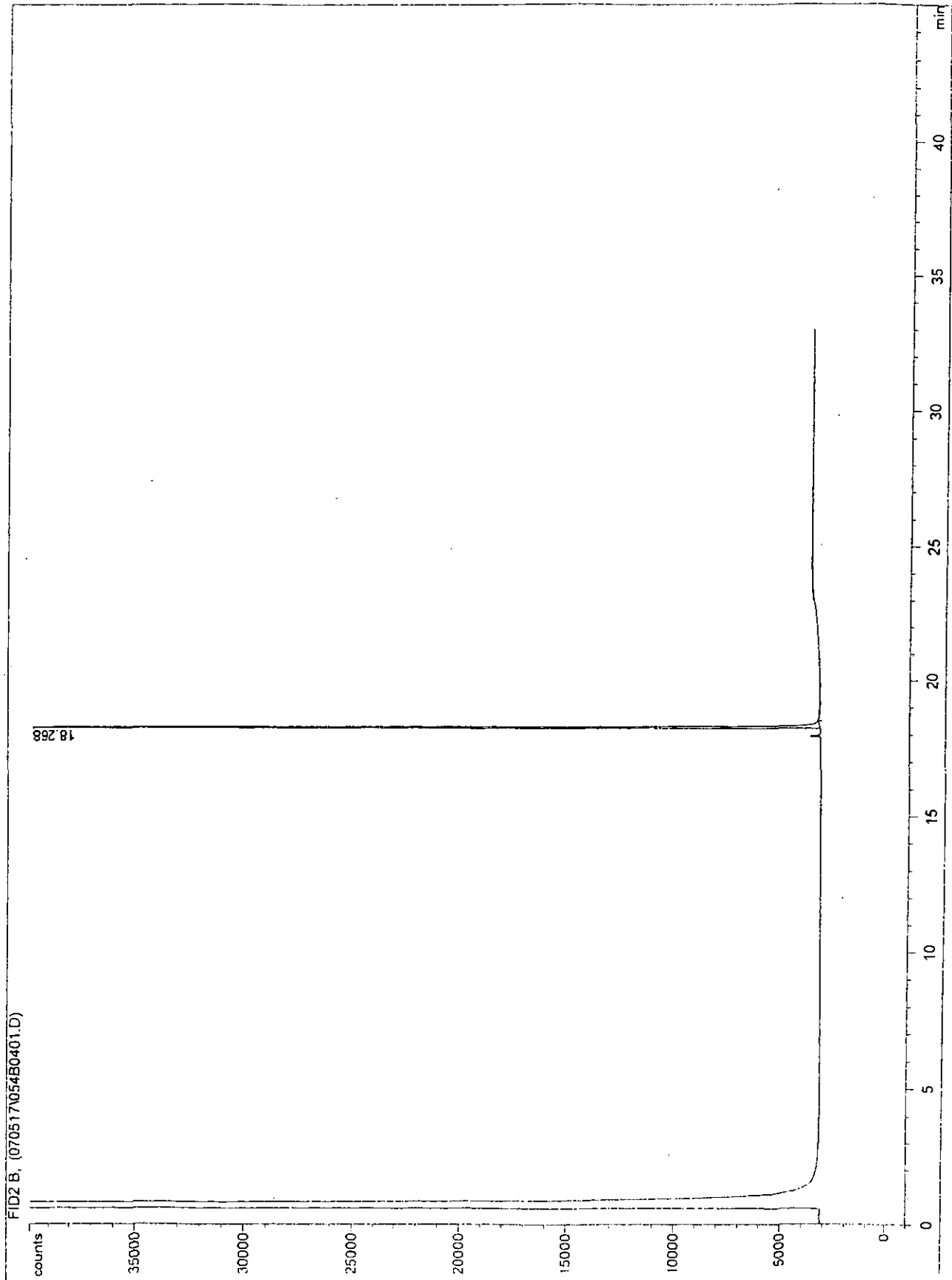
APPENDIX E
CHROMATOGRAPHS

Typical Diesel CCV



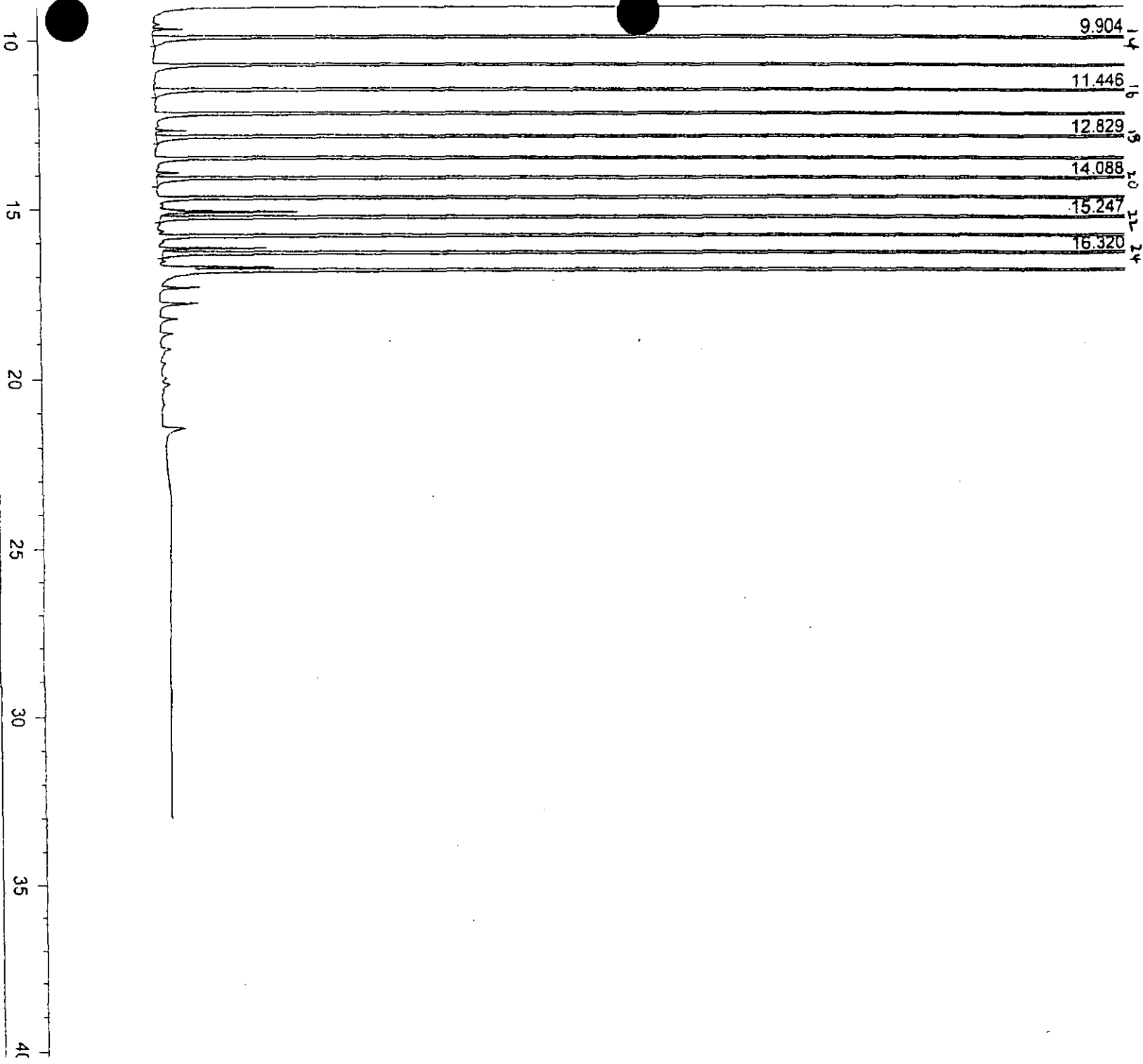
FID2.B: (07051705380301.D)

Typical Diesel Method Blank

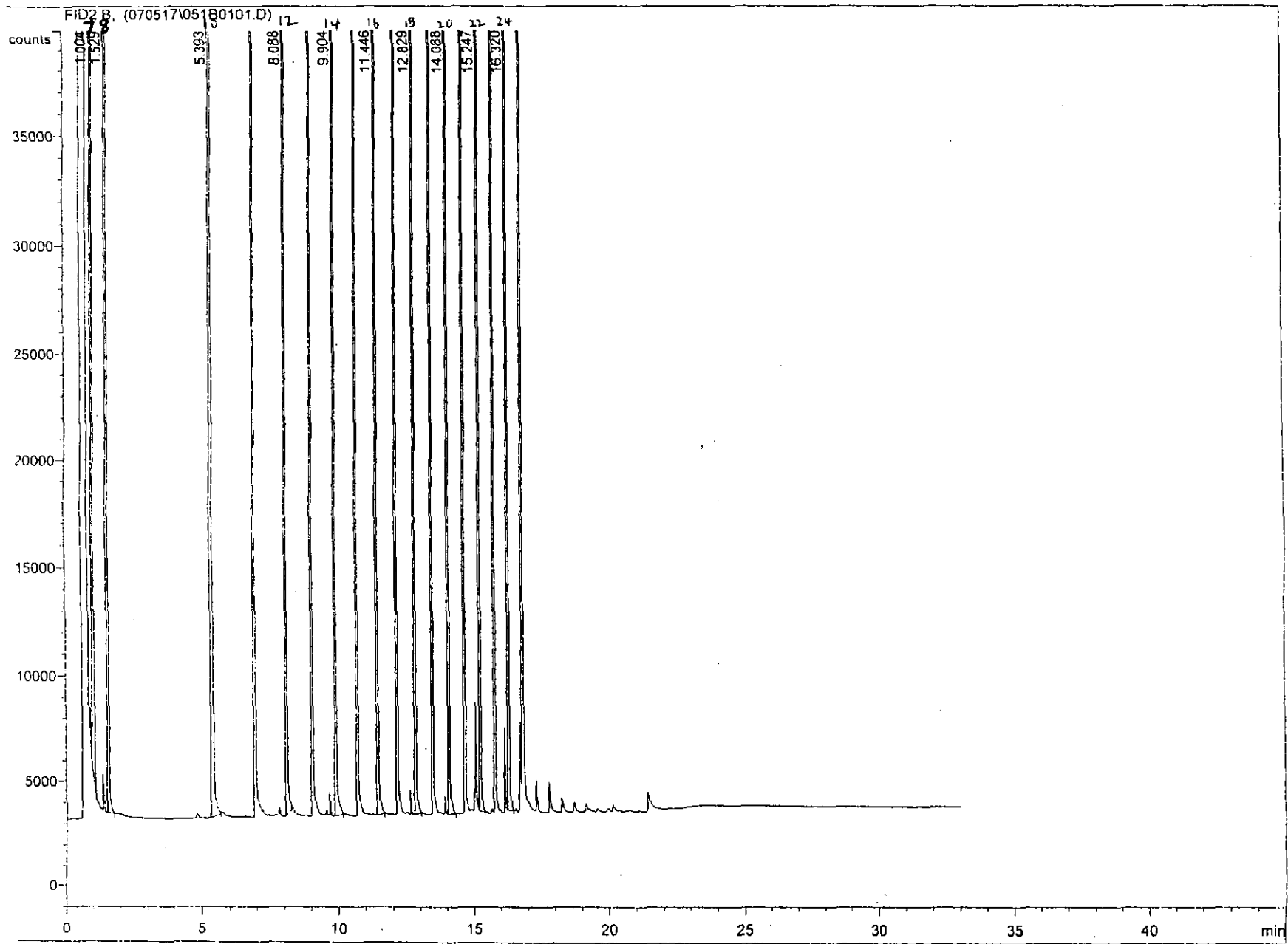


FID2 B, (070517054B0401.D)

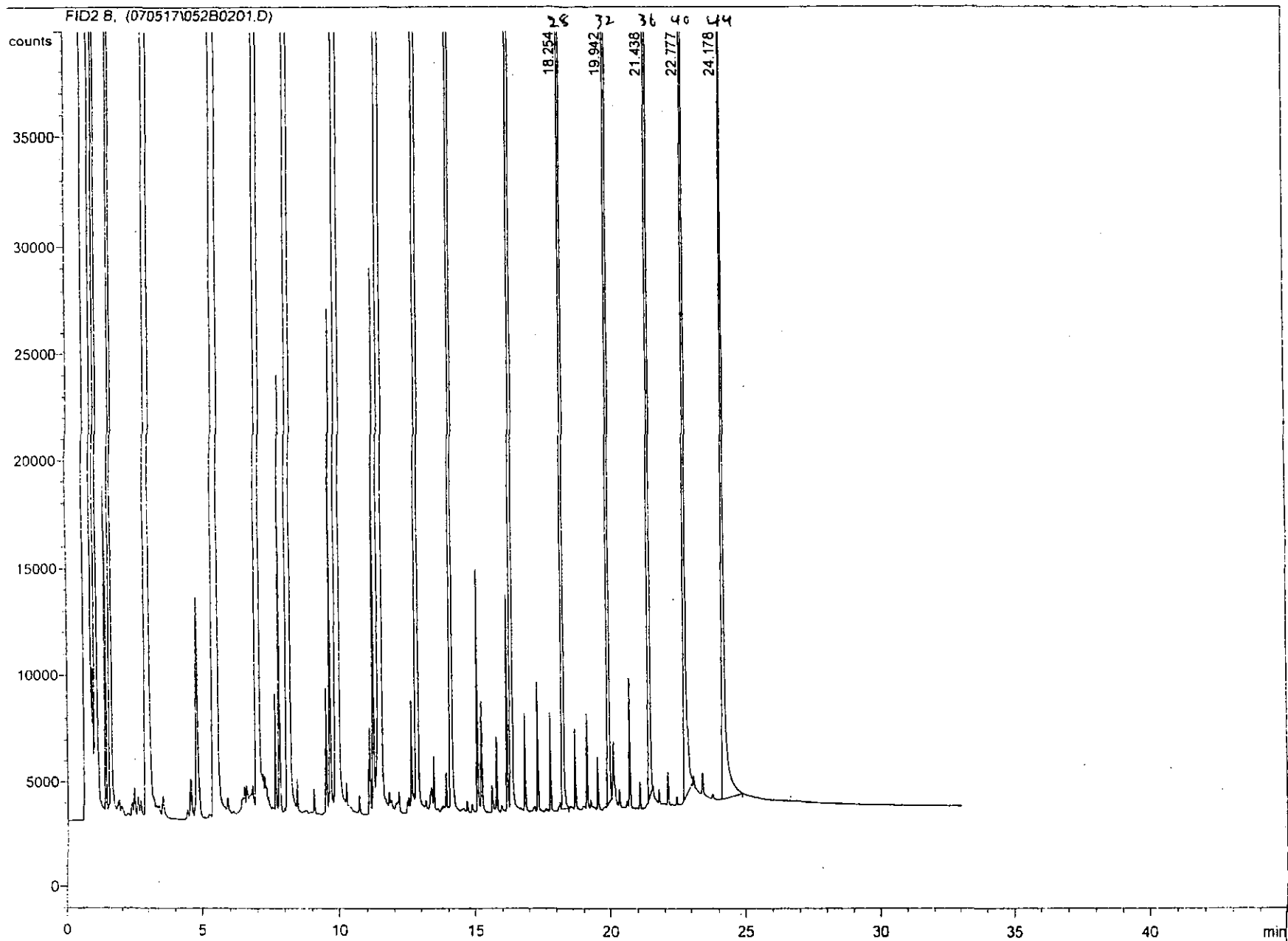
Carbon Chain Std
(C₅-C₂₅)



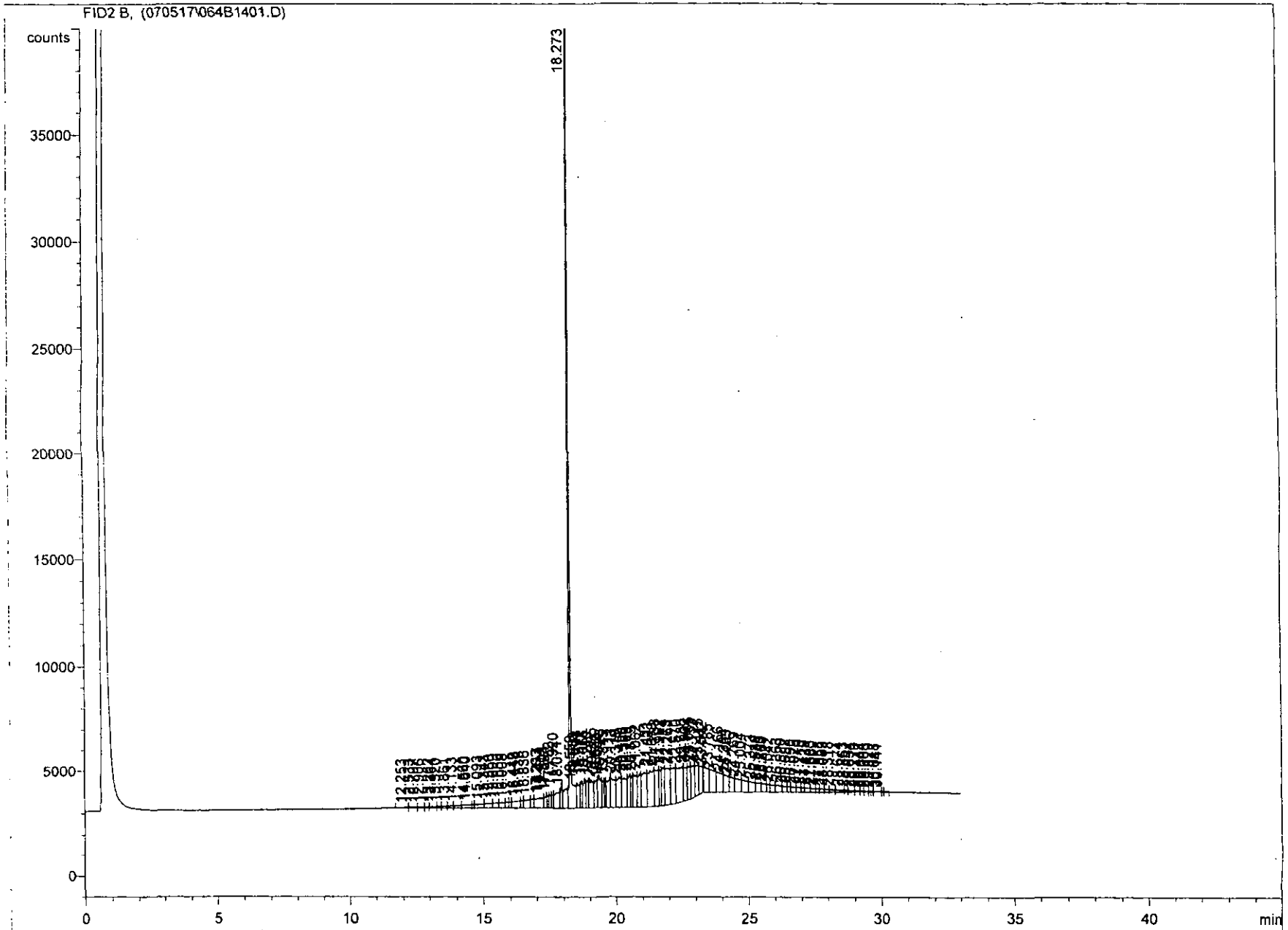
Typical
Carbon Chain Std
(C₅-C₂₅)



Typical
Carbon Chain Std
(C₇-C₄₄)



SB-2



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 Area Percent Report
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Data File Name   : C:\HPCHEM\1\DATA\070517\064B1401.D
Operator        :                               Page Number   :
Instrument      : GC 6                          Vial Number      : Vial 64
Sample Name     : 05-1220-6 SP-2           Injection Number : 1
Run Time Bar Code:                               Sequence Line    : 14
Acquired on    : 18 May 07 04:36 am            Instrument Method: 8015(M)C.M
Report Created on: 23 May 07 11:20 am          Analysis Method  : GC6_CarbonChain.MTH
  
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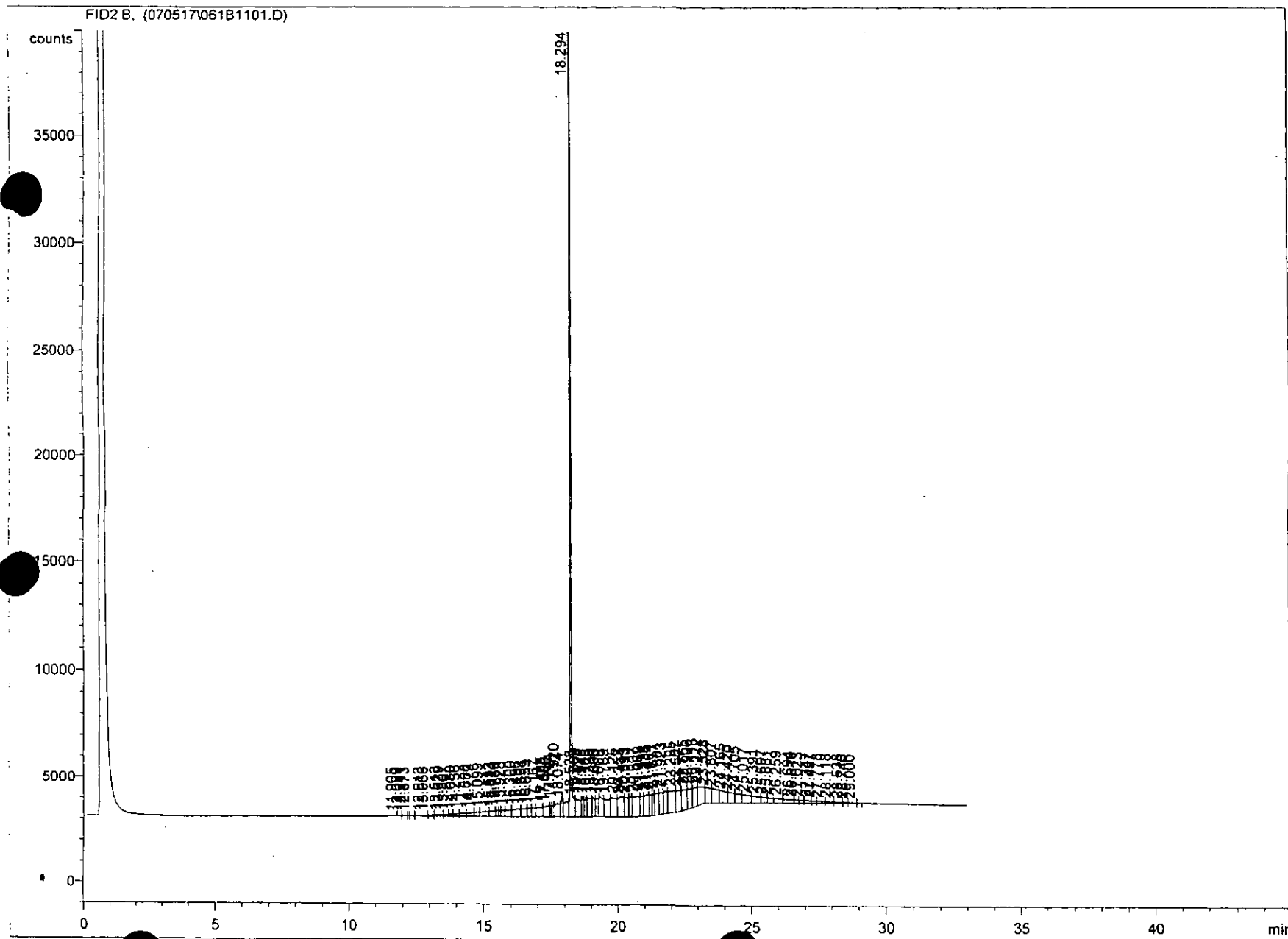
Sig. 1 in C:\HPCHEM\1\DATA\070517\064B1401.D

Pk	Ret Time	Area	Height	Peak	Width	Response %
1	12.253	741	48	MV	0.259	0.087
2	12.533	895	56	VV	0.266	0.105
3	12.707	901	66	VV	0.229	0.106
4	12.906	661	68	MF	0.162	0.078
5	13.262	1198	82	FM	0.244	0.141
6	13.364	831	87	MF	0.160	0.098
7	13.520	1150	99	FM	0.194	0.136
8	13.861	1399	118	FM	0.198	0.165
9	14.133	2031	133	VV	0.254	0.239
10	14.560	3409	160	VV	0.354	0.402
11	14.640	907	183	VV	0.083	0.107
12	15.093	4058	209	VV	0.323	0.478
13	15.343	3872	229	MF	0.281	0.456
14	15.550	3252	263	FM	0.206	0.383
15	15.699	3292	282	VV	0.194	0.388
16	15.880	2592	300	VV	0.144	0.305
17	16.008	1888	307	VV	0.103	0.223
18	16.413	6432	362	VV	0.296	0.758
19	16.449	2775	369	VV	0.125	0.327
20	16.638	5655	422	VV	0.223	0.667
21	16.836	3742	450	VV	0.139	0.441
22	17.293	9661	506	VV	0.319	1.139
23	17.317	3647	583	VV	0.104	0.430
24	17.414	2763	603	VV	0.076	0.326
25	17.503	3439	623	VV	0.092	0.405
26	17.594	3171	646	VV	0.082	0.374
27	17.752	9843	870	VV	0.188	1.160
28	17.920	5833	1300	VV	0.075	0.688
29	18.071	10222	936	VV	0.182	1.205
30	18.273	187616	77825	VV	0.040	22.113
31	18.559	8964	1180	VV	0.127	1.057
32	18.683	7805	1351	VV	0.096	0.920
33	18.798	8629	1415	VV	0.102	1.017
34	18.911	8024	1375	VV	0.097	0.946
35	19.066	15620	1437	VV	0.181	1.841
36	19.240	11055	1372	VV	0.134	1.303
37	19.395	13142	1547	VV	0.142	1.549
38	19.523	7027	1282	VV	0.091	0.828
39	19.606	5287	1252	VV	0.070	0.623
40	19.723	12628	1476	MF	0.143	1.488
41	19.845	16461	1411	FM	0.194	1.940
42	20.113	17341	1489	MF	0.194	2.044
43	20.319	17699	1409	FM	0.209	2.086
44	20.490	10238	1535	VV	0.111	1.207
45	20.595	8161	1556	VV	0.087	0.962
46	20.700	14894	1569	VM	0.158	1.755
47	20.879	13432	1567	MV	0.143	1.583
48	21.062	20821	1649	VV	0.210	2.454
49	21.431	28182	1756	VV	0.268	3.322
50	21.523	18017	1736	VM	0.173	2.124
51	21.673	8540	1722	MV	0.083	1.007
52	21.783	14328	1852	VV	0.129	1.689
53	21.962	22444	1767	VV	0.212	2.645
54	22.179	19991	1738	VM	0.192	2.356
55	22.263	27993	1700	MF	0.274	3.299
56	22.570	14635	1609	FM	0.152	1.725

Pk	Ret Time	Area	Height	Peak	Width	Res	Area %
57	22.786	12055	1567	VM	0.128		1.421
58	22.902	12900	1522	MV	0.132		1.520
59	23.055	13404	1481	MF	0.127		1.580
60	23.153	11856	1351	FM	0.146		1.397
61	23.415	14966	1221	MF	0.204		1.764
62	23.542	16202	1098	MF	0.193		1.910
63	23.785	14060	972	MF	0.175		1.657
64	24.166	11323	845	MF	0.163		1.334
65	24.384	8266	734	MF	0.138		0.974
66	24.483	9761	684	MF	0.238		1.150
67	24.769	8537	584	MF	0.189		1.006
68	25.004	7488	521	MF	0.173		0.883
69	25.373	5545	457	MF	0.160		0.653
70	25.580	4508	404	MF	0.186		0.531
71	25.743	2766	369	MF	0.099		0.326
72	25.809	4008	355	FM	0.188		0.472
73	26.042	4474	311	MF	0.184		0.527
74	26.363	3132	292	MF	0.145		0.369
75	26.520	2036	256	FM	0.133		0.240
76	26.697	2724	246	VV	0.185		0.321
77	26.890	2336	220	MF	0.177		0.275
78	27.025	1421	202	FM	0.117		0.167
79	27.219	2380	192	MF	0.206		0.280
80	27.429	1869	169	MF	0.168		0.220
81	27.603	1326	155	MF	0.143		0.156
82	27.680	1474	146	FM	0.124		0.174
83	27.958	1293	125	MF	0.172		0.152
84	28.083	1462	117	FM	0.208		0.172
85	28.318	1783	101	VV	0.293		0.210
86	28.674	597	83	VV	0.120		0.070
87	28.863	967	75	MF	0.170		0.114
88	29.094	701	65	MF	0.151		0.083
89	29.279	413	52	MF	0.112		0.049
90	29.442	397	46	MF	0.143		0.047
91	29.544	177	40	FM	0.073		0.021
92	29.665	122	32	MF	0.063		0.014
93	29.829	353	30	FM	0.198		0.042
94	30.048	52	16	VV	0.053		0.006
95	30.141	88	17	VM	0.084		0.010

Total area = 848453

SB-3



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Area Percent Report
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Data File Name   : C:\HPCHEM\1\DATA\070517\061B1101.D
Operator        :
Instrument       : GC 6
Sample Name     : 05-1220-3 S B #3
Run Time Bar Code:
Acquired on    : 18 May 07 01:48 am
Report Created on: 23 May 07 10:57 am

Page Number    :
Vial Number    : Vial 61
Injection Number: 1
Sequence Line  : 11
Instrument Method: 8015(M)C.M
Analysis Method : GC6_CarbonChain.MTH
    
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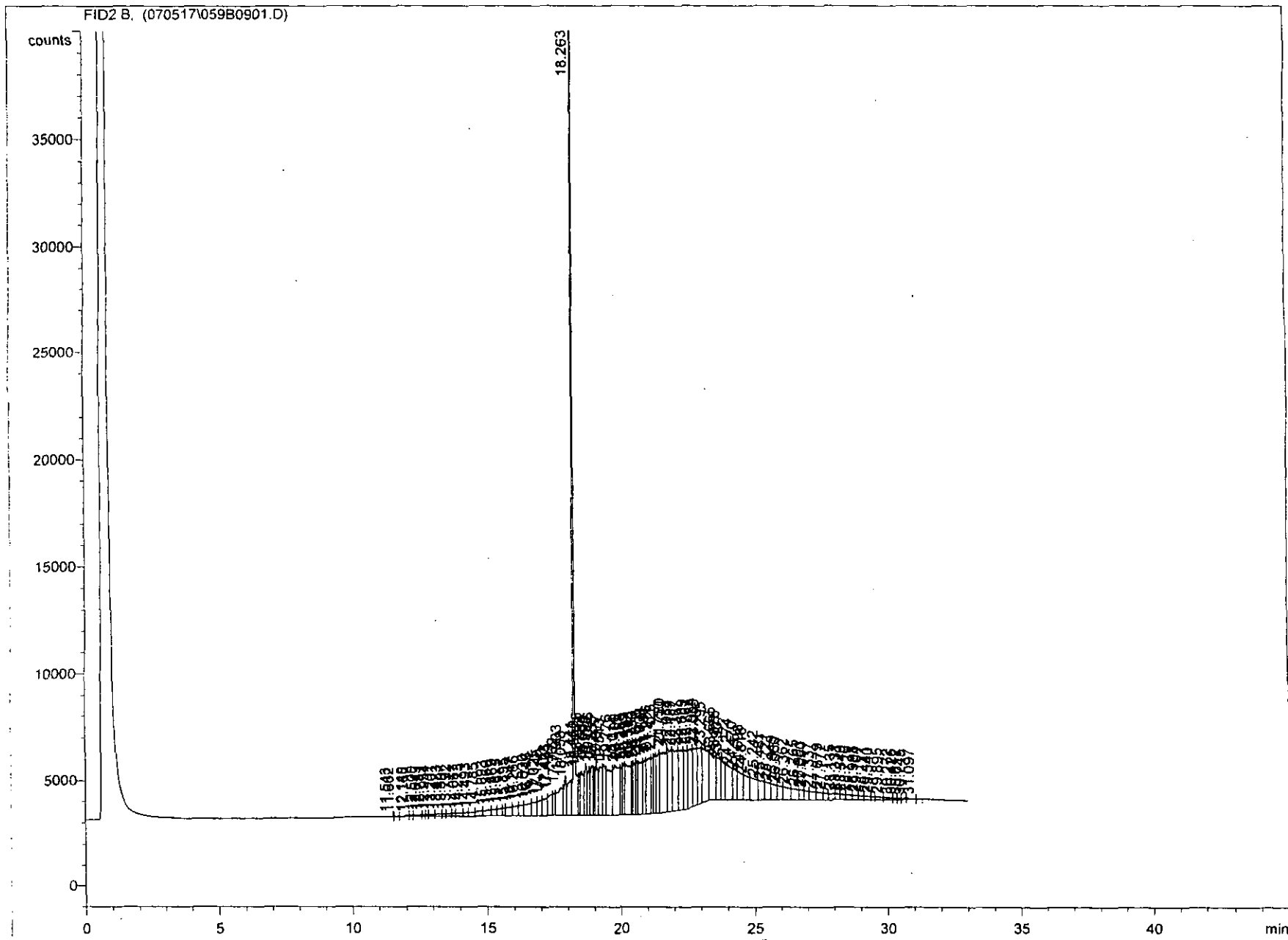
Sig. 1 in C:\HPCHEM\1\DATA\070517\061B1101.D

Pk	Ret Time	Area	Height	Peak	Width	Response %
1	11.905	197	30	MV	0.124	0.031
2	12.099	313	32	VV	0.165	0.049
3	12.241	135	35	VV	0.064	0.021
4	12.373	386	45	VV	0.144	0.060
5	12.913	1264	59	VV	0.358	0.196
6	13.066	777	69	MF	0.189	0.120
7	13.513	1548	87	FM	0.296	0.240
8	13.629	1155	105	VV	0.183	0.179
9	13.807	894	108	MF	0.117	0.139
10	14.080	1811	135	FM	0.223	0.281
11	14.256	2194	158	VV	0.232	0.340
12	14.660	2994	189	VV	0.264	0.464
13	14.773	2138	202	VV	0.177	0.331
14	15.099	4695	245	VV	0.319	0.728
15	15.513	3782	274	VV	0.230	0.586
16	15.533	1717	291	VV	0.098	0.266
17	15.624	1295	297	VV	0.073	0.201
18	15.736	2507	308	VV	0.136	0.389
19	15.928	4385	330	MF	0.221	0.680
20	16.300	6729	362	FM	0.310	1.043
21	16.496	5161	380	VV	0.226	0.800
22	16.694	3834	404	VV	0.158	0.594
23	16.859	3969	423	MF	0.157	0.615
24	17.167	6839	447	FM	0.255	1.060
25	17.425	7640	543	VV	0.234	1.184
26	17.505	2526	550	VV	0.077	0.392
27	17.586	2619	551	VV	0.079	0.406
28	17.744	8422	708	VV	0.198	1.306
29	17.920	5586	1185	VV	0.079	0.866
30	18.074	7922	742	VV	0.178	1.228
31	18.294	188357	84221	VV	0.037	29.199
32	18.528	10638	870	VV	0.204	1.649
33	18.689	5397	972	VV	0.093	0.837
34	18.798	5695	934	VV	0.102	0.883
35	18.948	10023	925	VV	0.181	1.554
36	19.106	6644	936	VV	0.118	1.030
37	19.238	7089	921	VV	0.128	1.099
38	19.396	9681	964	VV	0.167	1.501
39	19.609	12205	905	VV	0.225	1.892
40	19.789	14013	936	VV	0.250	2.172
41	20.125	15014	972	VV	0.257	2.327
42	20.353	9222	924	VV	0.166	1.430
43	20.513	6494	997	VM	0.109	1.007
44	20.593	16670	994	MV	0.280	2.584
45	20.907	7403	989	VV	0.125	1.148
46	21.069	11232	1009	VV	0.186	1.741
47	21.273	8204	1028	VM	0.133	1.272
48	21.336	4550	1063	MV	0.069	0.705
49	21.464	10846	1053	MF	0.172	1.681
50	21.617	10322	1056	FM	0.163	1.600
51	21.801	9957	1095	VV	0.152	1.544
52	21.923	19449	1055	VM	0.307	3.015
53	22.295	12908	1013	MF	0.212	2.001
54	22.507	12424	972	MF	0.213	1.926
55	22.765	10872	962	FM	0.188	1.685
56	22.906	10676	915	MV	0.200	1.655

Pk	Ret Time	Area	Height	Peak	Width	Res	e %
57	23.116	13584	862	VM	0.263		2.106
58	23.272	11107	759	MF	0.181		1.722
59	23.528	10904	703	MF	0.188		1.690
60	23.807	11528	619	MF	0.225		1.787
61	24.165	7496	524	MF	0.180		1.162
62	24.420	7106	466	MF	0.239		1.102
63	24.705	7503	402	MF	0.231		1.163
64	25.017	6706	348	MF	0.233		1.040
65	25.391	4070	287	MF	0.179		0.631
66	25.697	3292	249	FM	0.220		0.510
67	25.881	4163	226	MF	0.307		0.645
68	26.259	4115	193	MF	0.272		0.638
69	26.694	1480	165	MF	0.111		0.229
70	26.810	1536	145	FM	0.176		0.238
71	27.023	2115	135	MF	0.223		0.328
72	27.347	1198	117	FM	0.170		0.186
73	27.497	1752	105	MF	0.277		0.272
74	27.778	1474	83	MF	0.219		0.228
75	28.118	1111	67	FM	0.278		0.172
76	28.538	508	55	VV	0.153		0.079
77	28.740	650	44	VV	0.246		0.101
78	29.000	256	33	VM	0.128		0.040

Total area = 645075

SB-4



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 Area Percent Report
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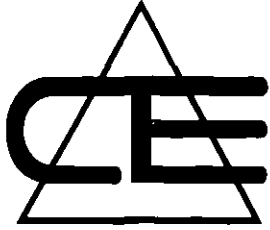
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 Operator : Page Number :
 Instrument : GC 6 Vial Number : Vial 59
 Sample Name : 05-1220-1 *SB4* Injection Number : 1
 Run Time Bar Code: Sequence Line : 9
 Acquired on : 17 May 07 11:55 pm Instrument Method: 8015(M)C.M
 Report Created on: 23 May 07 10:52 am Analysis Method : GC6_CarbonChain.MTH

Sig. 1 in C:\HPCHEM\1\DATA\070517\059B0901.D

Pk	Ret Time	Area	Height	Peak	Width	Response %
1	11.543	41	20	MV	0.031	0.003
2	11.662	251	31	VV	0.136	0.018
3	12.140	677	49	VV	0.232	0.049
4	12.185	431	56	VV	0.129	0.031
5	12.500	1069	71	VV	0.253	0.078
6	12.649	597	73	VV	0.136	0.043
7	12.781	490	78	VV	0.105	0.036
8	12.954	1111	117	MF	0.158	0.081
9	13.201	1679	109	FM	0.257	0.122
10	13.423	901	118	VV	0.127	0.065
11	13.597	1457	128	MF	0.189	0.106
12	13.792	1171	138	FM	0.121	0.085
13	14.067	2262	156	FM	0.241	0.164
14	14.213	1891	176	MF	0.179	0.137
15	14.493	2729	203	FM	0.192	0.198
16	14.785	3480	229	MF	0.253	0.253
17	15.093	4958	285	FM	0.289	0.360
18	15.260	3692	315	VV	0.195	0.268
19	15.469	4122	370	VV	0.186	0.300
20	15.625	2243	377	VV	0.099	0.163
21	15.895	6212	416	MF	0.249	0.451
22	16.147	6150	473	FM	0.217	0.447
23	16.266	5877	530	VV	0.185	0.427
24	16.630	9192	597	MF	0.257	0.668
25	16.746	8314	677	MF	0.205	0.604
26	17.025	8081	769	FM	0.175	0.587
27	17.145	9652	829	MF	0.194	0.701
28	17.423	11061	1020	FM	0.181	0.804
29	17.495	6109	1070	VV	0.095	0.444
30	17.762	20951	1319	VV	0.265	1.522
31	17.903	10773	1932	VV	0.093	0.783
32	18.058	17283	1643	VV	0.175	1.256
33	18.263	217046	87211	VV	0.041	15.772
34	18.441	8622	2074	VV	0.069	0.627
35	18.550	16549	2119	VV	0.130	1.203
36	18.675	13842	2486	VV	0.093	1.006
37	18.788	14820	2340	VV	0.106	1.077
38	18.906	15685	2356	VV	0.111	1.140
39	18.998	8919	2298	VV	0.065	0.648
40	19.096	17034	2501	VV	0.113	1.238
41	19.235	20229	2308	VV	0.146	1.470
42	19.377	18286	2419	MF	0.126	1.329
43	19.513	31128	2200	FM	0.236	2.262
44	19.776	38989	2402	VV	0.270	2.833
45	20.014	10474	2329	VV	0.075	0.761
46	20.100	13100	2419	VV	0.090	0.952
47	20.268	33827	2398	VV	0.235	2.458
48	20.419	8019	2444	VV	0.055	0.583
49	20.497	15230	2459	VM	0.103	1.107
50	20.598	13110	2508	MV	0.087	0.953
51	20.730	25664	2488	VV	0.172	1.865
52	20.878	18127	2560	VV	0.118	1.317
53	21.038	30563	2644	VV	0.193	2.221
54	21.181	13881	2688	VV	0.086	1.009
55	21.276	16374	2767	VV	0.099	1.190
56	21.426	23042	2809	VM	0.137	1.674

Pk	Ret Time	Area	Height	Peak	Width	Response %
57	21.750	47423	2878	MF	0.275	3.446
58	21.780	33789	3011	FM	0.187	2.455
59	22.054	36860	2877	MF	0.214	2.679
60	22.187	31257	2835	FM	0.184	2.271
61	22.387	27851	2805	VM	0.165	2.024
62	22.609	31876	2777	MF	0.141	2.316
63	22.767	26419	2697	FM	0.163	1.920
64	22.964	28212	2638	MF	0.162	2.050
65	23.055	34813	2538	FM	0.229	2.530
66	23.295	36030	2287	MF	0.190	2.618
67	23.665	20066	2016	MF	0.166	1.458
68	23.828	16084	1848	MF	0.123	1.169
69	23.907	26806	1704	MF	0.262	1.948
70	24.274	14741	1497	MF	0.122	1.071
71	24.470	16699	1347	MF	0.207	1.213
72	24.698	16369	1208	MF	0.226	1.189
73	24.818	18318	1071	MF	0.285	1.331
74	25.242	12669	944	MF	0.224	0.921
75	25.481	11373	830	MF	0.228	0.826
76	25.721	10187	754	MF	0.162	0.740
77	25.949	8377	676	MF	0.207	0.609
78	26.060	10487	616	MF	0.284	0.762
79	26.362	9207	542	MF	0.207	0.669
80	26.765	5324	482	MF	0.150	0.387
81	26.961	4895	435	MF	0.152	0.356
82	27.060	5917	408	MF	0.176	0.430
83	27.337	5312	373	MF	0.216	0.386
84	27.679	3596	332	MF	0.134	0.261
85	27.777	4344	302	MF	0.175	0.316
86	28.135	2955	267	MF	0.184	0.215
87	28.331	2690	245	MF	0.134	0.195
88	28.549	2970	221	MF	0.224	0.216
89	28.710	2481	199	FM	0.208	0.180
90	28.998	2079	181	MF	0.154	0.151
91	29.104	2241	162	MF	0.166	0.163
92	29.441	1156	138	MF	0.130	0.084
93	29.540	2034	122	FM	0.279	0.148
94	29.895	1851	100	VV	0.309	0.134
95	30.272	697	74	VV	0.157	0.051
96	30.426	521	74	MF	0.102	0.038
97	30.612	628	65	FM	0.160	0.046
98	30.745	783	50	VV	0.263	0.057
99	31.097	293	33	VM	0.150	0.021

Total area = 1376147



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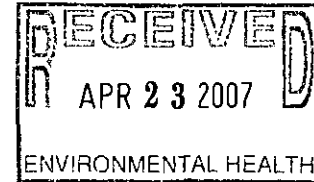
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WORKPLAN



2401 NUTMEG STREET
(APN 224-260-23)
ESCONDIDO, CALIFORNIA
DEH VAP CASE H39704-001

PREPARED FOR
HILLTOP GROUP, INC.
MARK LEMIRE
807 EAST MISSION ROAD
SAN MARCOS, CALIFORNIA 92069

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1441 MONTIEL ROAD, SUITE 115
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APRIL 16, 2007

PROJECT NO. 10-8721E

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FIGURES

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1.0 INTRODUCTION

In accordance with authorization of our proposal dated April 4, 2007 (CTE Number E-0271), Construction Testing & Engineering, Inc. (CTE) has prepared this Workplan for environmental site assessment of the subject site. The Workplan is prepared after acceptance of the site by the County of San Diego, Department of Environmental Health (DEH) into their Voluntary Assistance Program (VAP) for regulatory review and closure ("no further action") of the property. This workplan is organized to follow guidelines presented in the DEH Site Assessment and Mitigation (SAM) Manual.

2.0 NARRATIVE DISCUSSION

2.1 Purpose

The purpose of the site assessment outlined by this Workplan is to evaluate the existence and extent (if present) of constituents potentially impacting human health and the environment. Depending upon the presence and concentration of detected constituents of concern a risk assessment to implement engineering controls for mitigation of potential impacts is planned to follow the site assessment.

2.2 Illustrations and Attachments

Illustrations and Attachments included with this report include the following:

- Figures
 - Figure 1, Site Index Map
 - Figure 2, Interpolated Post-Grading Contours and Sampling Locations

- Attachments
 - Exploration Logs (excerpt from CTE, November 13, 2006)
 - Laboratory Analytical Results (excerpt from CTE, November 27, 2006)
 - Health and Safety Plan, 2401 Nutmeg Street, Escondido, California

2.3 Site Description and Location

The project is located at the southwest corner of the intersection of North Nutmeg Street and North Centre City Parkway in Escondido, California. Interstate Highway I-15 bounds the west margin of the site. Land in the vicinity of the site is undeveloped or scattered low density (rural) residential. The site is vacant and, at the time of our geotechnical field exploration, predominantly bare of vegetation except along the property margins where grass, low brush, and oak trees are present. The site slopes at a relatively low gradient (less than estimated 10 percent) to the southwest where a catch basin is located. Site elevation is approximately 865 to 890 feet above mean sea level (msl). Reference to City of Escondido 2006 topographic maps indicates that Undocumented Fill was placed in a shallow swale that drained to the southwest toward the catch basin that collects and conveys surface water off site.

2.4 Background

We understand fill was imported to the site in middle 2006. The source of the fill is unknown, and was placed without the knowledge and permission of the property owner. Additionally, permits from pertinent regulatory agencies were not secured for placement of the fill soil. CTE performed a geotechnical investigation (CTE report dated November 13, 2006) of the site, which included the excavation of 13 test pits to a maximum depth of 17 feet. Location of the test pits is shown on Figure 2, and the test pit logs are attached as Exploration Logs with this report. A limited Phase II environmental site assessment (CTE report dated November 27, 2006) was prepared to present the results of laboratory tests performed on selected samples originally obtained for geotechnical purposes. Laboratory test results detected the presence of petroleum fuel hydrocarbon constituents and Title 22 metals. The analytical results are attached

as Laboratory Analytical Results in this report. The analyzed samples were collected for geotechnical purposes, which did not utilize accepted environmental sampling techniques. Consequently, the laboratory tests may include artifacts associated with the sampling.

The surface of the Undocumented Fill is currently covered by plastic sheeting as directed by the City of Escondido. The purpose of the plastic sheeting is to minimize the potential for leaching of contaminants (should they be present) into underlying soil and groundwater, and as protection from conveyance by surface water run off.

2.5 Project Organization

The property owner is ADJ Holdings, LLC and is represented by Mr. Mark Lemire of the Hilltop Group, Inc. who has retained CTE to perform an environmental evaluation of the Undocumented Fill. The CTE Principal in Charge of the project is Mr. Dan Math, R.C.E., and the CTE Project Manager is Mr. Gregory Rzonca, C.E.G. Work assignment for implementation of this Workplan will be CTE staff personnel as available.

2.6 Regulatory Environmental Involvement

Following is a description of regulatory involvement of the site from an environmental perspective as understood by CTE. The City of Escondido has requested the property owner to arrange for environmental characterization and disposition of the Undocumented Fill. We understand the City of Escondido has contacted the Regional Water Quality Control Board regarding surface water run off from the site. Additionally, the State of California Department(s) of Fish and Game and Department of Fish and Wildlife have provided comments

about impacts to native habitat due to placement of the Undocumented Fill. The property owner has requested entry of the site into the County of San Diego Department of Environmental Health (DEH) Voluntary Assistance Program (VAP) to gain environmental regulatory review and closure. Entry of the site into the VAP was granted by the DEH letter dated March 15, 2007 (VAP Case H39704-001). The City of Escondido has directed the Undocumented Fill be covered by plastic sheeting. The purpose of the plastic sheeting is to minimize the potential for leaching of contaminants (should they be present) into underlying soil and groundwater, and as protection from off site soil conveyance by surface water run off.

2.7 Human Health and Environment Impact

Impacts to human health and the environment at the site would be due to dermal contact, inhalation and ingestion. However, the site location and lack of development in combination with rural setting indicates it is unlikely there is significant potential of contaminant impacts to human health and environment caused by the Undocumented Fill. The site is not developed and in a rural area utilized for residential purposes. It is bounded on the west by the I-15 Freeway and Nutmeg Street on the north. The Undocumented Fill soil is covered by plastic sheeting and access to the area is blocked by a combination of fences and impenetrable brush, and is posted as a no trespassing area. It is very unlikely that dermal contact, inhalation or ingestion is possible due to the barrier provided by the plastic sheeting should the site be accessed. Additionally, impacts to surface water run off are anticipated to be very low due to the plastic sheet preventing access of surface water to the Undocumented Fill.

A Community Health and Safety Plan has not been prepared for this site due to the low

potential for impacts to human health and the environment due to Undocumented Fill at the site.

2.8 General Physiographic Setting

The site lies in the northeastern inland area of San Diego County. This area is generally recognized as comprising foothills of the Peninsular Ranges. Terrain locally consists of alluvial valleys situated between northwest trending bedrock peaks and ridges. The geologic basement throughout much of this area is generally described as “granitic” rock of the southern California Batholith.

2.9 Geologic Conditions

Based on mapping compiled by Kennedy (1999), near surface geologic units consist of the Cretaceous Merriam Mountain Monzogranite that is covered by near surface soil deposits. Our subsurface explorations indicate the Merriam Mountain Monzogranite at the site is overlain in turn by Quaternary Older Alluvium, Colluvium, and Undocumented Fill. Following is a brief description of these materials. The following text references the attached CTE document “Limited Geotechnical Investigation” dated November 13, 2006.

2.9.1 Quaternary Undocumented Fill

Undocumented Fills were encountered in all subsurface geotechnical explorations and extended to a maximum depth of at least six feet below the ground surface (fbg). These materials were observed to consist dominantly of loose, dry, light brown, silty fine to coarse grained sand with some clay, gravels and cobbles. The Undocumented Fill commonly contained construction debris such as geogrid fabric, twine, plastic, screws,

pipes, etc. A layer near the bottom of the Undocumented Fill was up to approximately 12 inches thick and contained numerous vegetation fragments including stems, branches, leaves and roots. It did not appear native soil underlying the fill was processed by scarification or moisture conditioning prior to fill placement.

2.9.2 Quaternary Colluvium

Test pits TP-2, TP-3 and TP-4 excavated within the south and central portions of the site encountered materials assigned as Quaternary Colluvium. The Colluvium was up to approximately two feet in thickness, and is described as loose to dense, dry, light to dark brown, silty, fine to coarse-grained SAND with roots and trace clay.

2.9.3 Quaternary Older Alluvium

Quaternary Older Alluvium materials were found in all test pits except TP-1 and TP-12. Maximum depth of the Older Alluvium encountered by Test Pit TP-2 was 16 feet. The Older Alluvium generally consisted of loose to medium dense, red to orange-brown silty fine to coarse grained sand with trace a clay.

2.9.4 Cretaceous Merriam Mountain Monzogranite

Crystalline bedrock was encountered in Test Pits TP-2, TP-4, TP-5 and TP-6. The encountered bedrock depths ranged from approximately 3.75 feet to 16 feet in Test Pits TP-5 and TP-2, respectively. The Merriam Mountain Monzogranite encountered was dense to very dense, dry to moist, off white mottled orange to olive, clayey to silty sand.

2.10 Groundwater

Groundwater was encountered in Test Pits TP-2, TP-9 and TP-12 at depths of 16, 5 and 6 feet below ground surface, respectively. Groundwater was observed to occur proximal to the upper portion of the granitic bedrock. Review of available historic topographic maps indicates the water occurred below ground at a natural southwest flowing drainage that was covered by the Undocumented Fill. Repairs to apparent water leaks associated with the water flume on the north margin of the site were observed by CTE. Consequently, it is believed the flume is leaking and developing the observed groundwater.

3.0 SAMPLING AND ANALYSES PLAN

3.1 Project Task

The purpose of this environmental sampling and analyses plan is to evaluate the Undocumented Fill soils to ascertain if they pose an environmental risk that will make the site unsuitable for industrial/commercial land use. The data are compared to risk-based screening levels (RBSLs) and toxicity characteristic leaching procedure (TCLP) in the following text.

3.2 Data Quality Objectives (DQOs)

Arsenic is considered as the target constituent of concern as discussed in the following Section 3.4.1. If any sample is found to have leachable Arsenic concentrations above 5.0 mg/l, a risk assessment will be performed and engineering controls as corrective action will be recommended.

3.3 Data Quality Indicators (DQIs)

Data quality indicators (accuracy, precision, completeness, representativeness, comparability,

and method detection limits) refer to quality control criteria established for various aspects of data gathering, sampling, or analysis activity. DQIs for the project reference EPA Test Methods in SW-846.

3.4 Sampling Rational

3.4.1. Previous Sampling

A previous investigation (CTE, November 27, 2006) analyzed geotechnical samples for Title 22 Metals, TPH (C7-C44), and organochlorine pesticides and PCBs. The results of the investigation were that all organochlorine pesticides and PCBs were below the laboratory reporting limit (RL) of 5.0 mg/kg. The total petroleum hydrocarbons maximum concentration was 120 mg/kg with no detections for carbon chains of 12 and lower. The maximum reported values for Title 22 Metals are listed in Table 3.4.I. which also shows the surface soil (≤ 3 m bgs) risk-based screening levels (RBSLs) for comparisons as presented by the California Regional Water Quality Control Board (2001). Arsenic is the only parameter that was above the Surface Soil RBSLs. TPH is below the RBSLs and, as a consequence, is not included in the soil sampling program.

Table 3.4.1
 Maximum Results Comparison
 November 2006

11 JUN 06

Parameter	Maximum Result (mg/kg)	Laboratory Reporting Limit (mg/kg)	Surface Soil RBSLs Industrial/ Commercial Land Use Only(mg/kg)
Antimony	ND	0.750	40
Arsenic	5.22	0.75	2.7
Barium	162	0.5	1500
Beryllium	0.547	0.250	8.0
Cadmium	ND	0.500	12
Chromium III	22.1	0.2	750
Cobalt	11.4	0.2	80
Copper	19.3	0.5	225
Lead	5.57	0.05	1000
Mercury	ND	0.0835	10
Molybdenum	ND	0.250	40
Nickel	13.2	0.2	150
Selenium	ND	0.750	10
Sliver	0.552	0.250	40
Thallium	ND	0.750	29
Vanadium	34.5	0.2	200
Zinc	45.7	1.0	600
TPH (middle distillates)	120	5	1000

3.4.2 Soil Sampling Methodology

Six soil samples will be collected. The number of samples is based on Max test (EPA 1996) using a default sample size of six with acceptable error rates $E_{0.5}$ and $E_{2.0}$ for a coefficient of variation (CV) of 2.5. The site-specific soil screening levels (SSLs) are considered to be the RBSLs presented by California Regional Water Quality Control Board (2001). The error rate of $E_{0.5}$ indicates the probability of further investigation is 0.21 where the exposure area mean is 0.5 RBSL and the $E_{2.0}$ error rate indicates the probability of 0.08 that no further investigation is required where the exposure area mean is 2.0 RBSL. Analytical results utilizing leacheable Arsenic concentration will be

utilized with CV evaluation after sampling and laboratory analyses are performed as presented in this Workplan.

The sample locations for soil samples were randomly selected. A Cartesian selection grid was superimposed on the map of the site over the exposure area. The grid is 350 by 450 feet in one-foot increments. Twenty sets of x,y coordinates (Table 3.4.2) were randomly selected by computer from within the grid. The selection grid ID number one randomly selected x,y coordinates were converted to map coordinates and checked on the map to verify the sample location was within the boundaries of the Undocumented Fill. This process was repeated using the next sequential selection grid ID number until six sample locations were found within the Undocumented Fill. Sample depths were randomly selected from within the depth of the fill at x, y locations and rounded to the nearest 0.5 foot below the ground surface. Sample locations are shown on Figure 2.

Nutmeg Project 4.5 Acre Site

2401 North Nutmeg Street (APN: 224-260-23) Escondido, California

April 16, 2007

CTE Job No. 10-8721E

TABLE 3.4.2**Random Number Table for Sample Location**

Selection X Range 514 to 864 feet
 Grid Y Range -190 to 260 feet

# ID	Random Numbers		Map Coordinates		Sample ID	Sample Depth ^a (ft. bgs)	Fill Depth (ft)
	X	Y	X (ft)	Y (ft)			
1	133	221	647	31	SB-1	1	4
2	33	229	547	39	Outside Fill Boundaries		
3	22	17	536	-173	Outside Fill Boundaries		
4	104	343	618	153	SB-2	1.5	2
5	335	255	849	65	Outside Fill Boundaries		
6	264	16	778	-174	Outside Fill Boundaries		
7	151	12	665	-178	SB-3	0.5	1
8	249	252	763	62	SB-4	0.5	2
9	289	295	803	105	Outside Fill Boundaries		
10	341	311	855	121	Outside Fill Boundaries		
11	100	184	614	-6	SB-5	4	11
12	300	117	814	-73	SB-6	0.5	1
13	172	48	686	-142	Not Used		
14	190	185	704	-5	Not Used		
15	312	434	826	244	Not Used		
16	258	429	772	239	Not Used		
17	98	264	612	74	Not Used		
18	304	40	818	-150	Not Used		
19	274	307	788	117	Not Used		
20	24	282	538	92	Not Used		

Notes:

Sample depths were randomly selected from within the depth of the fill at x, y locations and rounded to the nearest 0.5 feet

bgs below ground surface

3.5 Field Methods and Procedures

3.5.1 Field Equipment

Equipment for collection of soil samples includes:

- maps/plot plan
- safety equipment
- compass
- tape measure
- survey stakes, flags
- camera and film
- Ziploc plastic bags
- logbook
- sample labels
- chain of custody forms
- field data sheets
- cooler(s)
- decontamination supplies/equipment
- spade or shovel
- hand auger
- stainless steel sample sleeves
- extension rods
- T-handle

3.5.2 Soil Sampling Technique

The borings will be located in the field at the approximate locations shown on Table 3.4.2. Hand tape and compass methods will be utilized to locate the borings. A hand auger will be used to drill to the desired depth for sampling. The split spoon will then be driven to the approximate sampling depth shown on Table 3.4.2 through the bottom of the augured hole and the core extracted. Prior to hand drilling, the plastic sheeting covering the soil will be neatly cut. Excavated soils will be placed in a 55 gallon drum seated on a wood pallet and covered with plastic sheeting. The containerized soils will be disposed of at a regulated

landfill or utilized on site depending upon the results of the Workplan. The boring will be backfilled with bentonite pellets or chips and the plastic sheeting neatly patched.

Following procedures will be used for collecting soil samples with a split spoon:

- Place new unused stainless steel sample tube in sample barrel.
- Assemble the sampler by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top.
- Place the sampler in a perpendicular position on the sample material.
- Using a well ring, drive the tube. Do not drive past the bottom of the head piece or compression of the sample will result.
- Record in the site logbook or on field data sheets the length of the tube used to penetrate the material being sampled.
- Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. The amount of recovery and soil type should be recorded on the boring log.
- Without disturbing the sample tube, seal the ends with a Teflon cap, transfer it to appropriate labeled Ziplock sample bag and seal container tightly.
- Place the sample in a protective container (ice chest or equivalent).
- Prepare Chain of Custody documentation prior to transport to the laboratory

3.5.3 Decontamination Procedures

Adequate decontamination of sampling equipment is to be conducted to allow consistency of sample quality. All equipment placed in contact with potentially contaminated soil or water will be decontaminated. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used, including trowels and augers, will be washed and rinsed.

The following, to be carried out in sequence, is an EPA Region IX recommended procedure for the decontamination of sampling equipment:

- Non-phosphate detergent and tap water wash, using a brush if necessary
- Tap-water rinse
- Deionized/distilled water rinse (twice)

Equipment will be decontaminated in a designated area(s) on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

3.6 Sample Containers, Preservation and Storage

The constituent of concern and number of samples are presented in Section 3.2 and Section 3.4.2, respectively. Soil samples will remain in their stainless steel sample tubes, sealed at both ends by Teflon caps. The samples should be placed in a sealed Ziplock bags that are in turn placed in a protective container. The samples do not need to be chilled.

3.7 Disposal of Residual Materials

In the process of collecting environmental samples at the Nutmeg site during the site investigation, the sampling team will generate different types of potentially contaminated investigation derived waste (IDW) that include the following:

- Soil cuttings from soil borings
- Contaminated personal protective equipment (PPE)
- Decontamination fluids

Management of IDW generated during sampling will comply with all applicable or relevant and

appropriate requirements to the extent practicable. This sampling plan follows the *Office of Emergency and Remedial Response (OERR) Directive 9345.3-02* (May 1991), which provides the guidance for the management of IDW. In addition, other legal and practical considerations that may affect the handling of IDW will be considered as follows:

- Used PPE and disposable equipment will be double bagged and placed in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE and disposable equipment that is to be disposed of which can still be reused will be rendered inoperable before disposal in the refuse dumpster.
- Decontamination fluids that will be generated in the sampling event will consist of deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site or sampling area. The water (and water with detergent) will be poured onto the ground.
- Soil cuttings generated during the subsurface sampling will be disposed of as described in Section 3.5.2.

3.8 Sample Documentation and Shipment

3.8.1 Field Logbooks

At a minimum, the following information will be recorded during the collection of each sample:

- Sample location and description
- Site or sampling area sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (soil)
- Type of sampling equipment used
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Shipping arrangements (e.g., overnight air bill number)
- Name(s) of recipient laboratory

- Time of arrival/entry on site and time of site departure
- Other personnel on site

3.8.2 Labeling

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. At a minimum, the sample labels will contain the following information:

- Location
- Date of collection
- Analytical parameter
- Samples will be assigned a unique sample number.

3.8.3 Chain-Of-Custody Form

Chain-of-custody record/traffic report forms are used to document sample collection and shipment to laboratories for analysis. All sample shipments for analyses will be accompanied by a Chain-of-Custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment (i.e., each day). The Chain-of-Custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. The sampling team leader or designee will sign the Chain-of-Custody form in the "relinquished by" box and note date, time, and air bill number.

3.8.4 Packaging and Shipment

All sample containers will be placed in a strong-outside shipping container (cooler) with empty space in the cooler filled with bubble wrap, styrofoam peanuts or other packing materials to prevent movement and breakage during shipment

3.9 Quality Control

3.9.1 Field Quality Control Samples

Due to the small number of samples collected for this investigation, variability possibly caused by the heterogeneity of the matrix, duplicate samples for quality control (QC) purposes would not likely be meaningful; therefore, no field QC will be collected. Likewise, blanks will not be collected.

3.9.2 Background Samples

Should Arsenic concentrations be detected at levels above the State of California Preliminary Remediation Goals (PRGs) a Risk Assessment will be prepared to consider engineering controls to protect human health and the environment. Consequently, collection of background samples is not considered by this Workplan.

3.9.3 Laboratory Quality Control Samples

A routinely collected soil sample contains sufficient volume for typical sample analysis and additional laboratory QC analyses, as necessary. Therefore, a separate soil sample for laboratory QC purposes will not be collected.

3.10 Laboratory Analysis

A California certified laboratory will use the Toxicity Characteristic Leaching Procedure (TCLP) as specified in California Code of Regulations Title 22 §66261.24 to extract the soluble portion of Arsenic and determine its concentration using EPA Test Method 6010B and EPA Test Method 1311.

3.11 Reporting

A written report will be prepared upon completion of the soil sampling and laboratory analyses. The written report will include a summary of soil sampling protocol, laboratory analytical results, and findings. Should elevated concentrations of Arsenic be detected, a Risk Assessment providing engineering controls to mitigate potential impacts to human health and the environment will be provided. Additional sampling may be necessary should the laboratory results not meet the CV values discussed in Section 3.4.2.

4.0 CLOSING

This Workplan was prepared in accordance with current practice and the standard of care exercised by reputable consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report.

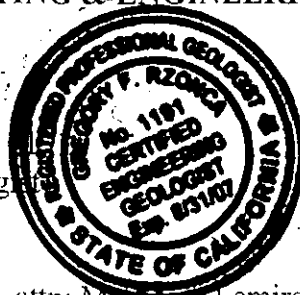
We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.



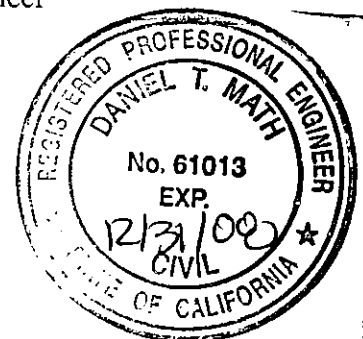
Gregory F. Rzonca, CEG#
Senior Engineering Geologist





Daniel T. Math, RCE #61013
Principal Engineer

GFR/DTM/NC:nri
Dist: 6 Hilltop Group, Inc., attn: Mr. Mark Lemire



CITED REFERENCES

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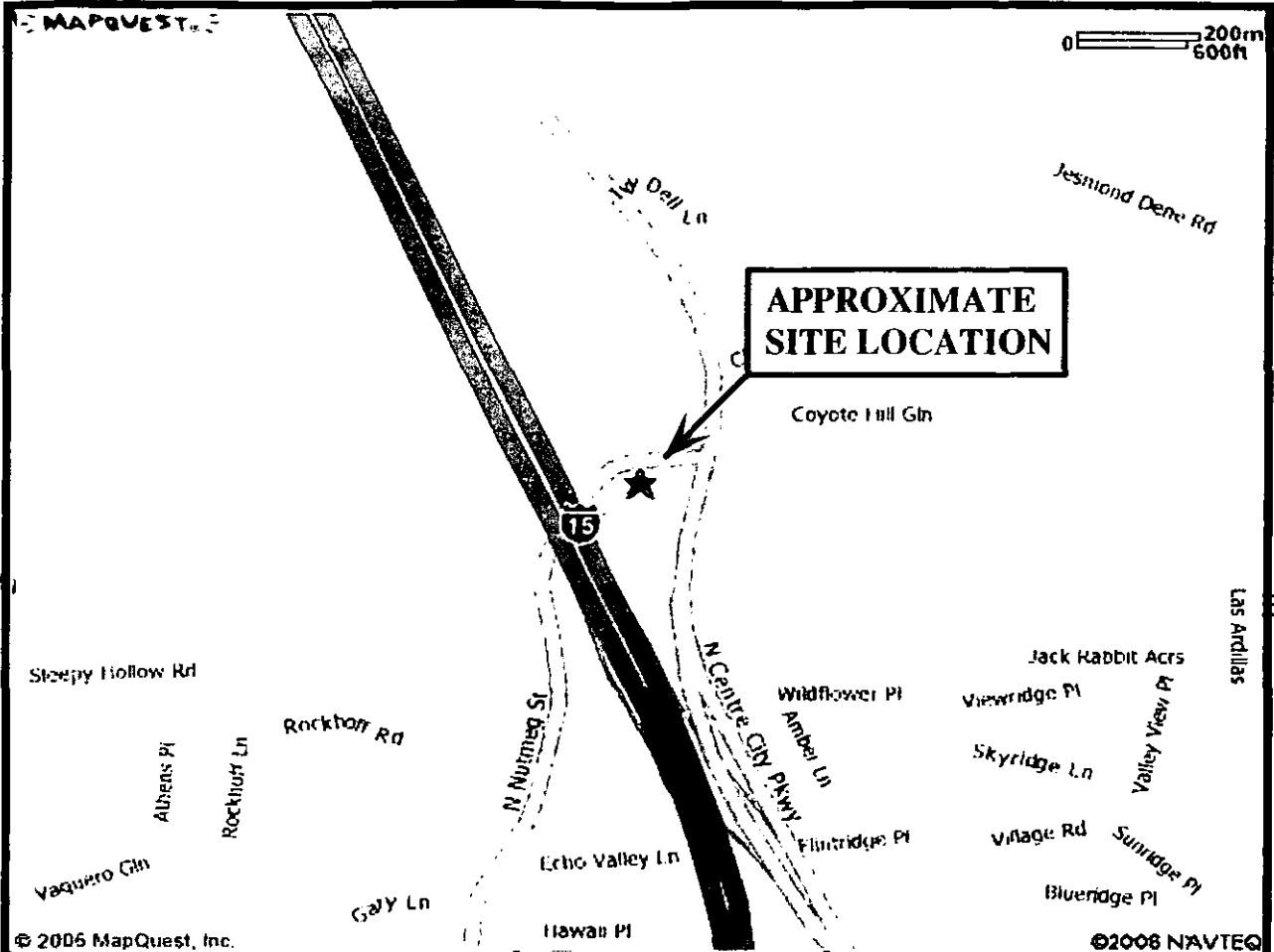
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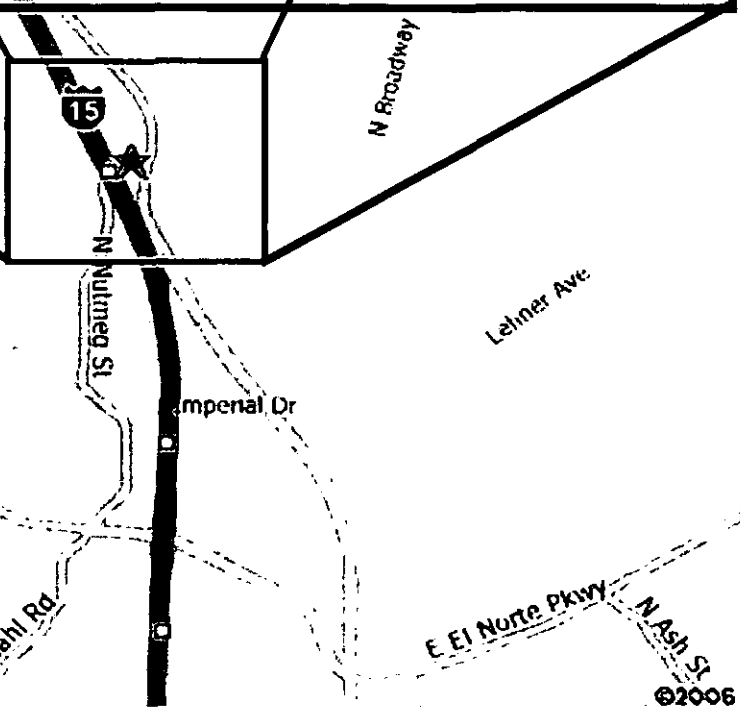
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FIGURES



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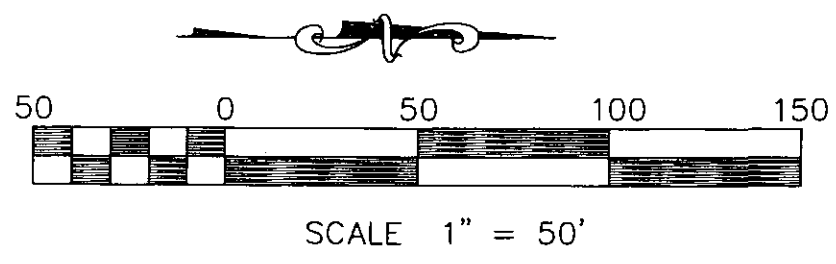


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SITE INDEX MAP
 UNDEVELOPED PROPERTY
 2401 NUTMEG STREET
 ESCONDIDO, CALIFORNIA

CTE JOB NO: 10-8721E	
SCALE: AS SHOWN	
DATE: 2/07	FIGURE: 1

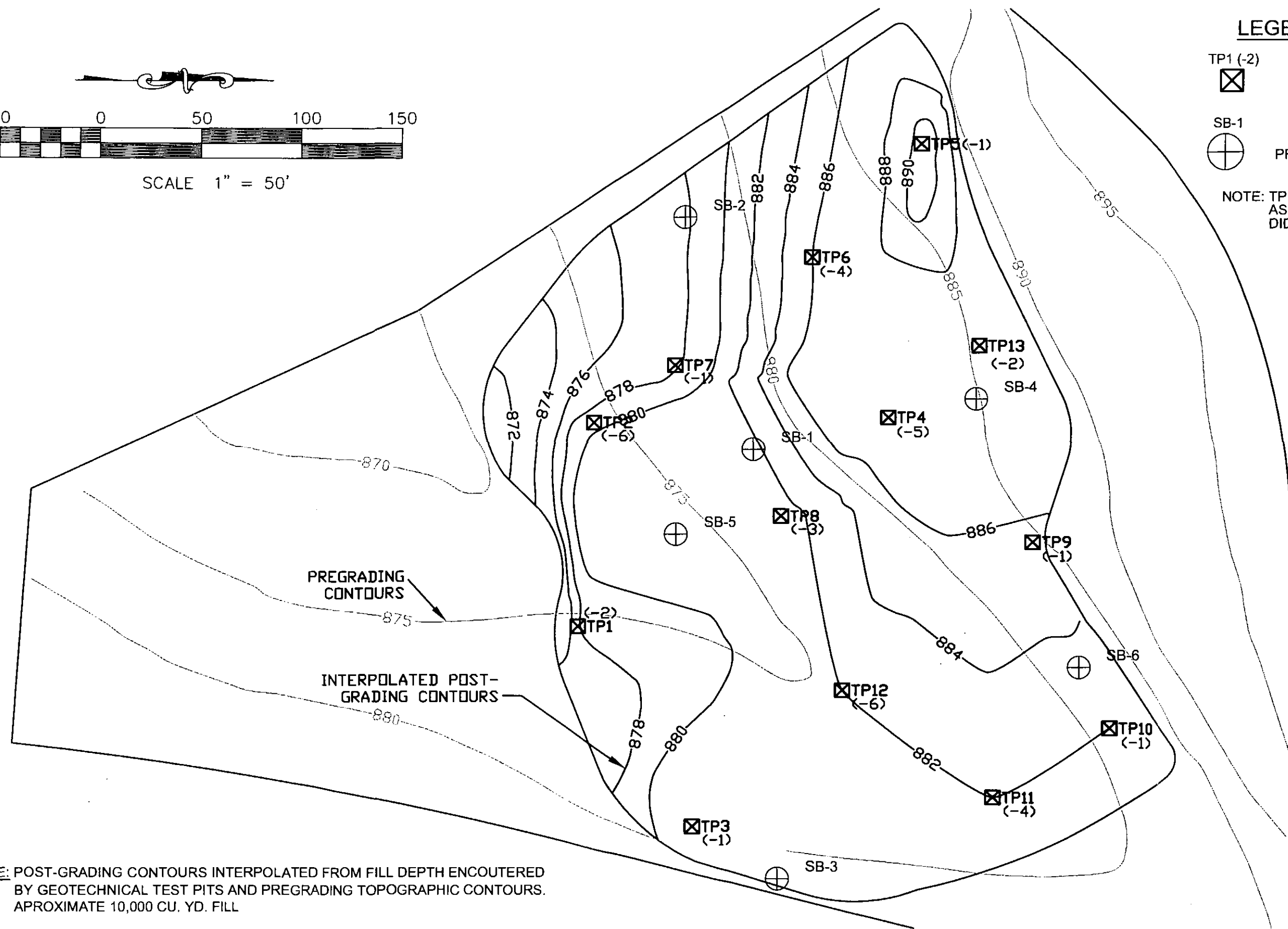
\\cfe_server\projects\10-8721E\SRF_FIG_2000-soil(MOD).dwg 4/17/2007 10:45:19 AM PDT



LEGEND

- TP1 (-2) APPROXIMATE LOCATION OF GEOTECHNICAL TEST PIT WITH FILL DEPTH ENCOUNTERED
- SB-1 PROPOSED SOIL BORING LOCATION

NOTE: TP12 FILL DEPTH SHOWN AS 6 FEET AS AN ESTIMATED VALUE, TEST PIT DID NOT EXTEND TO NATIVE SOIL.



NOTE: POST-GRADING CONTOURS INTERPOLATED FROM FILL DEPTH ENCOUNTERED BY GEOTECHNICAL TEST PITS AND PREGRADING TOPOGRAPHIC CONTOURS. APPROXIMATE 10,000 CU. YD. FILL

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INTERPOLATED POST-GRADING CONTOURS AND SAMPLING LOCATIONS

2401 NORTH NUTMEG STREET
 ESCONDIDO, CALIFORNIA
 APN: 224-260-23-00

C/E JOB NO: 10-8721E	
SCALE: 1" = 50'	
DATE: 4/07	FIGURE: 2

ATTACHMENTS

EXPLORATION LOGS



DEFINITION OF TERMS

PRIMARY DIVISIONS		SYMBOLS		SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
		GRAVELS WITH FINES	GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
			GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
		SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	SANDS WITH FINES	GC
	SW			WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
ML			INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS	
SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS	
		OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY	
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
HIGHLY ORGANIC SOILS		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS	
		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	
	12"	3"	3/4"	4	10	40	200
CLEAR SQUARE SIEVE OPENING				U.S. STANDARD SIEVE SIZE			

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density
GS- Grain Size Distribution
SE- Sand Equivalent
EI- Expansion Index
CHM- Sulfate and Chloride
Content , pH, Resistivity
COR - Corrosivity
SD- Sample Disturbed

PM- Permeability
SG- Specific Gravity
HA- Hydrometer Analysis
AL- Atterberg Limits
RV- R-Value
CN- Consolidation
CP- Collapse Potential
HC- Hydrocollapse
REM- Remolded

PP- Pocket Penetrometer
WA- Wash Analysis
DS- Direct Shear
UC- Unconfined Compression
MD- Moisture/Density
M- Moisture
SC- Swell Compression
OI- Organic Impurities



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PROJECT:
CTE JOB NO:
LOGGED BY:

DRILLER:
DRILL METHOD:
SAMPLE METHOD:

SHEET: of
DRILLING DATE:
ELEVATION:

Depth (Feet)	Bulk Sample	Driven Type	Blows/Foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING LEGEND	
								DESCRIPTION	Laboratory Tests
0								Block or Chunk Sample	
								Bulk Sample	
5									
								Standard Penetration Test	
10								Modified Split-Barrel Drive Sampler (Cal Sampler)	
								Thin Walled Army Corp. of Engineers Sample	
15								Groundwater Table	
								Soil Type or Classification Change	
20								? — ? — ? — ? — ? — ? — ? — ? —	
								Formation Change [(Approximate boundaries queried (?))]	
25						"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	



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1441 MONTIEL ROAD, SUITE 115 | ESCONCADO, CA 92526 | 760.746.4995

PROJECT: NUTMEG PROJECT

EXCAVATOR: BOBBY SIMPSON AND SONS

CTE JOB NO: 10-8721G

EXCAVATION METHOD: BACKHOE

EXCAVATION DATE: 10/26/2006

LOGGED BY: SC

SAMPLING METHOD: BULK, SLEEVES

ELEVATION: 875±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-1	Laboratory Tests
					Bulk	Driven		
		SM		0			DESCRIPTION	
							Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-2.5': Loose, dry, light brown, silty fine to coarse SAND with trace construction debris (plastic, screws, etc.)	
							No Groundwater Backfilled with excavated soil	



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PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 880±

TEST PIT LOG: TP-2

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0': Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles, trace construction debris (wire, metal pipe, etc.). 5': Numerous vegetation fragments including leaves, twigs, small branches.
		SM		5			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u> 6': Dense, dry, light brown, silty fine to coarse SAND.
		SM		10			Older Alluvium <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 8': Medium dense, slightly moist, orange-dark brown, silty fine to coarse SAND with trace clay.
		SC		15			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> Dense to very dense, moist, off white mottled orange, clayey SAND. Groundwater @ 16 ft.

Backfilled with excavated soil

FIGURE TP-2



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 1441 MIDFIELD ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4885

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 880±

TEST PIT LOG: TP-3

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type	DESCRIPTION
		SM		0		Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry light brown, silty SAND with gravel to cobbles, trace construction debris including geogrid fabric and twine.
		SM		1		Colluvium: Older Alluvium: 1: 1.25' layer of vegetation fragments including stems, branches and roots.
				1.25		<u>QUATERNARY COLLUVIUM (Qcol):</u> 1.25-1.5': Medium dense, dry, light brown silty SAND.
		SM		1.5		<u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1.5-6.5': Medium dense, slightly moist, red to orange brown silty fine to coarse SAND with trace clay.
				10		No groundwater Backfilled with excavated soil
				15		

FIGURE: TP-3



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONCIDO, CA 92628 | TEL: 760.746.0856

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 884±

TEST PIT LOG: TP-4

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0	X		Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles.
		SM		4.5			4.5': Vegetation fragments including leaves, twigs, small branches, trace construction debris including visquene.
		SM		5			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u>
		SM		5.5			5': Loose, dry, light brown, silty fine to coarse SAND with roots. Older Alluvium: 5.5': Medium dense, dry, dark brown, silty fine to coarse SAND with trace clay, rootlets in upper two inches.
				6.3			<u>QUATERNARY OLDER ALLUVIUM (Qcol):</u> 6.3': Loose, moist, orange brown, silty fine SAND with gravel.
		SC		10	X		Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 11': Dense to very dense, slightly moist, off white mottled olive and orange, clayey SAND.
				15			No groundwater Backfilled with excavated soil



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PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 886±

TEST PIT LOG: TP-5

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION	
					Bulk	Driven		
		SM		0			<p>Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND with trace gravel to cobbles and construction debris. Contains asphalt.</p>	
		SM		0.5			<p>Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.5': Medium dense, moist, orange brown, silty fine to coarse SAND with trace clay.</p>	
				5			<p>Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 3.75': Very dense, dry, light gray, silty fine to coarse SAND.</p>	
							<p>No groundwater Backfilled with excavated soil</p>	



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PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 885±

TEST PIT LOG: TP-6

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND.
		SM		4			4': 0.5" layer of vegetation including branches, grass, stems, roots. Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.5': Medium dense, moist, orange brown, silty fine to coarse SAND.
		SM		10			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 9': Very dense, moist, light gray, silty fine to coarse SAND. No groundwater Backfilled with excavated soil
				15			



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PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 885±

TEST PIT LOG: TP-7

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND.
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1': Medium dense, moist, orange brown, silty fine to coarse SAND.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



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PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 881±

TEST PIT LOG: TP-8

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-3': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles, plastic bag. 2.75': Vegetation fragments, including twigs, stems, grass, branches.
		SM		3			Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 3': Medium dense, slightly moist, silty fine SAND with trace coarse grains.
				5			No groundwater Backfilled with excavated soil
				10			
				15			



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PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 883±

TEST PIT LOG: TP-9

Laboratory Tests

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-0.5': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles. Older Alluvium: 0.5': Vegetation fragments including stems, branches, roots.
		SM		5			<u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.6': Medium dense, moist, red brown silty fine SAND with trace coarse SAND.
				10			Groundwater at 5' Backfilled with excavated soil
				15			



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4665

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 889±

TEST PIT LOG: TP-10

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Bulk Sample Type	Driven	Description
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-1': Loose, dry, light brown silty fine to coarse SAND with clay, gravel, cobbles.
		CL					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1'-4': Stiff, slightly moist, dark brown, sandy CLAY with gravel to cobbles and asphalt.
				5			No groundwater Backfilled with excavated soil
				10			
				15			

FIGURE: TP-10



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONIDO, CA 92026 | 760.748.4995

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 881±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-11	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		ML/SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-4': Loose, dry, dark brown fine to medium sandy SILT and silty fine to medium SAND.	
		SC		5			Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.25'-5': Medium dense, slightly moist, dark brown clayey SAND.	
							No groundwater Backfilled with excavated soil	



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDDO, CA 92026 | 760.746.4965

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 881±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-12	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		ML/SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-4': Loose, dry, dark brown sandy SILT and silty fine to medium SAND. 4': Vegetation fragments, including shrubs, grass and small limbs.	
				6			Groundwater at 6' Backfilled with excavated soil	



CONSTRUCTION TESTING & ENGINEERING, INC.

GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.744.4955

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 875±

TEST PIT LOG: TP-13

Laboratory Tests

DESCRIPTION

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION
					Bulk	Driven	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf)</u> 0-1.75': Loose, dry, red brown silty fine to coarse SAND.
		SM		1.75			1.75': Vegetation fragments including twigs and roots.
							Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1.8'-2.75': Medium dense, moist, orange brown silty fine SAND with trace coarse grains.
				5			No groundwater Backfilled with excavated soil
				10			
				15			

LABORATORY ANALYTICAL RESULTS

**Calscience
Environmental
Laboratories, Inc.**

November 14, 2006

Greg Rzonca
Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Subject: **Calscience Work Order No.: 06-11-0417**
Client Reference: **Nutmeg Street**


Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/7/2006 and analyzed in accordance with the attached chain-of-custody.

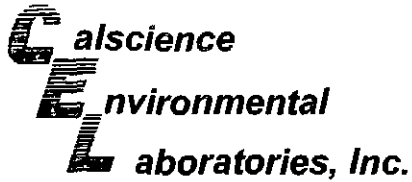
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,



Calscience Environmental
Laboratories, Inc.
Ranjit Clarke
Project Manager



Analytical Report

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 3050B / EPA 7471A Total
 Method: EPA 6010B / EPA 7471A
 Units: mg/kg

Project: Nutmeg Street

Page 1 of 1

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/07/06	11/09/06	061107L06

Comment(s): -Mercury was analyzed on 11/8/2006 12:34:04 PM with batch 061108L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	5.22	0.75	1		Molybdenum	ND	0.250	1	
Barium	162	0.500	1		Nickel	4.72	0.25	1	
Beryllium	0.547	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	0.552	0.250	1	
Chromium	8.24	0.25	1		Thallium	ND	0.750	1	
Cobalt	8.32	0.25	1		Vanadium	34.5	0.2	1	
Copper	12.0	0.5	1		Zinc	45.7	1.0	1	
Lead	5.57	0.50	1						

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP10 #2	06-11-0417-2	11/06/06	Solid	11/07/06	11/09/06	061107L06

Comment(s): -Mercury was analyzed on 11/8/2006 12:36:21 PM with batch 061108L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	4.09	0.75	1		Molybdenum	ND	0.250	1	
Barium	97.1	0.5	1		Nickel	13.2	0.2	1	
Beryllium	0.474	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	0.481	0.250	1	
Chromium	22.1	0.2	1		Thallium	ND	0.750	1	
Cobalt	11.4	0.2	1		Vanadium	33.9	0.2	1	
Copper	19.3	0.5	1		Zinc	30.6	1.0	1	
Lead	5.01	0.50	1						

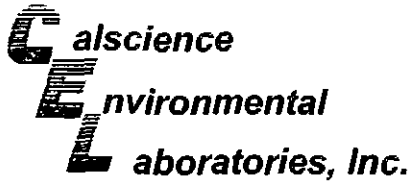
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	099-04-007-4,233	N/A	Solid	11/08/06	11/08/06	061108L01

Parameter	Result	RL	DF	Qual
Mercury	ND	0.0835	1	

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	097-01-002-8,360	N/A	Solid	11/07/06	11/08/06	061107L06

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Lead	ND	0.500	1	
Arsenic	ND	0.750	1		Molybdenum	ND	0.250	1	
Barium	ND	0.500	1		Nickel	ND	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	ND	0.250	1		Thallium	ND	0.750	1	
Cobalt	ND	0.250	1		Vanadium	ND	0.250	1	
Copper	ND	0.500	1		Zinc	ND	1.00	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 3550B
 Method: TPH - Carbon Range
 Units: mg/kg

Project: Nutmeg Street

Page 1 of 1

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/08/06	11/09/06	061108B06

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	ND		1	
C8	ND		1		C23-C24	ND		1	
C9-C10	ND		1		C25-C28	ND		1	
C11-C12	ND		1		C29-C32	0.43		1	
C13-C14	ND		1		C33-C36	0.62		1	
C15-C16	ND		1		C37-C40	1.0		1	
C17-C18	ND		1		C41-C44	1.6		1	
C19-C20	ND		1		C7-C44 Total	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	89	61-145							

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP10 #2	06-11-0417-2	11/06/06	Solid	11/08/06	11/09/06	061108B06

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	3.8		1	
C8	ND		1		C23-C24	3.9		1	
C9-C10	ND		1		C25-C28	10		1	
C11-C12	ND		1		C29-C32	22		1	
C13-C14	0.061		1		C33-C36	28		1	
C15-C16	0.36		1		C37-C40	23		1	
C17-C18	1.2		1		C41-C44	28		1	
C19-C20	2.0		1		C7-C44 Total	120	5	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	92	61-145							

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	099-12-275-150	N/A	Solid	11/08/06	11/09/06	061108B06

Parameter	Result	RL	DF	Qual
TPH as Diesel	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	94	61-145		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Analytical Report

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 3545
 Method: EPA 8081A/8082
 Units: ug/kg

Project: Nutmeg Street

Page 1 of 2

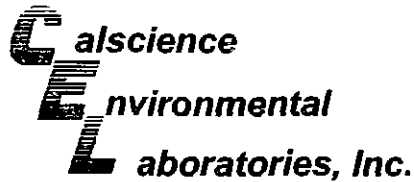
Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/08/06	11/10/06	061108L10

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Heptachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Heptachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldehyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Decachlorobiphenyl	50	50-130			2,4,5,6-Tetrachloro-m-Xylene	62	50-130		

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP10 #2	06-11-0417-2	11/06/06	Solid	11/08/06	11/10/06	061108L10

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Heptachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Heptachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldehyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Decachlorobiphenyl	66	50-130			2,4,5,6-Tetrachloro-m-Xylene	83	50-130		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 11/07/06
Work Order No: 06-11-0417
Preparation: EPA 3545
Method: EPA 8081A/8082
Units: ug/kg

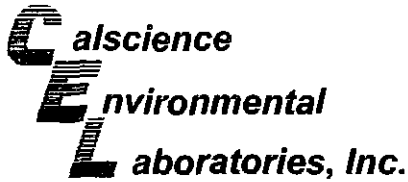
Project: Nutmeg Street

Page 2 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	095-01-014-2,903	N/A	Solid	11/08/06	11/10/06	081108L10

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Heptachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Heptachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldehyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Decachlorobiphenyl	79	50-130			2,4,5,6-Tetrachloro-m-Xylene	89	50-130		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

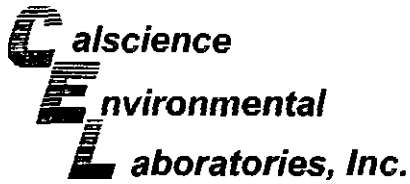
Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 3050B
 Method: EPA 6010B

Project Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0244-2	Solid	ICP 3300	11/07/06	11/08/06	061107S06

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	59	60	50-115	1	0-20	
Arsenic	89	91	75-125	2	0-20	
Barium	56	81	75-125	8	0-20	3
Beryllium	93	96	75-125	3	0-20	
Cadmium	89	93	75-125	4	0-20	
Chromium	87	93	75-125	4	0-20	
Cobalt	87	95	75-125	6	0-20	
Copper	86	92	75-125	4	0-20	
Lead	87	93	75-125	5	0-20	
Molybdenum	87	91	75-125	4	0-20	
Nickel	86	94	75-125	6	0-20	
Selenium	83	87	75-125	5	0-20	
Silver	93	94	75-125	1	0-20	
Thallium	85	87	75-125	2	0-20	
Vanadium	76	89	75-125	7	0-20	
Zinc	77	90	75-125	6	0-20	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

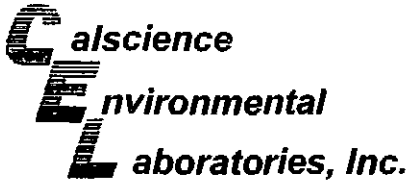
Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 3550B
 Method: EPA 8015B (M)

Project Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0533-1	Solid	GC 15	11/08/06	11/09/06	061108S06

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	87	86	64-130	2	0-15	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

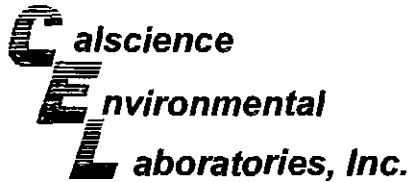
Date Received: 11/07/06
 Work Order No: 06-11-0417
 Preparation: EPA 7471A Total
 Method: EPA 7471A

Project Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TP1 #1	Solid	Mercury	11/08/06	11/08/06	061108S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	111	116	76-136	4	0-16	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate

Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Date Received: 11/07/06
Work Order No: 06-11-0417
Preparation: EPA 3545
Method: EPA 8081A

Project Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0453-1	Solid	GC 16	11/08/06	11/09/06	061108S10

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gamma-BHC	118	93	50-135	24	0-25	
Heptachlor	100	83	50-135	18	0-25	
Endosulfan I	0	0	50-135	0	0-25	3
Dieldrin	805	302	50-135	43	0-25	3,4
Endrin	393	248	50-135	45	0-25	3,4
4,4'-DDT	110	89	50-135	21	0-25	

RPD - Relative Percent Difference, CL - Control Limit

Calscience
Environmental Laboratories, Inc. **Quality Control - Laboratory Control Sample**

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

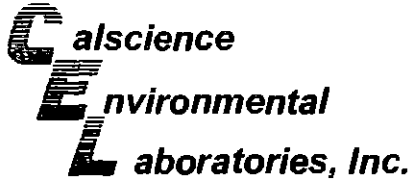
Date Received: N/A
 Work Order No: 06-11-0417
 Preparation: EPA 3050B
 Method: EPA 6010B

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-002-8,360	Solid	ICP 3300	11/08/06	061107-4-06	061107L06

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	24.4	98	80-120	
Arsenic	25.0	24.2	97	80-120	
Barium	25.0	25.8	103	80-120	
Beryllium	25.0	24.3	97	80-120	
Cadmium	25.0	24.7	99	80-120	
Chromium	25.0	25.2	101	80-120	
Cobalt	25.0	26.0	104	80-120	
Copper	25.0	24.5	98	80-120	
Lead	25.0	25.1	100	80-120	
Molybdenum	25.0	24.9	100	80-120	
Nickel	25.0	25.7	103	80-120	
Selenium	25.0	22.6	90	80-120	
Silver	12.5	11.8	95	80-120	
Thallium	25.0	25.8	103	80-120	
Vanadium	25.0	24.0	96	80-120	
Zinc	25.0	25.3	101	80-120	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - LCS/LCS Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

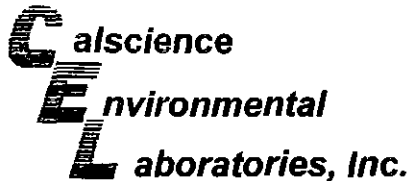
Date Received: N/A
 Work Order No: 06-11-0417
 Preparation: EPA 3550B
 Method: TPH - Carbon Range

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-275-150	Solid	GC 15	11/08/06	11/09/06	061108B06

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	80	80	75-123	0	0-12	

RPD - Relative Percent Difference . CL - Control Limit



Quality Control - LCS/LCS Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

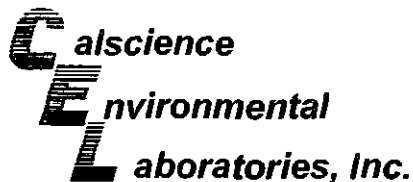
Date Received: N/A
 Work Order No: 06-11-0417
 Preparation: EPA 7471A Total
 Method: EPA 7471A

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-04-007-4,233	Solid	Mercury	11/08/06	11/08/06	061108L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	100	100	82-124	0	0-16	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate

Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: N/A
 Work Order No: 06-11-0417
 Preparation: EPA 3545
 Method: EPA 8081A/8082

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-014-2,903	Solid	GC 16	11/08/06	11/09/06	061108L10

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gamma-BHC	107	106	50-135	1	0-25	
Heptachlor	96	95	50-135	1	0-25	
Endosulfan I	93	102	50-135	9	0-25	
Dieldrin	97	96	50-135	1	0-25	
Endrin	96	92	50-135	3	0-25	
4,4'-DDT	105	101	50-135	4	0-25	
Aroclor-1260	122	118	50-135	3	0-25	

RPD - Relative Percent Difference, CL - Control Limit

Glossary of Terms and Qualifiers

Work Order Number: 06-11-0417

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

LABORATORY CLIENT: CTE
ADDRESS: 1441 Montiel Road
CITY: Escandido STATE: CA ZIP: 92026
TEL: 760 746 4955 E-MAIL: greg@cte-inc.net
TURNAROUND TIME:
 SAME DAY 24 HR 48 HR 72 HR 5 DAYS 10 DAYS
SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
 RWQCB REPORTING FORMS COELT EDF
SPECIAL INSTRUCTIONS: standard turnaround

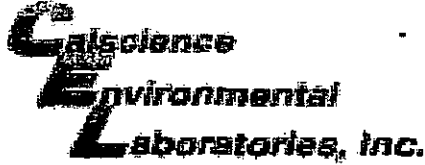
CLIENT PROJECT NAME / NUMBER: Nutmeg Street
P.O. NO.:
PROJECT CONTACT: Greg Rzonca
SAMPLER(S): (SIGNATURE) [Signature] COELT LOG CODE
LAB USE ONLY
 -
COOLER RECEIPT
TEMP = _____ °C

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	FIELD POINT NAME (FOR COELT EDF)	SAMPLING		MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or	BTEX / MTBE (8260B) or	OXYGENATES (8260B)	VOCs (8260B)	5035 ENCORE PREP	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	CAC, T22 METALS (8010B) / 7474	PNAs (8310) or (8270C)	VOCs (TO-14A) or (TO-15)	TPH(G) (TO-3M)	TRPH 8015B (C7-C9)	
			DATE	TIME																	
	<u>TP1 #1</u>		<u>11/6/06</u>	<u>1430</u>	<u>Soil</u>	<u>3</u>															
	<u>TP10 #2</u>		<u>11/6/06</u>	<u>1445</u>	<u>Soil</u>	<u>3</u>															

Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>11/7/06</u>	Time: <u>1210</u>
Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>11/7/06</u>	Time: <u>1635</u>
Relinquished by: (Signature) <u>[Signature]</u>	Received for Laboratory by: (Signature) <u>[Signature]</u>	Date: <u>11/7/06</u>	Time: <u>1635</u>

DISTRIBUTION: When with final report, Green to file, Yellow to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Green and Yellow copies respectively.



WORK ORDER #: 06 - 11 - 0417

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: CTE

DATE: 11/7/6

TEMPERATURE - SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided.
Chilled, cooler without temperature blank.
Chilled and placed in cooler with wet ice.
Ambient and placed in cooler with wet ice.
Ambient temperature.

LABORATORY (Other than Calscience Courier):

- Temperature blank.
IR thermometer.
Ambient temperature.

3.6 C Temperature blank.

Initial: [Signature]

CUSTODY SEAL INTACT:

Sample(s): Cooler: No (Not Intact):

Not Present: [check]

Initial: [Signature]

SAMPLE CONDITION:

Table with 4 columns: Item, Yes, No, N/A. Rows include Chain-Of-Custody document(s), Sampler's name, Sample container label(s), Sample container(s) intact, Correct containers and volume, Proper preservation, VOA vial(s) free of headspace, Tedlar bag(s) free of condensation.

Initial: [Signature]

COMMENTS:

Blank lines for handwritten comments.

P.O. BOX 129261
SAN DIEGO, CA 92112-9261
ATTN: NASSER SIONIT
(619) 338-2239
(619) 338-2315 (FAX)
WEB SITE: www.co.san-diego.ca.us/deh/lwq/sam



FOR OFFICE USE:

Date Received _____

Submittal Fee Paid _____

Establishment # _____

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
VOLUNTARY ASSISTANCE PROGRAM
APPLICATION FOR ASSISTANCE
(PLEASE READ BOTH PAGES OF THIS APPLICATION PRIOR TO COMPLETION)

A. Site Name Undeveloped Property Assessors Parcel Number 224-260-23
Site Address 2401 North Nutmeg Street Escondido CA 92026
Street City State Zip Code

B. Property Owner Mr. Arie de Jong, ADJ Holdings, LLC
Mailing Address C/O: Hilltop Group, Inc., 807 E. Mission Rd, Escondido, CA 92069
Street City State Zip Code
Contact Person Mr. Mark Lemire Telephone (760) 744-9040

C. Application Submitted By:
Contact Person Mr. Mark Lemire Telephone (760) 744-9040
Company Name Hilltop Group, Inc.
Mailing Address 807 E. Mission Rd, San Marcos, CA 92069
Street City State Zip Code
Note: Applicant is responsible for payment to the County. Invoices will be sent to the applicant at this address unless other arrangements are made.

D. Brief Project Description Fill of unknown origin was placed on the property. Laboratory testing of two samples collected for geotechnical purposes indicated the presence of petroleum hydrocarbon compounds at low concentrations and Arsenic at concentrations above preliminary remediation goals. Attached transmittal provides background, including maps, photographic mosaic, analytical results, and reports.
Type of Assistance Requested Review and input toward site assessment and characterization, corrective action plan, and regulatory case closure.

I accept the application requirements and project review conditions listed on Page 2 of 2 and I agree to pay all costs associated with DEH staff time and services within 30 days of receiving an invoice.

Arie de Jong
Original Signature of Applicant

Arie de Jong
Printed Name

2-19-07
Date

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
VOLUNTARY ASSISTANCE PROGRAM

The Voluntary Assistance Program is designed to provide the applicant with staff consultation, project review, and public health assessment pertaining to properties suspected or known to be contaminated with hazardous substances. California Health and Safety Code Sections 101480-101490 authorize the County Department of Environmental Health (DEH) to enter into voluntary agreements for the oversight of remedial action at sites contaminated by wastes.

The DEH staff will review and manage all projects in accordance with applicable regulatory requirements, industry practices, and the current version of the DEH Site Assessment and Mitigation Manual. Our goal throughout project review is the protection of human health, water resources and the environment. Upon completion of a project, DEH will issue a letter addressing the applicant's specific project goals. Open lines of communication between DEH and the applicant provide the best opportunities for expedient review and successful project resolution.

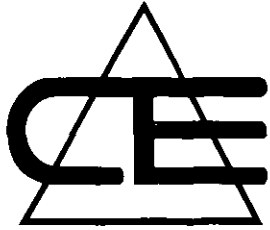
Application Requirements

- Sections A, B, C, and D must be completed on the "Application for Assistance" form (Page 1 of 2), along with the applicant's original signature.
- Fully describe your project and your specific request(s) for DEH review and written response (Section D). As necessary, include a cover letter to clarify your project needs.
- Submit all relevant documentation/reports with the application. All documents containing geologic and/or contaminant migration interpretations must be signed by an experienced professional with the appropriate California registration or certification.
- An initial fee of \$230, payable to the County of San Diego, is required at the time of application submittal. This fee covers two (2) hours of staff review time. Staff time in excess of two hours will be invoiced to applicant and must be paid within 30 days of receipt of the invoice. The staff billing rate is currently \$115/hour. **Staff assistance will not be provided on delinquent accounts.**

Project Review Conditions

- Within five (5) workdays of DEH receipt of your complete application, the project is identified by a DEH Case No. and assigned to a DEH project manager.
- The DEH will notify the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) that the project has been submitted for DEH review.
- A copy of all written DEH correspondence will be sent to the applicant and forwarded to the legal property owner. Project files will be available for public review.
- DEH has the option of referring the project to the DTSC or RWQCB at any time during the project review process. If the applicant ceases work, or requests DEH to cease work, on a project prior to resolving site contamination issues, then DEH would refer the project to the appropriate agency and/or identify the project as unresolved in the DEH database.

HEALTH AND SAFETY PLAN



CONSTRUCTION TESTING & ENGINEERING, INC.

SAN DIEGO, CA
1441 Montiel Road
Suite 115
Escondido, CA 92026
(760) 746-4955
(760) 746-9806 FAX

RIVERSIDE, CA
12155 Magnolia Ave.
Suite 6C
Riverside, CA 92503
(951) 352-6701
(951) 352-6705 FAX

VENTURA, CA
1645 Pacific Ave.
Suite 107
Oxnard, CA 93033
(805) 486-6475
(805) 486-9016 FAX

TRACY, CA
242 W. Larch
Suite F
Tracy, CA 95376
(209) 839-2890
(209) 839-2895 FAX

SACRAMENTO, CA
3628 Madison Ave.
Suite 22
N. Highlands, CA 95660
(916) 331-6030
(916) 331-6037 FAX

N. PALM SPRINGS, CA
19020 N. Indian Ave.
Suite 2-K
N. Palm Springs, CA 92258
(760) 329-4677
(760) 328-4896- FAX

HEALTH AND SAFETY PLAN

2401 NUTMEG STREET
(APN 224-260-23)
ESCONDIDO, CALIFORNIA
DEH VAP CASE H39704-001

PREPARED FOR

HILLTOP GROUP, INC.
MARK LEMIRE
807 EAST MISSION ROAD
SAN MARCOS, CALIFORNIA 92069

CONSTRUCTION TESTING & ENGINEERING
1441 MONTIEL ROAD, SUITE 115
ESCONDIDO, CALIFORNIA 92026

APRIL 16, 2007

PROJECT NO. 10-8721E

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FIGURE: HOSPITAL ROUTE MAP WITH DIRECTIONS

ATTACHMENT: SITE PERSONNEL SIGN-OFF SHEET

1.0 SUMMARY INFORMATION

1.1 PROJECT DESCRIPTION

Project Name: Nutmeg Project 4.5 Acre Site

Site Address: 2401 North Nutmeg Street (APN: 224-260-23) Escondido, California

Scope of Work: Hand auger soil borings, collect soil samples, and possibly field test for Arsenic in soil.

Chemicals: Low level concentrations of petroleum hydrocarbons

Start Date: To be determined

Field Work Duration: 1 day

1.2 PROJECT PERSONNEL

Project Manager: Gregory F. Rzonca

Site Supervisor: (manual insert upon assignment)

Site H&S Coordinator: (manual insert upon assignment)

Subcontractors: (manual insert upon assignment)

1.3 HEALTH HAZARD EVALUATION

Elevated concentrations of Arsenic may be present in the soil. Additionally, there are possibly low levels of total petroleum hydrocarbons present. If present, the contaminants may pose a health hazard to site personnel via ingestion or inhalation. Accidental ingestion of contaminants may occur as a result of breathing airborne dust disturbed during sampling and/or dirt handling activities, or from contamination of hands and hand-to-mouth contact, and through contamination of food, chewing gum or liquids brought on site. Inhalation of contaminated dust could occur during drilling, and dirt handling activities.

1.4 PHYSICAL HAZARD EVALUATION

Potential physical hazards include slips/trips/falls, material-handling (back) injuries (heavy lifting), heat and cold stress (hypothermia), poor illumination, vehicle traffic, snakes, insects, and spiders, flammable hazards, poisonous plants, and *Hantavirus*-associated diseases.

1.5 LEVEL OF PROTECTION

Modified level D:

- Safety glasses/goggles,
- Safety shoes/boots,
- Cotton work clothes
- Nitrile gloves

I.6 CHEMICAL HEALTH HAZARD INFORMATION

Information regarding the health hazards of chemicals with metals that may be present in the soils at the site are presented Table 1-1.

TABLE 1-1

CHEMICAL HEALTH HAZARD INFORMATION Chemical/ Compound	OSHA-NIOSH-ACGIH-PEL ⁽¹⁾				NIOSH ⁽²⁾	Target Organs ⁽⁷⁾	Routes of Entry ⁽⁷⁾	Exposure Signs and Symptoms ⁽⁷⁾
	TWA ⁽³⁾ (ppm)	STEL ⁽⁴⁾ (ppm)	Ceiling ⁽⁵⁾ (ppm)	IDLH ⁽⁶⁾ (ppm)				
Arsenic	0.01 ⁽⁹⁾ mg/M ³	NE	NE	5 mg/M ³		Liver, kidneys, skin, lungs, lymphatic system (lung & lymphatic cancer)	Inhalation, ingestion, skin and/or eye contact	Ulceration of nasal septum, dermal and GI disturbances, peri. neural respiratory irritant, hyperpigmentation of skin
Barium	0.5 ^(7,8,9) mg/M ³	NE	NE	50 mg/M ³		CNS, heart, skin, respiratory system, eyes	Inhalation, ingestion, skin and/or eye contact	Eye, skin, and upper respiratory system irritation, skin burns, gastroenteritis, muscle spasm, slow pulse, extrasystoles, hypokalemia
Benzene	0.1 ⁽⁷⁾	1 ⁽⁷⁾	1 ⁽⁷⁾ [15 min.]	Ca [500ppm]		Blood, CNS, skin, bone marrow, eyes, respiratory system	Inhalation, skin absorption, skin contact, ingestion	Eye, nose, skin, and respiratory system irritation, headache, nausea, lack of coordination, fatigue, anorexia, lassitude, dermatitis, bone marrow depression, potential occupational carcinogen

CHEMICAL HEALTH HAZARD INFORMATION Chemical/ Compound	OSHA-NIOSH-ACGIH-PEL ⁽¹⁾			NIOSH ⁽²⁾	Target Organs ⁽⁷⁾	Routes of Entry ⁽⁷⁾	Exposure Signs and Symptoms ⁽⁷⁾
	TWA ⁽³⁾ (ppm)	STEL ⁽⁴⁾ (ppm)	Ceiling ⁽⁵⁾ (ppm)	IDLH ⁽⁶⁾ (ppm)			
Beryllium	0.005 ⁽⁷⁾ mg/ M ³	0.01 ⁽⁸⁾ mg/M ³	0.005 ⁽⁹⁾ mg/M ³ 0.025 mg/M ³ [30 min. max. peak]	Ca [4 mg/M ³]	Eyes, skin, respiratory system [lung cancer]	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure), anorexia, weight loss, weak, chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency, eye irritation, dermatitis, potential occupational carcinogen
Cadmium	0.01 ⁽⁸⁾ mg/M ³ [inhalation fraction] 0.002 ⁽⁸⁾ mg/M ³ [respirable fraction]	NE	NE	Ca [9 mg/M ³]	Respiratory system, kidneys, blood, prostate, [prostate & lung cancer]	Inhalation, ingestion	Pulmonary edema, dyspnea, cough, tight chest, substernal pain, headache, chills, muscle aches, nausea, vomiting, diarrhea, anosmia, emphysema, proteinuria, mild anemia, potential occupational carcinogen
Chromium	0.5 ^(7,8) mg/M ³	NE	NE	250 mg/ M ³	Eyes, skin, respiratory system	Inhalation, ingestion, skin and/or eye contact	Eyes and skin irritation, histologic fibrosis of lungs
Copper	1 ^(7,8,9) mg/M ³	NE	NE	100 mg/M ³	Respiratory system, skin, liver, kidneys, increased risk with Wilson's disease	Inhalation, ingestion, skin and/or eye contact	Irritation of the eyes, nose and pharynx, nasal perforation, metallic taste, dermatitis
Diesel fuel	NE	NE	NE	NE	Skin, eyes	Ingestion, skin and/or eye contact	Irritation of eyes, skin, and mucous membrane, diarrhea, dermatitis

CHEMICAL HEALTH HAZARD INFORMATION Chemical/ Compound	OSHA-NIOSH-ACGIH-PEL ⁽¹⁾			NIOSH ⁽²⁾	Target Organs ⁽⁷⁾	Routes of Entry ⁽⁷⁾	Exposure Signs and Symptoms ⁽⁷⁾
	TWA ⁽³⁾ (ppm)	STEL ⁽⁴⁾ (ppm)	Ceiling ⁽⁵⁾ (ppm)	IDLH ⁽⁶⁾ (ppm)			
Ethylbenzene	100 ^(7,8,9)	125 ⁽⁷⁾	NE	800 [10% LEL]	Eyes, upper respiratory system, skin	Inhalation, ingestion	Eye irritation, dermatitis, headaches
Gasoline	300 ⁽⁸⁾	500 ⁽⁸⁾	NE	Ca [ND]	Eyes, skin, respiratory system, CNS, liver, kidneys	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation of eyes, skin, and mucous membrane, dermatitis, headache, fatigue, blurred vision, dizziness, slurred speech, confusion, convulsions, chemical pneumonia (aspiration), possible liver and kidney damage, potential occupational carcinogen
Kerosene	100 ⁽⁷⁾ mg/ M ³	NE	NE	ND	Eyes, skin, respiratory system, CNS	Inhalation, ingestion, skin and/or eye contact	Irritation of eyes, skin, nose, and throat, burning sensation in chest, headache, nausea, weakness, restlessness, lack of coordination, confusion, drowsiness, vomiting, diarrhea, dermatitis, chemical pneumonia (aspiration liquid)
Lead	0.05 ⁽⁹⁾ mg/M ³	NE	NE	100 mg/M ³	Eyes, GI tract, CNS, kidneys, blood, gingival tissue	Inhalation, ingestion, skin and/or eye contact	Weakness, lassitude, insomnia, facial pallor, pale eye, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, paralysis of wrists and ankles, encephalopathy, nephropathy, irritation of eyes, hypertension
Manganese	1 ⁽⁷⁾ mg/M ³	3 ⁽⁷⁾ mg/M ³	5 ⁽⁹⁾ mg/M ³	500 mg/M ³	CNS, respiratory system, kidneys, blood	Inhalation, ingestion	Parkinson's, asthenia, insomnia, mental confusion, metal fume fever, dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever, low-back pain, vomiting, malaise, fatigue, kidney damage

CHEMICAL HEALTH HAZARD INFORMATION Chemical/ Compound	OSHA-NIOSH-ACGIH-PEL ⁽¹⁾			NIOSH ⁽²⁾	Target Organs ⁽⁷⁾	Routes of Entry ⁽⁷⁾	Exposure Signs and Symptoms ⁽⁷⁾
	TWA ⁽³⁾ (ppm)	STEL ⁽⁴⁾ (ppm)	Ceiling ⁽⁵⁾ (ppm)	IDLH ⁽⁶⁾ (ppm)			
Magnesium	NE	NE	NE	NE	Respiratory system, eyes	Inhalation, skin and/or eye contact	Irritation of eyes and nose, metal fume fever, cough, chest pain, flu-like fever
Mercury compounds (as Hg and Hg metal)	0.05 ⁽⁷⁾ mg/M ³	NE	0.1 ⁽⁷⁾ mg/M ³	10 mg/M ³	Eyes, skin, respiratory system, CNS, kidneys	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation of eyes and skin, cough, chest pain, dyspnea, bronchitis, pneumonia, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, GI tract disturbance, anorexia, weight loss, proteinuria
Nickel	0.015 ⁽⁷⁾ mg/M ³	NE	NE	Ca [10 mg/M ³]	Nasal cavities, skin, lungs, [lungs & nasal cancer]	Inhalation, ingestion, skin and/or eye contact	Sensitization, dermatitis, allergic asthma, pneumonia, potential occupational carcinogen
Sand	NE	NE	NE	NE	Respiratory system, skin, eyes	Inhalation, ingestion, skin and/or eye contact	Respiratory system, skin, and eye irritation
Silver metal dust and soluble compounds (as Ag)	0.01 ⁽⁷⁾ mg/M ³	NE	NE	10 mg/M ³	Nasal septum, skin, eyes	Inhalation, ingestion, skin and/or eye contact	Blue-grey eyes, nasal septum, throat, skin, irritation, skin ulceration, GI tract disturbance
Toluene	50 ⁽⁸⁾	150 ⁽⁷⁾	300 ⁽⁹⁾ ppm or 200 ⁽⁹⁾ ppm [10 min. max. peak]	500	Eye, skin, respiratory system, CNS, liver, kidneys	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation of eyes, nose, and throat, fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, lacrimation (discharge of tears), nervousness, muscle fatigue, insomnia, paresthesia, dermatitis, liver and kidney damage

CHEMICAL HEALTH HAZARD INFORMATION Chemical/ Compound	OSHA-NIOSH-ACGIH-PEL ⁽¹⁾			NIOSH ⁽²⁾	Target Organs ⁽⁷⁾	Routes of Entry ⁽⁷⁾	Exposure Signs and Symptoms ⁽⁷⁾
	TWA ⁽³⁾ (ppm)	STEL ⁽⁴⁾ (ppm)	Ceiling ⁽⁵⁾ (ppm)	IDLH ⁽⁶⁾ (ppm)			
Xylenes (o,m,p isomers)	100 ^(7,8,9)	150 ⁽⁷⁾	NE	900	Eyes, skin, respiratory system, CNS, GI tract, blood, liver, kidneys	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation of eyes, skin, nose and throat, dizziness, excitement, drowsiness, lack of coordination, staggering gait, corneal vacuolization, anorexia, nausea, vomiting, abdominal pain, dermatitis, liver, kidney, and lung damage

Notes:

- (1) PEL - Permissible Exposure Limit
 - (2) NIOSH - National Institute of Occupational Safety and Health
 - (3) TWA - 8-hour Time-Weighted Average
 - (4) STEL - 15-minute Short-Term Exposure Limit
 - (5) Ceiling - Instantaneous Exposure Limit
 - (6) IDLH - Immediately Dangerous to Life and Health concentration
 - (7) NIOSH Pocket Guide To Chemical Hazards, U.S. Department of Health and Human Services. Publication No. 2005-149, September 2005.
 - (8) American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices (as reported on the ACGIH website: <http://www.acgih.org>).
 - (9) Occupational Safety and Health Administration (OSHA), U.S. Department of Labor website: <http://www.osha.gov>.
- Ca - NIOSH considers the substance to be a potential human carcinogen; carcinogenic effects were not evaluated in the determination of IDLH values.
- cm³ - cubic centimeters
- CNS - Central Nervous System
- CVS - Cardiovascular system
- GI - Gastrointestinal
- 10% LEL - Indicates that the IDLH was based on 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations
- mg/M³ - milligrams per cubic meter
- NA - Not Applicable
- ND - Indicates that the IDHL has not yet been determined
- NE - Not Established
- ppm - parts per million

1.7 AIR MONITORING ACTION LEVELS

Air monitoring action levels are presented on Table 1-2.

TABLE 1-2: AIR MONITORING ACTION LEVELS

Air Monitoring	Hazard	Respiratory Protection Required	Actions Required/Job Shutdown
Visually	Contaminated dust atmosphere	Visible dust—half-face APR with HEPA	
Flame ionization FID or PID	Toxic atmosphere	25 ppm - half-face APR with organic vapor cartridge	75 ppm, up grade to full-face respirator Shut down work until respiratory protection is upgraded.
		75 ppm - full-face APR	125 ppm, upgrade to air-supplied respirator or use forced ventilation to reduce levels to below 10 ppm. Shut down work until air-supplied respirators are worn, or forced ventilation is used.
		125 ppm air-supplied respirators	300 ppm, shut down work until forced ventilation lowers and maintains levels below 300 ppm.

1.8 EMERGENCY SIGNALS

Signals that will be used to alert personnel of an emergency when located too distant to hear verbal communications are presented on Table 1-3.

Nutmeg Project 4.5 Acre Site

2401 North Nutmeg Street (APN: 224-260-23) Escondido, California

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CTE Job No. 10-8721E

TABLE 1-3: EMERGENCY SIGNALS

Signal	Required Action
Air Horn—long blast 10 seconds apart	Stop work, turn off equipment, leave work zone, use modified decontamination procedures, assemble in support zone
Air Horn—3 short successive blasts 10 seconds between each set	Immediately turn off equipment and evacuate site; assemble in alternate area as indicated in tailgate meetings

1.9 EMERGENCY TELEPHONE NUMBERS

Ambulance 9-1-1
 Police 9-1-1
 Hospital Pomerado Hospital.
 15615 Pomerado Rd. Poway, CA 92064 858.613.4000

(See the attached Figure 1, Hospital Route Map)

1.10 PLAN PURPOSE AND USE

This health and safety plan (HSP) has been developed to assist site personnel in recognizing, understanding and avoiding potential health and safety hazards that may be present at the site. It was developed for the use of CONSTRUCTION TESTING & ENGINEERING employees, with the understanding that site personnel will have completed the Cal-OSHA required hazardous waste operations training. Therefore, site personnel are expected to be knowledgeable in standard procedures, abbreviations, and acronyms. Compliance with this Health and Safety Plan is required of CONSTRUCTION TESTING & ENGINEERING personnel who enter site work areas.

Subcontractors are responsible for the development of their health and safety plan and for monitoring their employee's compliance with their plan.

2.0 FIELD PROCEDURES

2.1 SITE CONTROL PROCEDURES

It will be necessary for the field team to control access to the site. Only persons who meet the training and medical monitoring requirements and who are in possession of the required personal protective equipment will be allowed in the sampling area. Prior to the start of the field work, the field supervisor will notify the site representative when the field operations are scheduled :

2.2 AIR MONITORING REQUIREMENTS

Monitoring for toxic dusts will be done visually. Site excavation activities are to be accompanied by dust control/suppression measures, such as using a spray mist to keep contaminated soils/dusts from becoming airborne. If excessive visible airborne dust is present, site personnel are to upgrade the level of protection to Level C.

2.3 LEVEL OF PROTECTION

For this site, personnel will initially be required to use a modified Level D which includes the use of protective gloves for sampling or when soil or soil handling activities occur. The change in the level of protection will be recorded in the daily field log. For this site, the requirements for Level C are provided below.

- Air-purifying respirator, NIOSH-approved with HEPA cartridges,
- Work overall or Tyvek garment,
- Nitrile gloves,
- Rubber or work boots (steel toe and shank, as necessary) or neoprene overboot when worn with appropriate work boots,
- Eye protection (when using half-face respirator).

2.4 PRE-ENTRY PROCEDURES

Prior to entry into the site, the field supervisor will:

- Evaluate site conditions,
- Hold the site safety meeting,
- Review locations of emergency equipment (e.g. first aid kit etc.), and
- Review evacuation signals.

The site safety coordinator is responsible for collecting baseline heart rate values for heat stress monitoring measurements prior to beginning work. Site personnel are responsible for inspecting equipment, tools, PPE (including respirators) and other materials to be used on the job prior to beginning work.

2.5 WORK LIMITATIONS

- No eating, drinking, or smoking will be permitted in the hot or decontamination zones.
- Contact lenses should not be worn.
- If respirators are required, facial hair that could interfere with respirator fit will not be permitted.
- Only authorized personnel are to enter the site.
- Work will be done during daylight hours only.
- Site activities will not be conducted during lightening storms.

2.6 DECONTAMINATION PROCEDURES

The field supervisor is responsible for the decontamination of equipment and PPE used at the site according to the procedures outlined below, as applicable. Decontamination activities are to be documented in the daily field logs and maintained in the project file.

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2.6.1 Decontamination (Decon) Zone

A step-off decon may be used at this site. The decon zone is to be established at a sufficient distance from the drilling or containerizing activities to help limit contamination by flying dirt and should be up-gradient and up-wind of the work area, where possible.

2.6.2 Personnel

Remove overall or Tyvek garment and boots. Place overall into a plastic bag, for cleaning. Wet a clean cloth and wipe boots to remove dust or soil, remove gloves. Remove respirator and respirator cartridges (as applicable). Wipe respirator with clean wet cloth. Place disposable garments and respirator cartridges into properly labeled debris bags at the site. Wash hands and face; take a shower and wash hair as soon as possible after leaving the site.

2.6.3 Equipment

Equipment used at the site including monitoring instruments is to be decontaminated, as necessary. Loose dirt will be brushed off with a steel brush or bristle brush. Wash and rinse the equipment with soap and water or steam clean the equipment prior to its leaving the site. Instruments will be wiped down with clean soapy cloths and rinsed with wet cloths. Place cloths in debris bags at the site. Dispose of decon rinsate in properly labeled containers at the site.

2.6.4 Emergency Decontamination

In the event of a life threatening injury or illness, the decontamination of the PPE will not typically be undertaken. The PPE is to be removed as quickly as possible and first-aid rendered. If the PPE is significantly soiled and the contaminants would pose an immediate health hazard on their own, a quick, gross decon will be performed prior to the removal of the PPE.

In cases where the injury or illness is not life threatening, a quick decon will be performed and the person assisted in the removal of the PPE. First-aid will be rendered, after PPE has been removed.

2.6.5 Decontamination Rinsate and Debris Drums

Decon rinsate, if any, is to be collected and transferred to drums on site. Decon rinsate drums are to be labeled as rinsate awaiting analytical results, with the date, and the name and phone number of the CONSTRUCTION TESTING & ENGINEERING representative and client representative. Debris bags are to be similarly labeled with PPE and trash indicated as the contents. Once analytical results have been received, the project manager is to evaluate whether the drums are to be managed as hazardous wastes and will coordinate with the client for the proper labeling, transportation and disposal.

3.0 SAFE WORK PRACTICES

The following sections identify safe work practices for the field activities scheduled at the site. These practices were designed help field personnel work safely. Although the following practices are intended to incorporate Cal-OSHA requirements, subcontractors and other employers at the site are responsible for complying with applicable Cal-OSHA health and safety requirements, their health and safety plan, and for monitoring the actions of their employees.

3.1 CONTAMINANT AVOIDANCE

- Avoid unnecessary direct contact with contaminated surfaces, soils or liquids,
- Do not sit, kneel, or lean on contaminated surfaces or drums,
- Walk around puddles, or obvious areas of contamination,
- Do not place monitoring or other equipment on contaminated surfaces.

3.2 OVERHEAD AND UNDERGROUND UTILITIES

Utility lines, both aboveground and underground are not expected to be encountered at this site. The Field Supervisor will be responsible verifying the sampling area is clear of utilities. No boring is to be located within 2 feet of a marked underground utility.

3.4 HEAT STRESS

If the ambient air temperature is expected to be above 85°F, or personal protective clothing is worn (regardless of temperature), heat stress monitoring will be required to help prevent heat stress illnesses from occurring. Adequate shade in which field personnel can rest and two gallons of water or electrolyte solution (such as Gatorade) per person should be available to help prevent dehydration and the onset of heat stress illnesses.

3.4.1 Heat Stress Illnesses

Heat stress illnesses include:

- **Heat Stroke**—a life threatening situation in which the victim's body temperature control system, which produces sweat to cool body, stops working. Body temperature can rise quickly to levels that can cause brain damage and death.
- **Heat Exhaustion**—a less dangerous condition that results from loss of body fluids. This fluid loss causes blood flow to decrease in vital organs, resulting in a form of shock. In addition, sweat does not evaporate properly due to high humidity, layers of clothing, or PPE, resulting in inadequate cooling of the body. Heat exhaustion can quickly turn into heat stroke.
- **Heat Cramps**—muscular spasms with pain, due to the loss of electrolytes through sweating. These cramps usually involve the abdomen, legs, or arms and usually occur several hours after the physical exertion has stopped.
- **Heat Rash**—Commonly referred to as "prickly heat rash." Small, red, fluid filled blisters. Caused by excessive moisture and chafing clothing.

Preventing heat stress illnesses is particularly important because once someone suffers from a heat stress illness, that person may be predisposed to additional injuries. The signs, symptoms and first-aid for heat stress illnesses are listed in Table 3.1.

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TABLE 3.1: HEAT STRESS SYMPTOMS

Forms of Heat Stress	Signs/Symptoms	First Aid
Heat Stroke	Hot, red skin Constricted (small) pupils High body temperature Unusually dry skin	Call 911, immediately and care for shock. <u>Immerse</u> in cool water or <u>wrap in wet towels</u> . Give <u>NOTHING</u> by mouth.
Heat Exhaustion	Cool, pale, moist skin Heavy sweating Normal body temperature Dilated (large) pupils Headache, nausea, dizziness, vomiting	Move to cool area. Have victim lie down, elevating feet by 1 to 1½ feet. Loosen clothing. Apply wet towels. Call 911 or transport to medical facility. Give glass of water every 15 minutes, prior to or during transport.
Heat Cramps	Muscular pain, aches	If symptoms occur on the job, move to cool place and give glass of water or electrolyte solution every 15 minutes.

3.4.2 Heat Stress Monitoring

Heat stress monitoring by the heart rate method, as described below, should be performed to help prevent heat stress illness from occurring. Heat stress monitoring by the heart rate method as described below:

- Count the heart rate by the radial pulse for 1 minute for all personnel at the beginning of the day prior to start of activities. Record in daily log.
- At the beginning of the first break period, count the heart rate for one minute. Wait 30 seconds and count the heart rate a second time. Wait 30 seconds and count the heart rate a third time. Record values.
- If the initial heart rate exceeds 110 beats per minute (BPM), shorten the next work cycle by $\frac{1}{3}$. The employee is to rest until the heart rate decreases to below 90 BPM, or
- If the heart rate does not decrease by 10 BPM between each successive measurement, a total reduction of 20 BPM, shorten the next work cycle by $\frac{1}{3}$. The employee is to rest until the heart rate has dropped at least 20 BPM or decreases to below 90 BPM, whichever is lower.

- Repeat procedure at the next break. If the conditions identified above are encountered, the break period should be doubled and the work cycle shortened by $\frac{1}{3}$ again.
- For successive breaks, if the above conditions are encountered, continue to double the break period and shorten the work period.

4.0 EMERGENCY PROCEDURES

4.1 PERSONNEL INJURY

The following steps will be taken if an injury occurs:

- Prevent further injury and notify the field supervisor.
- Initiate first aid and provide immediate medical attention for the injured person.
- Depending on the type and severity of the injury, call 911.
- Prepare an injury incident report. The Project Manager is responsible for preparing and submitting the incident report to the Office Health and Safety Manager, the Division Director, and Corporate Human Resources within 48 hours.

5.0 TRAINING AND MEDICAL MONITORING

5.1 TRAINING

5.1.1 Hazardous Waste Operations Training

Site personnel are required to be current in the appropriate level of hazardous waste operations training as required by the Cal-OSHA "Hazardous Waste Operations and Emergency Response" standard (8 CCR 5192).

5.1.2 First-Aid/CPR Training

At least one on-site field person will be current in First-Aid and CPR training. Only persons current in CPR/First Aid training are to render first-aid at the site.

5.1.3 Equipment Training

Only trained, qualified persons are to operate equipment at the site. Equipment operators must be current in any equipment or activity specific training as required by Cal-OSHA.

5.1.4 Site Safety Meetings

Daily safety meetings will be conducted by the Site H&S Coordinator before field personnel begin work and when additional personnel or visitors arrive. The meetings are to be attended by all field personnel. The purpose of the meetings is to review pertinent information on site hazards, protective measures, or changes in scope of work and should include a discussion on the following:

- description of the tasks and their potential hazards,
- coordination of site activities,
- identification of methods and precautions to prevent injuries,
- emergency planning,
- modification(s) to the HSP (if any), and
- input from field personnel on H&S issues pertaining to site activities (if any).

The attendees signatures acknowledging receipt and understanding of the HSP and their agreement to comply will be collected on the first day of work. Additional meetings will be documented in the daily field logs, identifying the meeting attendees. Field logs are to be kept in the project files.

5.2 MEDICAL MONITORING

Field personnel are to be current in their required medical physical. No additional testing for site specific contaminant health effects is required for this site.

Nutmeg Project 4.5 Acre Site

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April 16, 2007

CTE Job No. 10-8721E

As a follow-up to an injury or possible exposure above established exposure limits, employees are entitled to and encouraged to seek medical attention. If exposed, depending upon the type of chemical it may be critical to perform follow-up testing within 24 to 48 hours.

If an injury or exposure occurs, site personnel are to immediately notify the field supervisor, H&S Coordinator or their supervisor. The employees' supervisor is responsible for completing the accident and injury form. Dependent upon the injury or accident, a report may be required to be submitted to Cal-OSHA; therefore, the supervisor's report should be turned in to Human Resources within 48 hours of the accident.

6.0 ASSIGNMENT OF RESPONSIBILITIES

6.1 PROJECT MANAGER

The project manager has the responsibility for: 1) determining whether field personnel have had and are current in the requisite training, 2) determining whether field personnel are current in their medical examinations, and 3) having a HSP developed for and available at the project site. He/she is to provide a copy of the HSP to all CONSTRUCTION TESTING & ENGINEERING employees who may work at this site, for their review prior to their arrival at the site.

In order to comply with the provisions of the Cal-OSHA Hazard Communication Standard (8 CCR 5194) if a subcontractor employed by CONSTRUCTION TESTING & ENGINEERING, will be present on site, the project manager is required to provide the subcontractor with a copy of this HSP prior to the start of the project. The HSP will serve to provide information to the subcontractor on the potential hazards at the site and possible control measures.

6.2 FIELD SUPERVISOR

The field supervisor has ultimate responsibility for directing field work practices and activities at the site. He/she is responsible for utilizing the buddy system while at the site, obtaining and having available equipment or other materials specified in this HSP, and at remote job sites, for communicating daily with the project manager. In the event that a separate site H&S coordinator

is not designated for the site, field implementation of the HSP requirements, as identified below, becomes his/her responsibility.

6.3 SITE HEALTH AND SAFETY COORDINATOR

The site H&S coordinator is responsible for the field implementation of the HSP requirements. This includes daily communicating of specific requirements to site personnel and consulting with the field supervisor, project manager, office health and safety manager, and health and safety consultant on H&S requirements or issues.

6.4 SITE PERSONNEL

Site personnel are responsible for reading, understanding and complying with the HSP. They are responsible for notifying the field supervisor or H&S coordinator of unsafe conditions or activities, accidents, injuries, and chemical exposures.

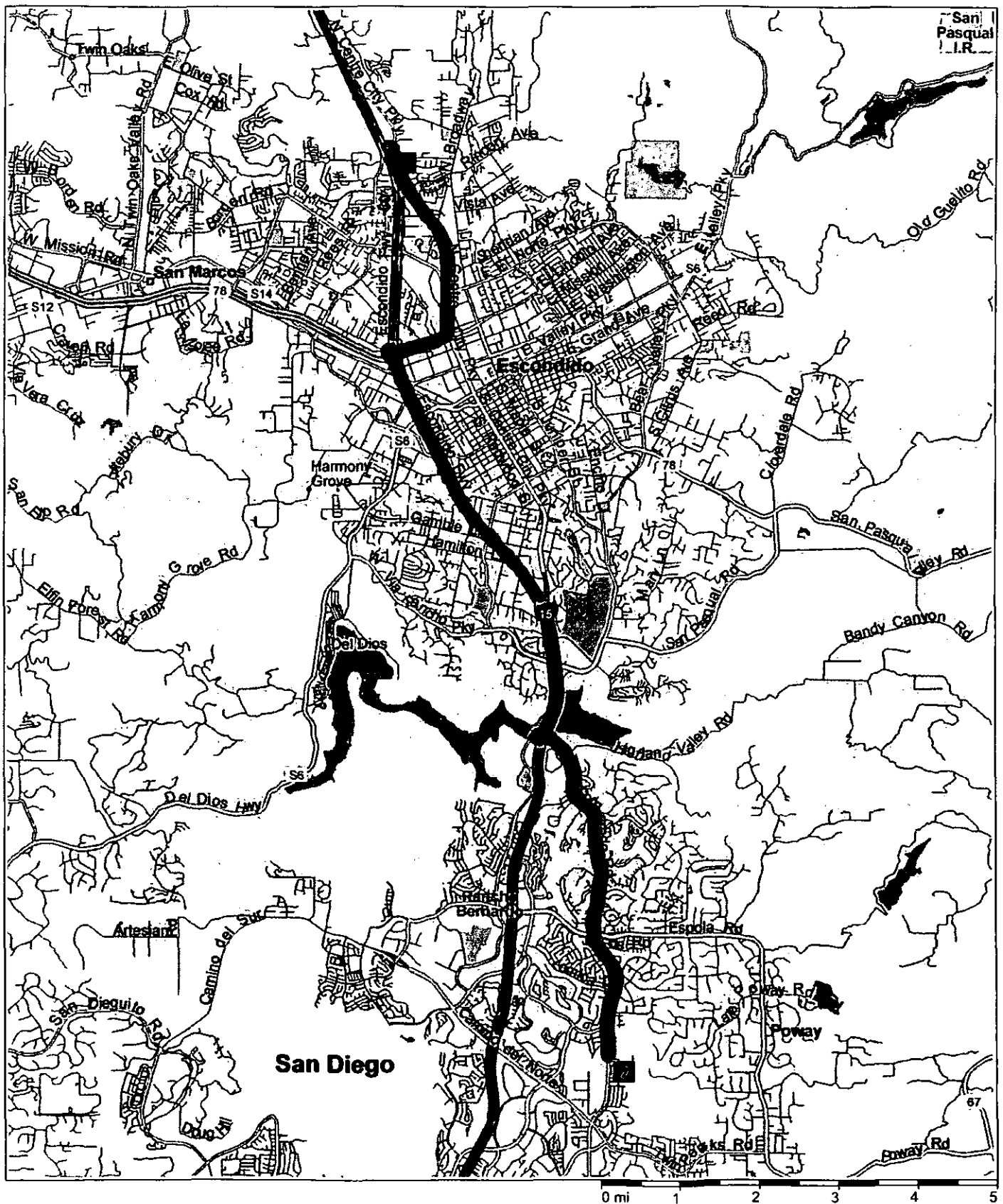
Field personnel are responsible for continuously monitoring their buddy and site conditions to help limit accidents and injury to site personnel and the risk that field work will endanger off-site persons.

6.5 OFFICE HEALTH AND SAFETY COORDINATOR

The Office H&S Coordinator is responsible for evaluating field compliance with company health and safety requirements and the provisions contained within this HSP. He/she is also responsible for reviewing accident/injury forms, and investigating job site accidents, injuries, or illness.

Palomar Medical Center

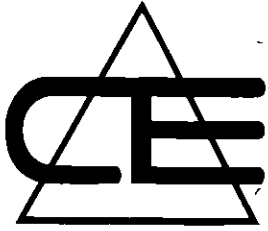
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Driving Directions to Palomar Medical Center

- 9:00 AM 0.0 mi 1 Depart near Jesmond Dene on Local road(s) (East) for 87 yds
- 9:00 AM 0.1 mi Turn RIGHT (South) onto N Centre City Pky for 2.5 ...
- 9:03 AM 2.5 mi Take Ramp onto SR-78 for 0.5 mi towards CA-78 / Oceanside
- 9:04 AM 3.0 mi Turn RIGHT onto Ramp for 0.2 mi towards I-15 / San Diego / Riversi...
- 9:04 AM 3.2 mi Take Ramp (LEFT) onto I-15 [Escondido Fwy] for 5.9 mi towards I-15 / San Diego
- 9:09 AM 9.0 mi Turn RIGHT onto Ramp for 0.2 mi towards West Bernardo Dr / Pomerado ...
- 9:09 AM 9.2 mi Keep RIGHT to stay on Ramp for 65 yds towards Pomerado Rd / Highland Valley Rd
- 9:09 AM 9.3 mi Bear RIGHT (East) onto Pomerado Rd for 4.6 mi
- 9:15 AM 13.9 mi 2 Arrive 15614 Pomerado Rd, Poway, CA 920...

3



CONSTRUCTION TESTING & ENGINEERING, INC.

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(805) 486-9016 FAX

TRACY, CA
242 W. Larch
Suite F
Tracy, CA 95376
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(209) 839-2895 FAX

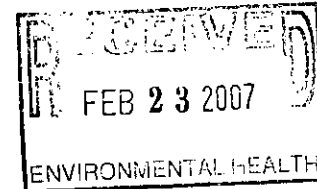
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(916) 331-6037 FAX

N. PALM SPRINGS, CA
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Suite 2-K
N. Palm Springs, CA 92258
(760) 329-4677
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February 14, 2007

CTE Job No. 10-8721E

County of San Diego
Department of Environmental Health
Voluntary Assistance Program
1225 Imperial Avenue, 3rd Floor
San Diego, CA 92101
Attention: Dr. Nasser Sionit, Ph.D.



Letter of Transmittal
Voluntary Assistance Program Application
Undeveloped Property
2401 North Nutmeg Street (APN 224-260-23)
Escondido, California

Dear Dr. Sionit

Attached with this letter is an application to enter the County of San Diego, Department of Health (DEH), Voluntary Assistance Program (VAP). A check totaling \$230.00 payable to the County of San Diego is attached as an application fee. This application follows the January 23, 2007 meeting of representatives (Messrs. Sionit and Rzonca) for DEH and Construction Testing and Engineering, Inc. (CTE), respectively, in which site environmental conditions were discussed, and we understand the DEH is amenable toward going forward as the lead agency through processing this VAP. The site is requesting to enter the VAP due to the presence of fill soil, possibly containing laboratory detectable concentrations of petroleum hydrocarbons and (possibly) elevated metals, imported from an unknown source in Year 2006. The undocumented fill soil covers approximately 2.9 acres and estimated to contain a volume of 8,500 cubic yards. The

overall aim of this application is to gain technical assistance and input from the DEH toward site characterization and assessment, and correction action plan with the final goal of case closure.

Attached with the VAP application is supporting documentation as follows:

- Figure 1, Index Map showing site location.
- Figure 2, Pregrading Topography showing elevation contours (circa Year 1960) prior to Interstate 15 superimposed on ground features circa October 2005 and March 2006, prior to placement of Undocumented Fill soil on the site.
- Figure 3, Limit of Grading with surface area of Undocumented Fill soil shown.
- Figure 4 and Figure 5, Photographic Mosaic showing views of the site taken in January 2007, and include water district equipment repairing a below ground water flume.
- *Limited Geotechnical Investigation, Nutmeg Project, 4.5 Acre Site, 2401 North Nutmeg Street (APN:224-260-23), Escondido, California*, dated November 13, 2006, prepared by Construction Testing and Engineering, Inc. project number 10.8721G that provides a description of site geologic conditions, cross sections, geologic map, and exploration logs.
- *Limited Phase II Environmental Site Assessment, Nutmeg Project, 4.5 Acre Site, 2401 North Nutmeg Street (APN:224-260-23), Escondido, California*, dated November 27, 2006, prepared by Construction Testing and Engineering, Inc. project number 10.8721E that provides analytical results from "grab" samples collected from samples collected for geotechnical purposes.

Following is a brief presentation of background pertinent to site environmental conditions, and a preliminary assessment and concept for the work plan scope, necessary for site assessment and characterization.

Background

Fill soil from an unknown source was placed on the site during Year 2006. Subsequently, Construction Testing and Engineering, Inc. was contracted to only perform a geotechnical investigation of the site which included placement of 13 backhoe excavated exploratory test pits and collection of soil samples for testing of physical properties necessary for geotechnical recommendations. The work was intended to evaluate the site from a geotechnical perspective and provide recommendations for development. The geotechnical exploration encountered Undocumented Fill soil that contained scattered construction debris (pipe, silt fence, nails, etc.) overlying silty sand units described as Quaternary Colluvium and Older Alluvium which were underlain by crystalline bedrock assigned as the Cretaceous Merriam Mountain Monzogranite. Groundwater was encountered near the bottom of the Older Alluvium and was confined to a southwest flowing drainage that was covered by Undocumented Fill. A subsurface water flume trends east-west along the north margin of the property, and it is suspected this flume is leaking to generate the groundwater. The geotechnical report entitled *Limited Geotechnical Investigation*, dated November 13, 2006 prepared by CTE is attached for reference to site geotechnical conditions. Subsequent to the geotechnical field exploration, CTE was authorized to collect two "grab" samples from the bagged geotechnical specimens. Environmental protocol including Chain of Custody documentation and sampling methodology was followed upon collection of the grab samples. The samples were submitted to a State of California accredited laboratory for analyses to detect the presence of total petroleum hydrocarbon compounds,

organochlorinated pesticides and PCBs, and California Title 22 metals. Relatively low concentrations of petroleum hydrocarbons comparative to preliminary remediation goals (PRGs) and concentrations of Arsenic above Cal PRGs were detected by the laboratory. The document entitled *Limited Phase II Environmental Site Assessment*, dated November 27, 2006 prepared by CTE is attached for reference to site environmental conditions based upon the limited sampling.

Preliminary Assessment and Conceptual Work Plan

5W 846
Limited environmental analyses, conducted to date, indicated relatively low concentrations of petroleum hydrocarbons comparative to preliminary remediation goals (PRGs) and concentrations of Arsenic above Cal PRGs. However, the grab samples were taken from bagged specimens originally utilized for geotechnical samples which did not utilize environmental protocol for collection. Consequently, the laboratory data may not be representative of actual conditions. Additionally, the site is adjacent to Interstate 15 (see Figure 2) where elevated near surface metals and petroleum hydrocarbon compounds are possible due to a high volume of vehicles and associated emissions. Subsurface water was observed in test pits excavated near the axis of a drainage where Undocumented Fill was placed. Repairs to a subsurface water flume that is located within the site and sub parallel to the north property were observed on January 28, 2007 (see Figure 4 and Figure 5). Consequently, the observed groundwater may be due to leakage of the subsurface water flume indicating an artificially induced groundwater condition.

Due to uncertainties regarding the existence and origin of chemical and metal constituents in soil we initially propose to place four sample locations at equidistant node points in the fill mass and two sample locations south of the fill soil. Samples collected outside the fill are intended to evaluate background conditions. Samples within the fill mass would be collected near the vertical midpoint and samples outside the fill mass collected near the ground surface. A direct push rig would be utilized to collect a groundwater sample at a down gradient location. The soil samples would be analyzed to detect the presence of petroleum hydrocarbon constituents by EPA 8015B, volatile organic compounds and fuel oxygenates by EPA 8260B with EPA 5035 sample preparation, organochlorinated pesticides and PCBs by EPA 8081A, polynuclear aromatic (PNA) compounds by EPA 8310, California Title 22 metals by EPA 6010B/7471A, and soluble threshold limit concentration (STLC) analyses for metals at concentrations above regulatory levels. The groundwater sample would be analyzed to detect the same analytes targeted by the soil analyses where appropriate and with the presented EPA methods modified as necessary for water.

SPLC

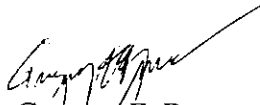
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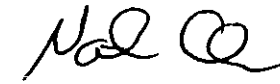
This letter has been prepared in accordance with the standard of care ordinarily exercised by reputable consultants performing similar tasks in this area at this time. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this letter and attached reports.

We appreciate this opportunity to be of service on this project. If you have any questions regarding this submittal, please do not hesitate to contact the undersigned.

Respectfully Submitted,

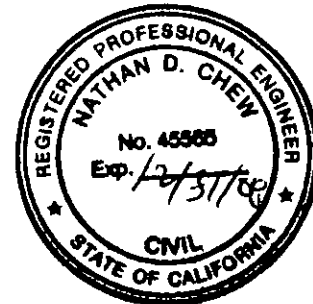
CONSTRUCTION ENGINEERING AND TESTING, INC.


Gregory F. Rzonca, CEG 1191
Senior Engineering Geologist

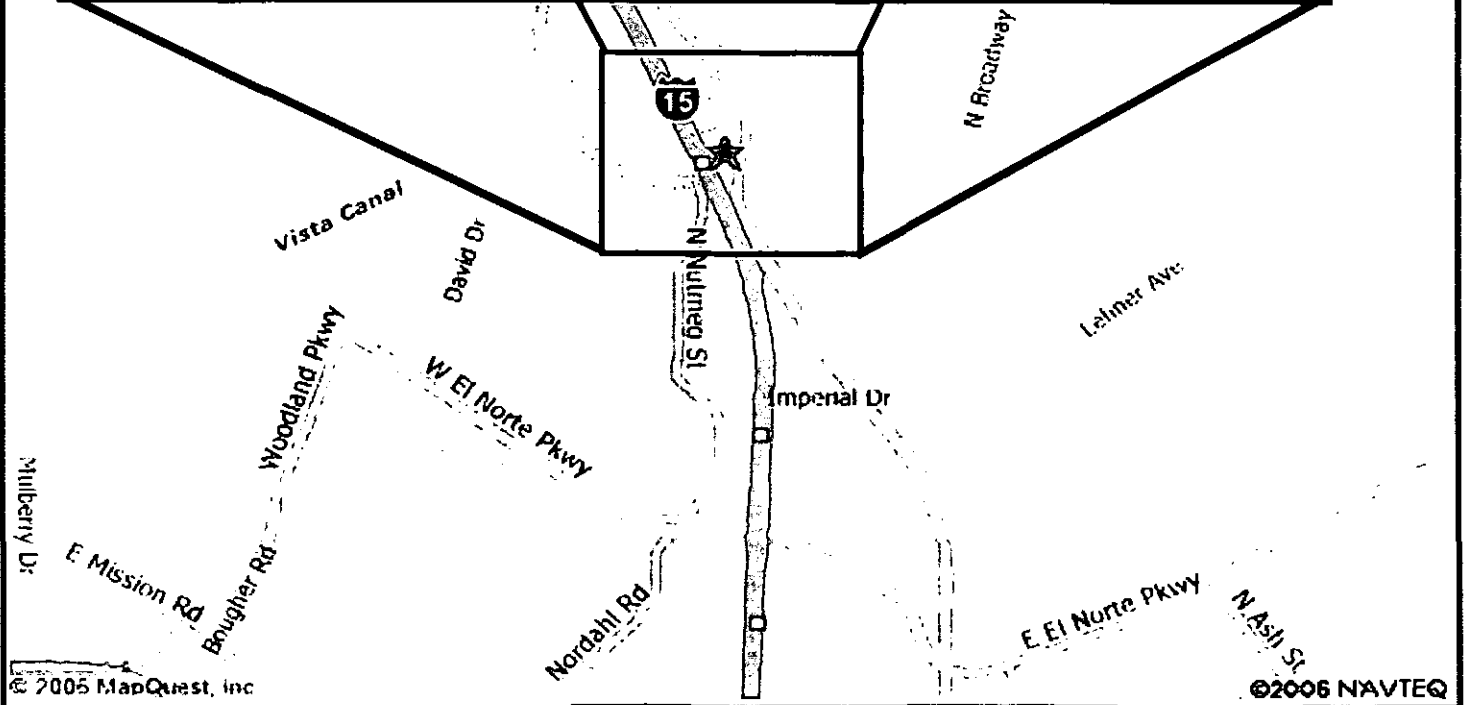
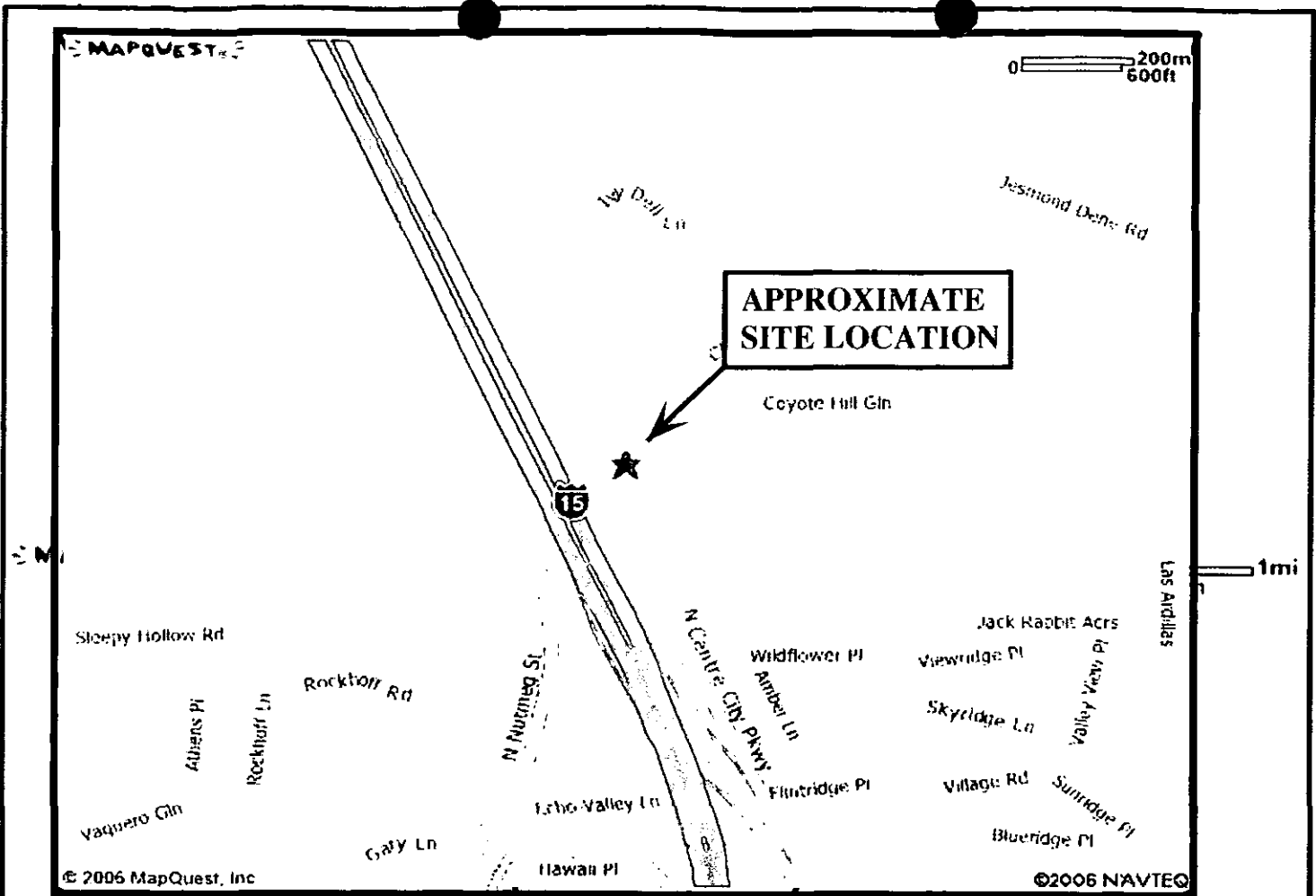

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GFR:NC:nri

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	SITE INDEX MAP UNDEVELOPED PROPERTY 2401 NUTMEG STREET ESCONDIDO, CALIFORNIA	
		CTE JOB NO: 10-8721E
		SCALE: AS SHOWN
		DATE: 2/07
		FIGURE: 1

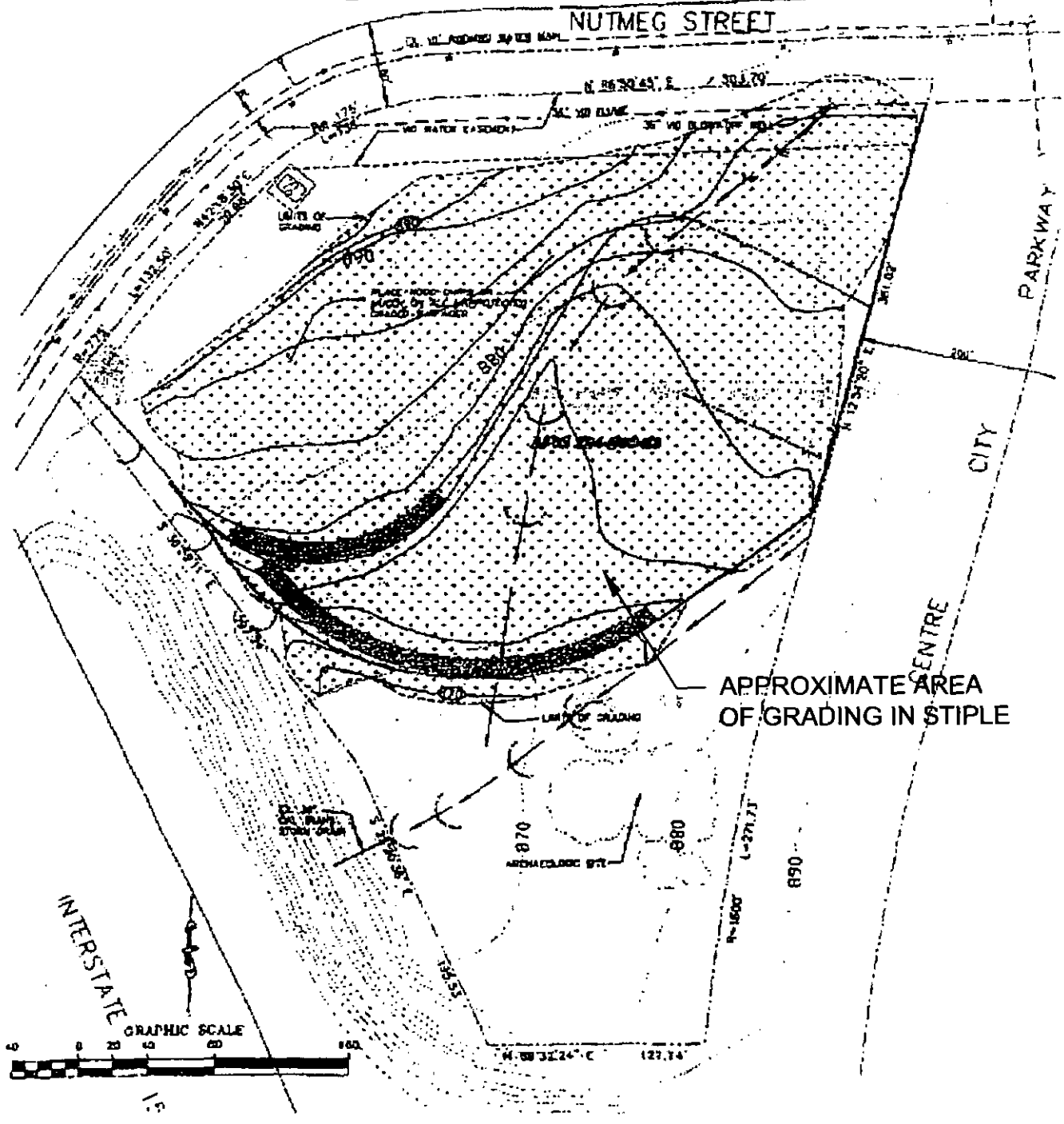



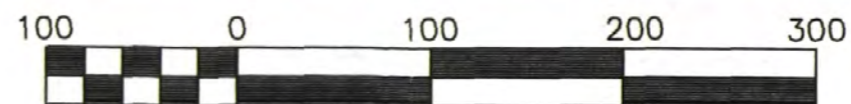
FIGURE FROM CITY OF ESCONDIDO, COMMUNITY DEVELOPMENT, CORRECTIVE ACTION LETTER DATED JANUARY 24, 2007

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	<p>LIMITS OF GRADING UNDEVELOPED PROPERTY 2401 NORTH NUTMEG STREET ESCONDIDO, CALIFORNIA</p>	CTE JOB NO.: 10-8721E



NOTES:

- MAP AFTER COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS
- TOPOGRAPHIC CONTOURS DATED 1960 (PRE I-15)
- AERIAL PHOTOGRAPH DATED OCTOBER 2005- MARCH 2006
- SCALE 1"=100'



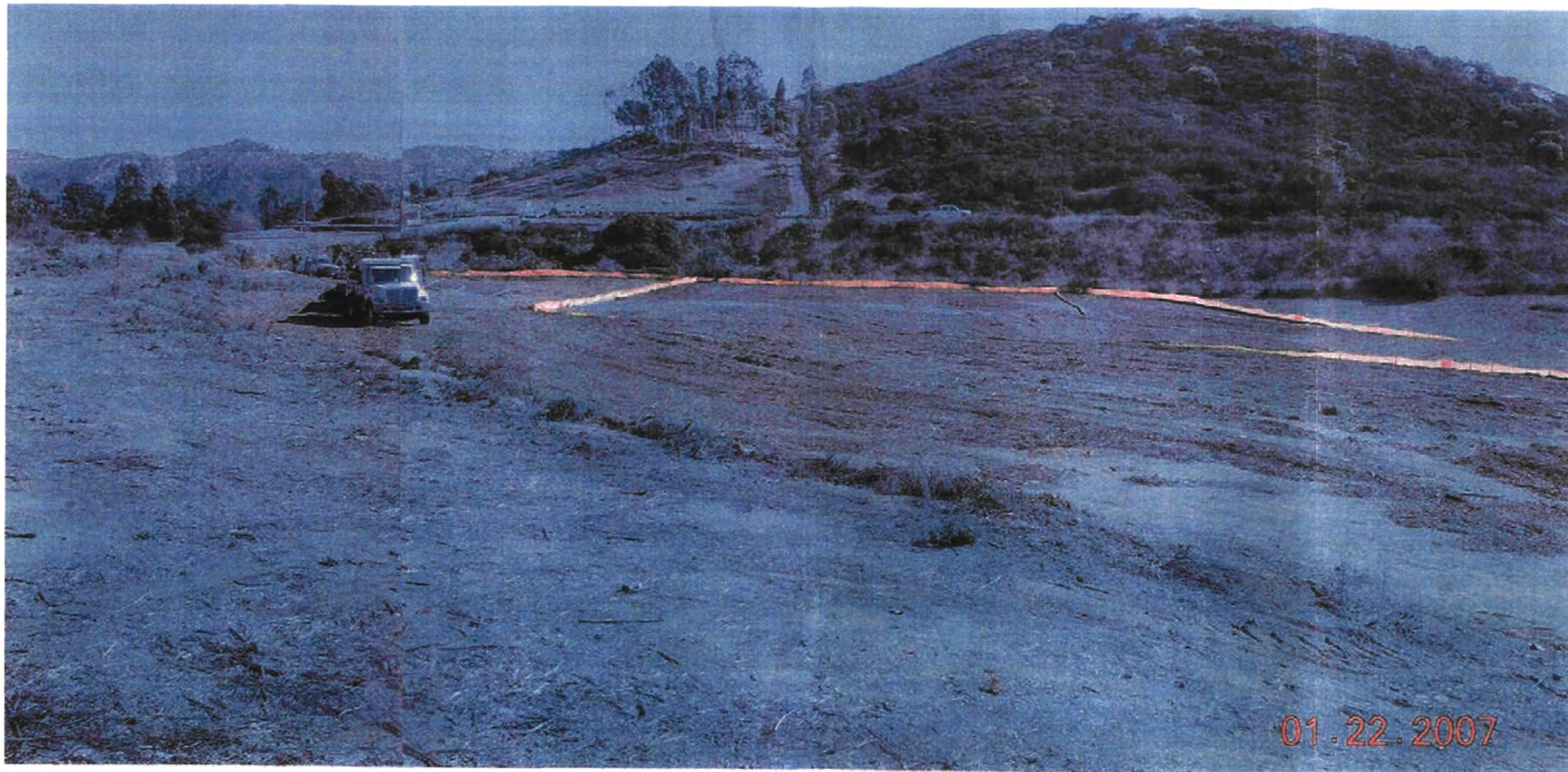
SCALE 1" = 100'



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PREGRADING TOPOGRAPHY
 UNDEVELOPED PROPERTY
 2401 NORTH NUTMEG STREET
 ESCONDIDO, CALIFORNIA

C/E JOB NO: 10-8721E	
SCALE: 1" = 100'	
DATE: 2/07	FIGURE: 2



VIEW FROM NORTHWEST TO SOUTHWEST

NOTE:

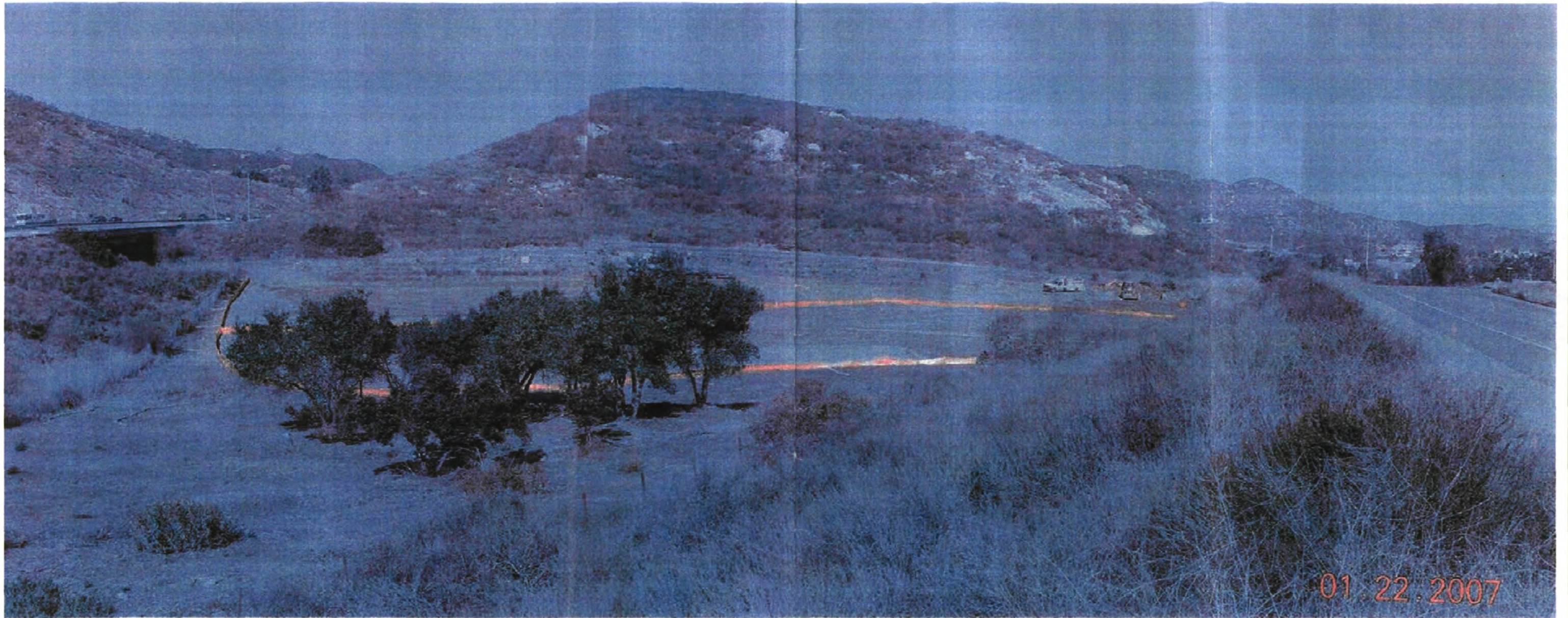
- SUBSURFACE WATER FLUME IS BEING REPAIRED AT VEHICLE LOCATION TO LEFT OF MOSAIC



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PHOTOGRAPHIC MASAIC
UNDEVELOPED PROPERTY
2401 NORTH NUTMEG STREET
ESCONDIDO, CALIFORNIA

CTE JOB NO: 10-8721E	
SCALE: NO SCALE	
DATE: 2/07	FIGURE: 4



VIEW FROM SOUTH TO NORTH

NOTE:

- SUBSURFACE WATER FLUME IS BEING REPAIRED AT VEHICLE LOCATION



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PHOTOGRAPHIC MASAIC
UNDEVELOPED PROPERTY
2401 NORTH NUTMEG STREET
ESCONDIDO, CALIFORNIA

C/E JOB NO:	10-8721E
SCALE:	NO SCALE
DATE:	2/07
FIGURE:	5

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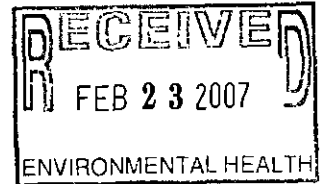
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LIMITED GEOTECHNICAL INVESTIGATION
NUTMEG PROJECT 4.5 ACRE SITE
2401 NORTH NUTMEG STREET (APN: 224-260-23)
ESCONDIDO, CALIFORNIA

Prepared for:

HILLTOP GROUP, INC.
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SAN MARCOS, CALIFORNIA 92069

Prepared by:

CONSTRUCTION TESTING & ENGINEERING, INC.
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CTE JOB NO. 10-8721G

NOVEMBER 13, 2006

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FIGURES

FIGURE 1
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APPENDIX D

REFERENCES CITED
EXPLORATION LOGS
LABORATORY METHODS AND RESULTS
STANDARD GRADING SPECIFICATIONS

EXECUTIVE SUMMARY

This limited geotechnical investigation was performed to provide an assessment and recommendations regarding current soil conditions pertinent to the 4.5 Acre Nutmeg Project (APN 224-260-23) in Escondido, California. It is our understanding that fill soil was transported to the site from unknown source(s) within the last year, and a geotechnical evaluation is necessary to assess the suitability of the site for future development.

Based on our review, soils beneath the site consist of Undocumented Fill underlain by Quaternary Colluvium that in turn is underlain by Quaternary Older Alluvium and Cretaceous granitic bedrock. Laboratory tests indicate the site soils predominantly consist of clayey to silty sand with a low to medium Expansion Index. Laboratory tests indicate the Undocumented Fill has a low moisture content and low dry density. Additionally, portions of the Older Alluvium possess a low moisture content and dry density. Groundwater was encountered in test pits excavated in the central portion of the property.

The results of our investigation indicate the site can be developed from a geotechnical perspective. However, the site in its present condition is unsuitable for support of additional fill or structures. Undocumented Fill and underlying Colluvium and portions of the Older Alluvium and weathered granitic bedrock would require removal, processing, and proper placement as a compacted fill under engineering observation and testing. Assuming such preparatory grading was performed, a suitable building area would be available.

1.0 INTRODUCTION AND SCOPE OF SERVICES

1.1 Introduction

Construction Testing and Engineering, Incorporated ("CTE") has prepared this limited geotechnical engineering report for the Nutmeg Project. The 4.5-acre site is located at the southwest corner of North Nutmeg Street and North Centre City Parkway in Escondido, California. Attached Site Index Map, Figure 1, shows the general location of the site. We understand fill was imported to the site from an unknown source and transport documentation within the last year, and placed without the benefit of appropriate testing and observation. Additionally, permits from pertinent regulatory agencies were not secured prior to fill placement. Consequently, the existing fill is considered as Undocumented Fill. The purpose of this limited geotechnical investigation is to evaluate the existing fill soil condition and provide mitigation measures from a geotechnical perspective.

Our investigations included field exploration, soil sampling, laboratory testing, geologic hazard evaluation, and engineering analysis. Recommendations for excavations, fill placement, and preliminary foundation design for the project site are presented in this report. However, prior to any significant future development that would include construction of structural improvements, an appropriate preliminary/update geotechnical investigation and report is considered necessary. Cited references are presented in Appendix A.

1.2 Scope of Services

Our scope of services included:

- Review of readily available geologic reports and documents pertinent to the site area.
- Explorations to evaluate site subsurface conditions.
- Laboratory testing of selected soil samples to provide data for evaluation of geotechnical characteristics of the site foundation soils.
- Assessment of site geologic conditions and an evaluation of potential geologic hazards at the site.
- Preparation of this report providing a summary of the investigation performed, and conclusions and geotechnical engineering recommendations for the site.

2.0 SITE LOCATION AND DESCRIPTION

The project is located at the southwest corner of the intersection of North Nutmeg Street and North Centre City Parkway in Escondido, California. Interstate Highway I-15 bounds the west margin of the site. Land in the vicinity of the site is undeveloped or scattered low density (rural) residential. The site is vacant and, at the time of our field exploration, predominantly bare of vegetation except along the property margins that supported grass, low brush, and oak trees. The site slopes at a relatively low gradient (less than estimated 10 percent) to the southwest where a catch basin is located. Site elevation is approximately 865 to 890 feet above mean sea level (msl). Reference to City of Escondido 2004 topographic maps indicates that the Undocumented Fill was placed in a shallow swale that drained to the southwest toward a catch basin that collects and conveys water off site.

3.0 FIELD AND LABORATORY INVESTIGATION

3.1 Field Investigations

Field investigations at this site were performed on October 26, 2006, and included site reconnaissance and the excavation of 13 exploratory test pits. Soils were logged and visually classified in the field by a geologist using the Unified Soil Classification System. Soil test pit logs

including soil descriptions, and laboratory data are included in Appendix B and C, respectively. Attached Figure 2, Geologic Exploration Map, shows mapped surface geology and approximate locations of the explorations conducted by CTE. The Geologic Cross-Section, Figure 3, depicts interpreted subsurface conditions.

3.2 Laboratory Investigation

Laboratory tests conducted for this investigation included: Expansion Index, in-place moisture and density, maximum dry density (Modified Proctor), and gradation. These tests were conducted to evaluate engineering properties of the onsite soils. Test method descriptions and laboratory results are presented in Appendix C.

4.0 GEOLOGY

4.1 General Physiographic Setting

The site lies in the northeastern inland area of San Diego County. This area is generally recognized as comprising foothills of the Peninsular Ranges. Terrain locally consists of alluvial valleys situated between northwest trending bedrock peaks and ridges. The geologic basement throughout much of this area, is generally described as "granitic" rock of the southern California Batholith.

4.2 Geologic Conditions

Based on mapping compiled by Kennedy (1999), near surface geologic units consist of the Cretaceous Merriam Mountain Monzogranite that is covered by near surface soil deposits. Our subsurface explorations indicate the Merriam Mountain Monzogranite at the site is overlain in turn by Quaternary Older Alluvium, Colluvium, and Undocumented Fill. Following is a brief description of these materials.

4.2.1 Quaternary Undocumented Fill (Qudf)

Undocumented Fills were encountered in all subsurface explorations and extended to a maximum depth of at least six feet below the ground surface (fbg). These materials were observed to consist dominantly of loose, dry, light brown, silty fine to coarse grained sand with some clay, gravels and cobbles. The Undocumented Fill commonly contained construction debris such as geogrid fabric, twine, plastic, screws, pipes, etc. A layer near the bottom of the Undocumented Fill was up to approximately 12 inches thick and contained numerous vegetation fragments including stems, branches, leaves and roots. It did not appear native soil underlying the fill was processed by scarification or moisture conditioning prior to fill placement. Maximum depth of approximately six feet of Undocumented Fill was encountered by Test Pit TP-12 which was terminated prior to encountering native soils.

4.2.2 Quaternary Colluvium (Qcol)

Test pits TP-2, TP-3 and TP-4 excavated within the south and central portions of the site contained materials assigned as Quaternary Colluvium. The Colluvium was up to approximately two feet in thickness, and is described as loose to dense, dry, light to dark brown, silty, fine to coarse-grained SAND with roots and trace clay.

4.2.3 Quaternary Older Alluvium (Qoal)

Quaternary Older Alluvium materials were found in all test pits except TP-1 and TP-12. Maximum depth of the Older Alluvium encountered by Test Pit T-2 was 16 feet. The Older Alluvium generally consisted of loose to medium dense, red to orange-brown silty fine to coarse grained sand with trace clay.

4.2.4 Cretaceous Merriam Mountain Monzogranite (Kmm)

Crystalline bedrock was encountered in Test Pits TP-2, TP-4, TP-5 and TP-6. The encountered bedrock depths ranged from approximately 3.75 feet to 16 feet in Test Pits TP-5 and TP-2, respectively. The Merriam Mountain Monzogranite encountered was dense to very dense, dry to moist, off white mottled orange to olive, clayey to silty sand.

4.3 Groundwater Conditions

Groundwater was encountered in Test Pits TP-2, TP-9 and TP-12 at depths of 16, 5 and 6 feet below ground surface, respectively. Groundwater was observed to occur proximal to the upper portion of the granitic bedrock. Review of available historic topographic maps indicates the water occurred in a natural southwest flowing drainage that was covered by the Undocumented Fill.

4.4 Geologic Hazards

4.4.1 General Geologic Hazards Observation

Based on our site reconnaissance, evidence from our explorations, and a review of the referenced geologic literature, it is our opinion that no known active fault traces underlie or project toward the site. According to the California Division of Mines and Geology, a fault is active if it displays evidence of activity in the last 11,000 years (Hart and Bryant, 1997).

4.4.2 Local and Regional Faulting

The Rose Canyon Fault and Elsinore Fault are each more than fifteen kilometers away from the site, and are the closest known active faults to the property. Other principal active regional faults include: Newport-Inglewood Fault Zone, Coronado Banks, San Clemente, Superstition Hills, San Jacinto, and San Andreas faults.

4.4.3 Seismic Loading Parameters

In accordance with the California Building Code 2001 edition, Volume 2, the referenced site is located within seismic zone 4 and has a seismic zone factor of $Z=0.4$. The largest proximal seismic sources, the Elsinore Fault Zone and Rose Canyon Fault Zone, are considered Type A and B seismic sources, respectively. Based on a distance of more than 15 kilometers from the faults to the site, near source factors of $N_v=1.0$ and $N_a=1.0$ are assigned. The site is considered to have a soil profile S_C . Therefore, site specific seismic coefficients of $C_v=0.56$ and $C_a=0.40$ appear appropriate.

4.4.4 Liquefaction and Seismic Settlement Evaluation

Liquefaction occurs when saturated fine-grained sands or silts lose their physical strengths during earthquake induced shaking and behave as a liquid. This is due to loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with water level, soil type, material gradation, relative density, and probable intensity and duration of ground shaking.

Because of the generally dense to very dense nature of underlying Older Alluvium and bedrock materials, it is our opinion that the potential for liquefaction damage to proposed improvements should be considered low.

Seismic settlement occurs when loose to medium dense granular soils densify during seismic events. Because the underlying site soil materials were generally found to be dense to very dense Older Alluvium and/or weathered bedrock and in combination with implementation of

grading recommendations provided, the potential for seismic settlement is considered very low.

4.4.5 Tsunamis and Seiche Evaluation

According to McCulloch (1985), the tsunami potential in the San Diego County coastal area for one-in-100 and one-in-500 year tsunami waves are approximately four and six feet. This indicates the site is not subject to damage due to the elevation (more than 860 feet above msl) and distance (approximately 13 miles) from the ocean. The site is not near any significant bodies of water that could induce seiche damage.

4.4.6 Landsliding or Rocksliding

Landslides were not encountered during our investigations and have not been mapped in the vicinity of the site (Tan and Giffen, 1995). Based on our observations and site soil characteristics, we expect the potential for landsliding or rocksliding to be very low within or immediately adjacent to the subject site.

4.4.7 Compressible and Expansive Soils

Based on laboratory and *in-situ* testing, existing Undocumented Fill, Colluvium, and Older Alluvium materials generally consist of loose to medium dense clayey to silty sands that possess a low to medium expansion index. The Undocumented Fill and Colluvium are considered to be compressible and unsuitable for support of structures or additional fill soil in their present condition. Portions of the Older Alluvium and upper portions of weathered granitic bedrock may also be compressible, and should be evaluated during grading for compression characteristics. Overexcavation and recompaction, as recommended in the

compression characteristics. Overexcavation and recompaction, as recommended in the subsequent sections of this report, is anticipated for future development.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 General

The Undocumented Fill is unsuitable for support of structures or additional fill due to lack of engineering observation and testing during placement. Laboratory tests indicate the Undocumented Fill has a low moisture and dry density. Additionally, the underlying Colluvium is not suitable for structure support or placement of fill due to its dry and loose condition. The Undocumented Fill and Colluvium can be utilized as compacted fill, from a geotechnical perspective, provided they are removed, cleaned of degradable construction debris and vegetation, and moisture conditioned for placement under engineering observation and testing. Additionally, laboratory tests indicate portions of the Older Alluvium possess a low moisture content and dry density, and require removal, processing and compaction effort. Compacted fill may be placed on competent Older Alluvium or bedrock. Prior to placement of compacted fill the exposed Older Alluvium and/or granitic bedrock should be removed to a suitable surface under the observation and testing of a CTE representative. Recommendations for the proposed earthworks and improvements are included in the following sections. The recommendations may require modifications based on the conditions encountered during grading or as presented in an appropriate Preliminary/Update Report prepared prior to grading as proposed property use and plans become available.

5.2 Grading and Earthwork

Upon commencement of work, personnel from CTE should continuously observe the grading and earthwork operations for this project. Such observations are intended to: find field conditions that differ from those considered by this investigation; adjust recommendations to encountered field conditions; and, observe and report as graded conditions as they apply to recommendations of this report. CTE personnel should perform observation and testing of fill removal, processing, and placement during grading as they pertain to the Geotechnical Consultant's professional opinions contained herein.

5.3 Site Preparation

The site should be cleared of any existing debris and other deleterious materials including the previously placed Undocumented Fill and Colluvium. Construction debris and vegetation should be removed from the Undocumented Fill prior to proper placement as compacted fill. In areas to receive structures or distress-sensitive improvements, expansive, surficial eroded, desiccated, burrowed, or otherwise loose or disturbed soils should be removed to the depth of competent formational materials or three feet below bottom of foundations, whichever depth is greater. It is our understanding that foundations will bear entirely in properly recompacted engineered fill. Removals should extend a minimum five feet laterally beyond the perimeter of proposed structures.

An engineer or geologist from CTE should observe the exposed ground surface prior to placement of compacted fill. Removals should continue until suitable materials are encountered. Organic and other deleterious materials not suitable for structural backfill should be disposed of offsite at a

regulated disposal site. Select grading to reduce expansion qualities of the site soils may also be necessary.

5.4 Excavations

Excavation of Undocumented Fill and Colluvium to suitable native soil or bedrock is recommended.

Excavations in site materials are considered feasible with standard heavy-duty grading equipment under normal conditions. Irreducible materials greater than three inches in diameter should not be used in shallow fills on the site. However, such materials may be placed at depth as per the recommendations in Appendix D and as directed by CTE during construction. The geotechnical consultant should evaluate the exposed surface prior to placement of compacted fill.

5.5 Fill Placement and Compaction

The geotechnical consultant should observe that site preparation has occurred before placement of compacted fill. Subsequent to removal of loose, disturbed, or vegetation containing soils, areas to receive fills should be scarified, moisture conditioned as recommended, and compacted fill placed. Fill and backfill should be compacted to a minimum relative compaction of 90 percent as evaluated by ASTM D1557 at moisture contents a minimum two percent above optimum. The optimum lift thickness for backfill soil will depend on the type of compaction equipment used. Generally, backfill should be placed in uniform lifts not exceeding eight inches in loose thickness. Backfill placement and compaction should be done in overall conformance with geotechnical recommendations and local ordinances.

5.6 Fill Materials

Low-to-medium expansion potential soils derived from the onsite materials are generally considered suitable for reuse on the site as recompacted fill. If used, these materials should be screened of significant construction debris, vegetation matter and materials greater than three inches in diameter.

Adverse effects of moderately to highly expansive clay soils, if encountered, should be mitigated by blending these soils with granular materials and compacting at moisture contents above optimum, or by placing all highly expansive clays at a minimum depth of four feet below proposed foundation and slab grades.

Imported fill beneath structures, pavements and walks should have an expansion index less than or equal to 30 (per UBC 18-I-B) with less than 35 percent passing the no. 200 sieve. Imported fill soils for use in structural or slope areas should be evaluated by the soils engineer before placement on the site.

5.7 Temporary Construction Slopes

Sloping recommendations for unshored temporary excavations are provided herein. The recommended slopes should be relatively stable against deep-seated failure, but may experience localized sloughing. Recommended slope ratios are set forth in Table 1.

TABLE 1 RECOMMENDED TEMPORARY SLOPE RATIOS		
SOILS TYPE	SLOPE RATIO (Horizontal: Vertical)	MAXIMUM HEIGHT
B (Quaternary Older Alluvium)	1:1 (MAXIMUM)	10 FEET

C (Existing Undocumented Fill Material)	1.5:1 (MAXIMUM)	5 FEET
---	-----------------	--------

Actual field conditions and soil type designations must be verified by a "competent person" while excavations exist according to Cal-OSHA regulations. In addition, the above sloping recommendations do not allow for potential water seepage or surcharge loading at the top of slopes by vehicular traffic, equipment or materials. Appropriate surcharge setbacks must be maintained from the top of all unshored slopes.

We do not anticipate temporary construction shoring will be necessary for this project. However, should shoring become necessary, CTE will provide additional design and construction recommendations, upon request

5.8 Foundations and Slab Preliminary Recommendations

The following recommendations are for preliminary structure design purposes only. An appropriate Preliminary/Update Geotechnical Report should be prepared once a property use and plans are prepared. The additional report would provide additional appropriate foundation recommendations, as necessary. Footings should not span a transitional condition from cut to fill. The project engineer should evaluate all footing trenches before reinforcing steel placement. Upon completion of grading, expansion index testing shall be completed and the recommendations herein modified in the Final As-Built Report, if necessary.

5.8.1 Foundations

Continuous and isolated spread footings founded in engineered fill should be designed based on an allowable bearing capacity of 2,000 psf. The bearing value may be increased by 1/3 for short duration loadings. Following are foundation minimum recommendations for one- to two-story structures. The recommendations are dependent upon depth and geometry of underlying fill and expansion index. Additional foundation recommendations can be provided should fill parameters and expansion potential exceed the values herein. Foundations designed and constructed as outlined below are expected to have maximum total and differential settlements less than 1.0 and 0.5 inches, respectively. Moisture in foundation excavations and slab-on-grade areas should be maintained until overlying improvements are placed.

Foundation Category 1:

Structures underlain by less than 20 feet of compacted fill and Expansion Index less than or equal to 50 can be constructed with a 12 inch wide and 12 inch deep (below lowest adjacent grade) continuous footing reinforced with four number 4 bars, two at the top and two at the bottom. Interior floor slabs be at least 4.5 inches thick and reinforced with minimum number 3 rebar, spaced no greater than 18 inches, on center, both ways, at the slab mid-point. Isolated pad footings should be at least 24 inches wide and extend 12 inches below lowest adjacent grade.

Foundation Category 2:

Structures underlain by compacted fill that has a depth greater than 20 feet and less than 50 feet; variation in fill thickness from 10 to less than 20 feet; and an Expansion Index greater

than 50 but less than 90 can be constructed with a continuous footing reinforced with four number 4 bars, two at the top and two at the bottom. Interior floor slabs be at least five inches thick and reinforced with a minimum of number 4 rebar placed no greater than 24 inches, on center, both ways, at the slab mid-point. Isolated pad footings should be at least 24 inches wide and extend 18 inches below lowest adjacent grade.

5.8.2 Foundation Setback

Footings for structures should be designed such that the horizontal distance from the face of nearby slopes to the outer edge of the footing is at least 10 feet.

5.8.3 Concrete Slabs

Concrete building slabs-on-grade should be designed for the anticipated loading. Concrete slabs should be as shown in Section 5.8.1 above. The concrete slab should be underlain by a two- to four-inch thick layer of aggregate base material or clean sand (SE greater than 30). A 10-mil visqueen vapor barrier should be installed beneath moisture sensitive slab areas in accordance with ACI guidelines.

5.9 Lateral Resistance and Earth Pressures

The following recommendations may be used for shallow footings on the site. Foundations placed in competent engineered fill materials may be designed using a coefficient of friction of 0.30 (total frictional resistance equals the coefficient of friction times the dead load). A design passive resistance value of 250 pounds per square foot per foot of depth (with a maximum value of 1250 pounds per square foot) may be used. The allowable lateral resistance can be taken as the sum of the

frictional resistance and the passive resistance, provided the passive resistance does not exceed two-thirds of the total allowable resistance.

Retaining walls up to twelve feet high and backfilled using granular soils (Expansion Index less than 20) may be designed using the equivalent fluid weights given in Table 2 below.

TABLE 2 EQUIVALENT FLUID UNIT WEIGHTS (pounds per cubic foot)		
WALL TYPE	LEVEL BACKFILL	SLOPE BACKFILL 2:1 (HORIZONTAL: VERTICAL)
CANTILEVER WALL (YIELDING)	35	55
RESTRAINED WALL	55	85

The above values assume non-expansive backfill and free draining conditions. Measures should be taken to prevent a moisture buildup behind all walls below grade. Drainage measures should include free draining backfill materials and perforated drains. Drains should discharge to an appropriate offsite location. Waterproofing of walls below grade should be designed by the project architect.

We recommend that walls below grade be backfilled with soils having an expansion index of 20 or less. The backfill area should include the zone defined by a 1:1 sloping plane, extended back from the base of the wall. As such, some onsite materials are not suitable for use as wall backfill materials.

Wall backfill should be compacted to at least 90 percent relative compaction, based on ASTM D1557-91. Backfill should not be placed until walls have achieved adequate structural strength.

Heavy compactors, which could cause distress to walls, should not be used.

5.10 Exterior Flatwork

Exterior slabs for pedestrian loads should measure a minimum 4.5 inches thick and have minimal reinforcement of number 3 rebar on 18-inch centers (both ways) or 6x6-W2.9/W2.9 (6x⁶-6/6) welded wire mesh; reinforcement shall be placed in the upper one-third of the slab. Flatwork should be installed with reinforcement and crack control joints. All subgrade should be prepared according to the earthwork recommendations previously provided before placing concrete. Pre-soaking of flatwork areas may also be necessary based on post-graded site conditions. Positive drainage to convey water away from all flatwork should be established and maintained.

5.11 Drainage

Surface runoff should be collected and directed away from improvements by means of appropriate erosion reducing devices and positive drainage should be established around the proposed improvements. Positive drainage should be directed away from improvements at a gradient of at least 2 percent for a distance of at least five feet. The project civil engineers should evaluate the on-site drainage and make necessary provisions to keep surface water from affecting the site.

5.12 Slopes

Proposed slopes should be constructed at 2:1 (horizontal : vertical) or flatter. Graded slopes on this site should be grossly stable but will erode where exposed to uncontrolled water. Surface water should not be permitted to drain over the edges of slopes unless that water is confined to properly designed and constructed drainage facilities. Erosion resistant vegetation should be maintained on the face of all slopes.

Typically soils along the top portion of a fill slope face will tend to creep laterally. We do not recommend distress sensitive hardscape improvements be constructed within five feet of slope crests in fill areas.

5.13 Construction Observation

The recommendations provided in this report are based on preliminary design information for the proposed earthworks and the subsurface conditions found in the exploratory pit locations. The interpolated subsurface conditions should be checked in the field during construction to verify that conditions are as anticipated.

Recommendations provided in this report are based on the understanding and assumption that CTE will provide the observation and testing services for the project. All earthwork should be observed and tested to verify that grading activity has been performed according to the recommendations contained within this report. All footing trenches should be evaluated by the project engineer before reinforcing steel placement.

5.14 Preliminary/Update Geotechnical Investigation Report

An appropriate Preliminary/Update Geotechnical Investigation Report should be prepared when project use and plans are available. This report would provide additional geotechnical recommendations, as necessary, for the development-specific project proposed.

6.0 LIMITATIONS OF INVESTIGATION

The field evaluation, laboratory testing and geotechnical analysis presented in this report have been conducted according to current engineering practice and the standard of care exercised by reputable

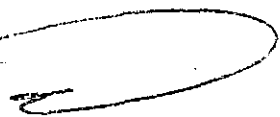
geotechnical consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered during construction.

Our conclusions and recommendations are based on an analysis of the observed conditions. If conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if required, will be provided upon request. CTE should review project specifications for all earthwork, foundation, and shoring-related activities prior to the solicitation of construction bids.


We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

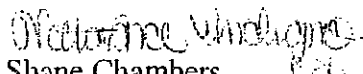
CONSTRUCTION TESTING & ENGINEERING, INC.

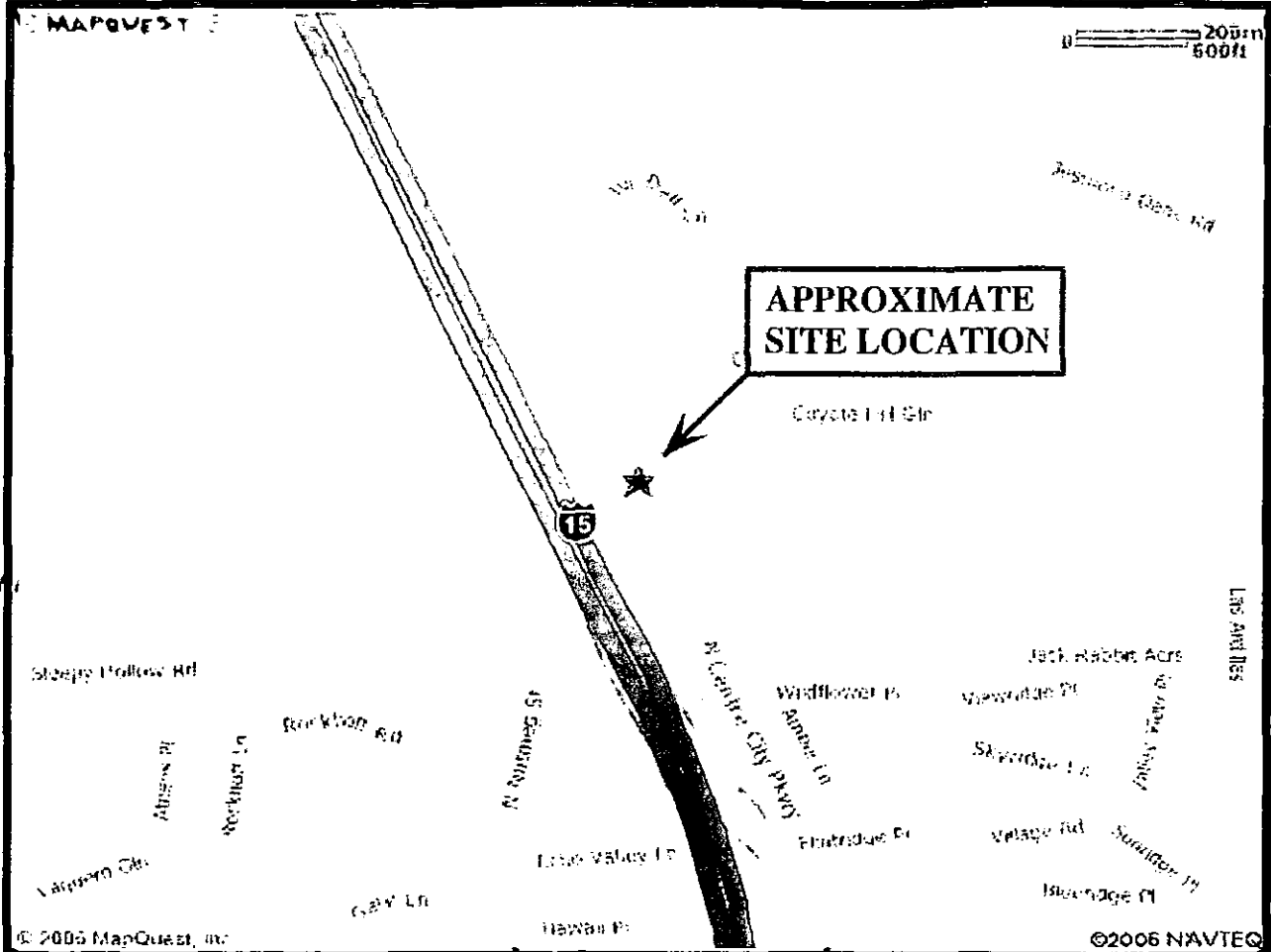

Dan T. Math, GE #2665
Senior Engineer




Gregory Rzonca, CEG #1191
Senior Engineering Geologist



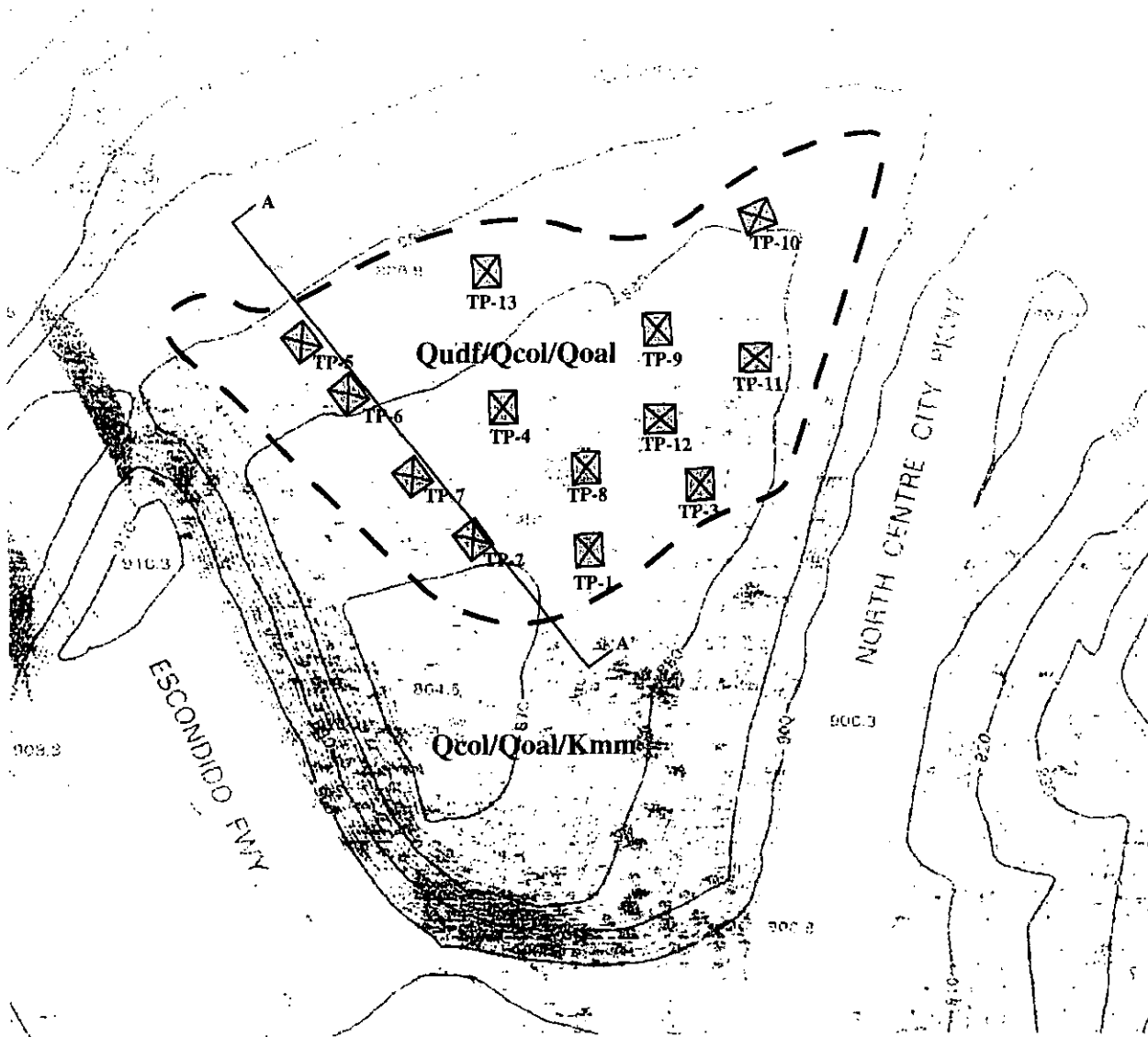

Shane Chambers
Staff Geologist



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SITE INDEX MAP
 NUTMEG PROJECT 4.5 ACRE SITE
 2401 NUTMEG STREET (APN: 224-260-23)
 ESCONDIDO, CALIFORNIA

CTE JOB NO:	10-8721G
SCALE:	AS SHOWN
DATE:	11/06
FIGURE:	1



LEGEND

- ☒ TP-1 APPROXIMATE TEST PIT LOCATIONS
- - - APPROXIMATE LIMITS OF UNDOCUMENTED FILL

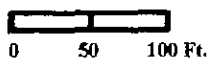
QUATERNARY

- Qudf: UNDOCUMENTED FILL
- Qcol: COLLUVIUM
- Qoal: OLDER ALLUVIUM

CRETACEOUS

- Kmm: MIRRIAM MOUNTAIN MONZOGRANITE

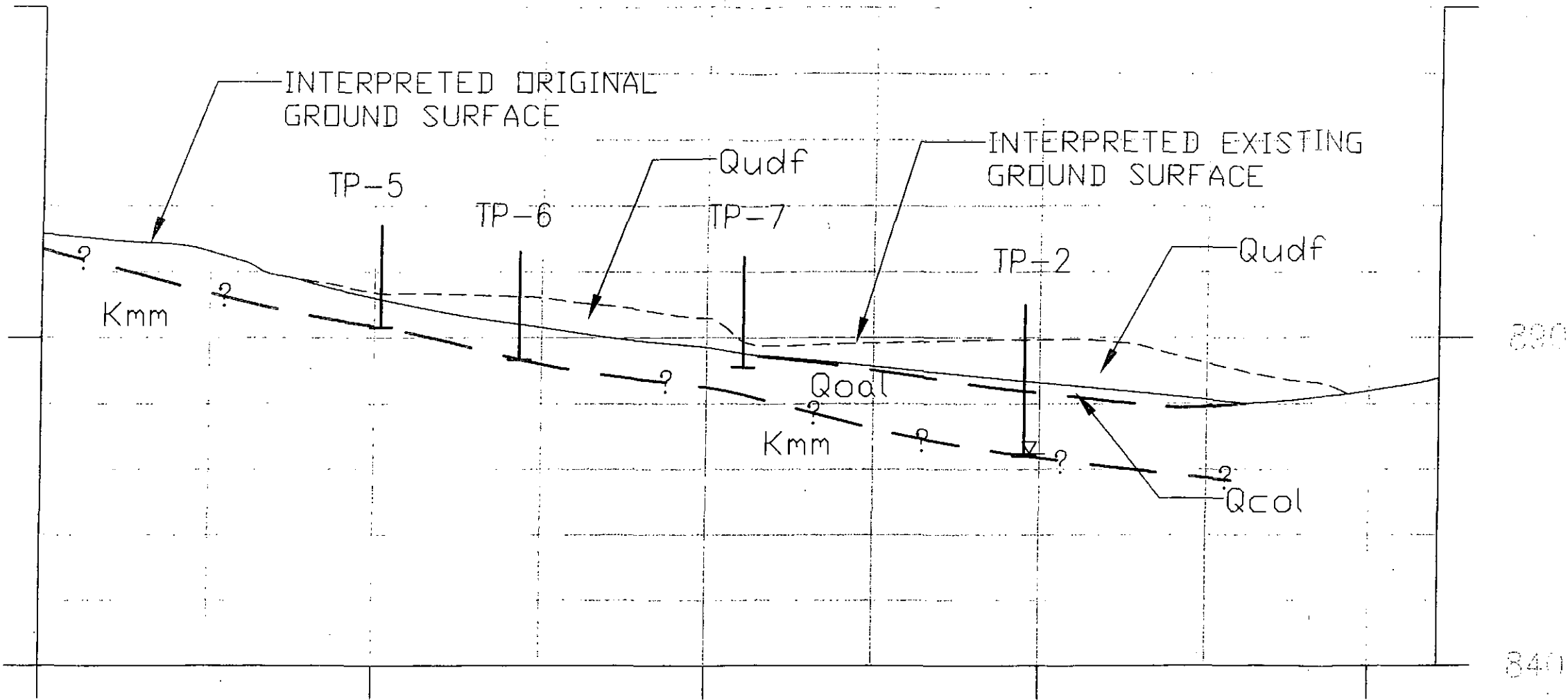
SCALE



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GEOLOGIC EXPLORATION MAP
 NUTMEG PROJECT 4.5 ACRE SITE
 2401 NUTMEG STREET (APN: 224-260-23)
 ESCONDIDO, CALIFORNIA

CTE JOB NO: 10-8721G	
SCALE: SEE SCALE BAR	
DATE: 11/06	FIGURE: 2



LEGEND

- QUATERNARY
 - Qudf UNDOCUMENTED FILL
 - Qcol COLLUVIUM
 - Qoal OLDER ALLUVIUM
- CRETACEOUS
 - Kmm MERRIAM MOUNTAIN MONZOGRANITE
- ? — CONTACT OF GEOLOGIC UNITS
 QUERIED WHERE UNKNOWN

SCALE

VERTICAL: 1"=20'
 HORIZONTAL: 1"=40'

NOTE: EXISTING GROUND SURFACE BASED ON FIELD HAND MEASUREMENTS-APPROXIMATE
 : ORIGINAL GROUND SURFACE BASED ON INTREPRETATION OF 2004 CITY OF ESCONDIDO TOPOGRAPHIC MAP-APPROXIMATE



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 PLANNING - CIVIL ENGINEERING - LAND SURVEYING - GEOTECHNICAL
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GEOLOGIC CROSS-SECTION
 NUTMEG PROJECT 4.5 ACRE SITE
 2401 NUTMEG (APN: 224-260-23)
 ESCONDIDO, CALIFORNIA

CIE JOB NO. 10-8721G	
SCALE VARIES	
DATE 11/06	FIGURE 3

APPENDIX A

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REFERENCES CITED

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3. Kennedy, M.P., 1999, "Geologic Map of the Valley Center 7.5' Quadrangle, San Diego County, California, A Digital Database", Version 1.0, California Division of Mines and Geology.
4. McCulloch, D.S., 1985, "Evaluating Tsunami Potential" in Ziony, J.I., ed., Evaluating Earthquake Hazards in the Los Angeles Region - An Earth-Science Perspective, U.S. Geological Survey Professional Paper 1360.
5. County of San Diego, 2005-2006, "Aerial Photograph," County of San Diego, Department of Public Works, Geographic Information Services, scale 1"=100' (enlarged to center site and includes 5' contour interval from 1960 topographic map).
6. Tan, S.S. and Giffen, D.G., 1995, "Landslide Hazards in the Northern Part of the San Diego Metropolitan Area, San Diego County, California," Landslide Hazard Identification Map No. 35, California Division of Mines and Geology, Open File Report 95-04.

APPENDIX B
EXPLORATION LOGS



DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
		GRAVELS WITH FINES	GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OR NO FINES
			GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS	
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS	
		OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY	
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS	
		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	
		HIGHLY ORGANIC SOILS		

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	
12"	3"	3/4"	4	10	40	200	
CLEAR SQUARE SIEVE OPENING				U.S. STANDARD SIEVE SIZE			

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density	PM- Permeability	PP- Pocket Penetrometer
GS- Grain Size Distribution	SG- Specific Gravity	WA- Wash Analysis
SE- Sand Equivalent	HA- Hydrometer Analysis	DS- Direct Shear
EI- Expansion Index	AL- Atterberg Limits	UC- Unconfined Compression
CHM- Sulfate and Chloride Content, pH, Resistivity	RV- R-Value	MD- Moisture/Density
COR - Corrosivity	CN- Consolidation	M- Moisture
SD- Sample Disturbed	CP- Collapse Potential	SC- Swell Compression
	HC- Hydrocollapse	OI- Organic Impurities
	REM- Remolded	



PROJECT:
CTE JOB NO:
LOGGED BY:

DRILLER:
DRILL METHOD:
SAMPLE METHOD:

SHEET: of
DRILLING DATE:
ELEVATION:

Depth (feet)	Bulk Sample Driven Type	Blows/foot	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	BORING LEGEND	
							DESCRIPTION	Laboratory Tests
0		▲					Block or Chunk Sample	
		▲					Bulk Sample	
5								
		▲					Standard Penetration Test	
0		▲					Modified Split-Barrel Drive Sampler (Cal Sampler)	
		▲					Thin Walled Army Corp. of Engineers Sample	
15								
		▲					Groundwater Table	
							Soil Type or Classification Change	
20							 Formation Change [(Approximate boundaries queried (?))	
5					"SM"		Quotes are placed around classifications where the soils exist in situ as bedrock	



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 1441 MONTIEL ROAD, SUITE 115 | ESCORCADO, CA 92326 | 760.746.4965

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK. SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 875±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-1	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		SM		0	X		Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-2.5': Loose, dry, light brown, silty fine to coarse SAND with trace construction debris (plastic, screws, etc.)	
				5			No Groundwater Backfilled with excavated soil	
				10				
				15				



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 1441 BORTHEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.740.4165

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 880±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-2	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0': Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles, trace construction debris (wire, metal pipe, etc.).	
		SM		5			5': Numerous vegetation fragments including leaves, twigs, small branches.	
		SM		6			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u> 6': Dense, dry, light brown, silty fine to coarse SAND.	
		SM		8			Older Alluvium <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 8': Medium dense, slightly moist, orange-dark brown, silty fine to coarse SAND with trace clay.	
		SC		16			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> Dense to very dense, moist, off white mottled orange, clayey SAND. Groundwater @ 16 ft.	
Backfilled with excavated soil								

FIGURE: TP-2



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 113 | ESCOBIDO, CA 92024 | 760.740.4959

PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 880±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-3	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			<p>Fill:</p> <p><u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry light brown, silty SAND with gravel to cobbles, trace construction debris including geogrid fabric and twine. 1': 1.25' layer of vegetation fragments including stems, branches and roots.</p>	
		SM					<p>Colluvium:</p> <p>Older Alluvium:</p> <p><u>QUATERNARY COLLUVIUM (Qcol):</u> 1.25-1.5': Medium dense, dry, light brown silty SAND.</p>	
		SM		5			<p><u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1.5-6.5': Medium dense, slightly moist, red to orange brown silty fine to coarse SAND with trace clay.</p>	
							<p>No groundwater Backfilled with excavated soil</p>	

FIGURE 1 TP-3



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 7441 MORTIEL ROAD, SUITE 115 ESCOBEDO, CA 92029 / 760.746.4863

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2004
 ELEVATION: 384±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-4	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine SAND with trace clay and gravel to cobbles. 4.5': Vegetation fragments including leaves, twigs, small branches, trace construction debris including visquene.	
		SM		5			Colluvium: <u>QUATERNARY COLLUVIUM (Qcol):</u> 5': Loose, dry, light brown, silty fine to coarse SAND with roots.	
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qcol):</u> 5.5': Medium dense, dry, dark brown, silty fine to coarse SAND with trace clay, rootlets in upper two inches.	
							6.3': Loose, moist, orange brown, silty fine SAND with gravel.	
		SC		10			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 11': Dense to very dense, slightly moist, off white mottled olive and orange, clayey SAND.	
				15			No groundwater Backfilled with excavated soil	



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 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.748.4965

PROJECT: NUTMEG PROJECT

EXCAVATOR: BOBBY SIMPSON AND SONS

CTE JOB NO: 10-8721G

EXCAVATION METHOD: BACKHOE

EXCAVATION DATE: 10/26/2006

LOGGED BY: SC

SAMPLING METHOD: BULK, SLEEVES

ELEVATION: 886±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type	TEST PIT LOG: TP-5		Laboratory Tests
						Bulk	Driven	
						DESCRIPTION		
		SM		0		Fill:	<u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND with trace gravel to cobbles and construction debris. Contains asphalt.	
						Older Alluvium:	<u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.5': Medium dense, moist, orange brown, silty fine to coarse SAND with trace clay.	
		SM		5		Granitic Bedrock:	<u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 3.75': Very dense, dry, light gray, silty fine to coarse SAND.	
							No groundwater Backfilled with excavated soil	



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 1441 MONTIEL ROAD, SUITE 115 | ESCOBIDO, CA 92026 | 760.748.4988

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 885±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-6	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND.	
		SM		4			4': 0.5" layer of vegetation including branches, grass, stems, roots. Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.5': Medium dense, moist, orange brown, silty fine to coarse SAND.	
		SM		10			Granitic Bedrock: <u>CRETACEOUS MERRIAM MOUNTAIN MONZOGRANITE (Kmm):</u> 9': Very dense, moist, light gray, silty fine to coarse SAND. No groundwater Backfilled with excavated soil	
				15				



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTEIL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.748.1985

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 885±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-7	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0: Loose, dry, light brown, silty fine to coarse SAND.	
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1': Medium dense, moist, orange brown, silty fine to coarse SAND.	
				5			No groundwater Backfilled with excavated soil	
				10				
				15				



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GEOTECHNICAL & CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCORCADO, CA 92229 | 760.748.4865

PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 331±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-8	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-3': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles, plastic bag. 2.75': Vegetation fragments, including twigs, stems, grass, branches.	
		SM					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 3': Medium dense, slightly moist, silty fine SAND with trace coarse grains.	
				5			No groundwater Backfilled with excavated soil	
				10				
				15				



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.746.4855

PROJECT: NUTMEG PROJECT
CTE JOB NO: 10-8721G
LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
EXCAVATION METHOD: BACKHOE
SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
ELEVATION: 883±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-9	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			<p>Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-0.5': Loose, dry, light brown, silty fine to coarse SAND with clay and gravel to cobbles.</p>	
		SM					<p>Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.5': Vegetation fragments including stems, branches, roots.</p>	
				5			<p><u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 0.6': Medium dense, moist, red brown silty fine SAND with trace coarse SAND.</p>	
							<p>Groundwater at 5' Backfilled with excavated soil</p>	
				10				
				15				



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTELEONE ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.740.4661

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK, SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 889±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		DESCRIPTION	Laboratory Tests
					Bulk	Driven		
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-1': Loose, dry, light brown silty fine to coarse SAND with clay, gravel, cobbles.	
		CL					Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 1'-4': Stiff, slightly moist, dark brown, sandy CLAY with gravel to cobbles and asphalt.	
				5			No groundwater Backfilled with excavated soil	

FIGURE 1 TP-10



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 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.740.4953

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK. SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 381±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-11	Laboratory Tests
					Bulk	Driven		
							DESCRIPTION	
		ML/SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf):</u> 0-4': Loose, dry, dark brown fine to medium sandy SILT and silty fine to medium SAND.	
		SC		5			Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Qoal):</u> 4.25'-5': Medium dense, slightly moist, dark brown clayey SAND.	
							No groundwater Backfilled with excavated soil	



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GEOTECHNICAL | CONSTRUCTION ENGINEERING TESTING AND INSPECTION
 1441 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.740.4955

PROJECT: NUTMEG PROJECT

EXCAVATOR: BOBBY SIMPSON AND SONS

CTE JOB NO: 10-8721G

EXCAVATION METHOD: BACKHOE

EXCAVATION DATE: 10/26/2006

LOGGED BY: SC

SAMPLING METHOD: BULK, SLEEVES

ELEVATION: 881±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-12	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		ML/SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf)</u> 0-4': Loose, dry, dark brown sandy SILT and silty fine to medium SAND.	
				5			4': Vegetation fragments, including shrubs, grass and small limbs.	
				6			Groundwater at 6' Backfilled with excavated soil	



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 1471 MONTIEL ROAD, SUITE 115 | ESCONDIDO, CA 92026 | 760.748.4995

PROJECT: NUTMEG PROJECT
 CTE JOB NO: 10-8721G
 LOGGED BY: SC

EXCAVATOR: BOBBY SIMPSON AND SONS
 EXCAVATION METHOD: BACKHOE
 SAMPLING METHOD: BULK. SLEEVES

EXCAVATION DATE: 10/26/2006
 ELEVATION: 875±

Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	Depth (Feet)	Sample Type		TEST PIT LOG: TP-13	Laboratory Tests
					Bulk	Driven		
DESCRIPTION								
		SM		0			Fill: <u>QUATERNARY UNDOCUMENTED FILL (Qudf)</u> 0-1.75': Loose, dry, red brown silty fine to coarse SAND.	
		SM		1.75			1.75': Vegetation fragments including twigs and roots.	
							Older Alluvium: <u>QUATERNARY OLDER ALLUVIUM (Ooal)</u> : 1.8'-2.75': Medium dense, moist, orange brown silty fine SAND with trace coarse grains.	
				5			No groundwater Backfilled with excavated soil	
				10				
				15				

FIGURE 1 TP-13

APPENDIX C

LABORATORY METHODS AND RESULTS

APPENDIX C
LABORATORY METHODS AND RESULTS

Laboratory tests were performed on representative soil samples to detect their relative engineering properties. Tests were performed following test methods of the American Society for Testing Materials or other accepted standards. The following presents a brief description of the various test methods used. Laboratory results are presented in the following section of this Appendix.

Classification

Soils were classified visually according to the Unified Soil Classification System. Visual classifications were supplemented by laboratory testing of selected samples according to ASTM D2487.

In-Place Moisture and Density

To determine the moisture and density of in-place site soils, a representative sample was tested for the moisture and density at time of sampling.

Modified Proctor

To determine the maximum dry density and optimum moisture content, a soil sample was tested in accordance with ASTM D-1557

Expansion Index Test

Expansion Index Testing was performed on selected samples of the matrix of the onsite soils according to United Building Code Standard No. 18-2.



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EXPANSION INDEX TEST

LOCATION	DEPTH (feet)	EXPANSION INDEX	EXPANSION POTENTIAL
TP-3	2-4	0	VERY LOW
TP-10	3-4	33	LOW

IN-PLACE MOISTURE AND DENSITY

LOCATION	DEPTH (feet)	% MOISTURE	DRY DENSITY
TP-1	2-3	5.4	98.3
TP-3	3	4.1	101.7
TP-3	6	11.8	102.8
TP-4	2	8.6	85.2
TP-10	3	12.9	97.8
TP-11	2.5	17.2	86.8



LABORATORY COMPACTION OF SOIL (MOD.)

ASTM D 1557

Project Name: Nutmeg street
 Project No.: 10-8721g
 Lab No.: 16612
 Sample No.: TP-3
 Sample Description: SM. PALE BROWN SILTY SAND

Tested By: Eric West Date: 10-26-06
 Calculated By: Eric West Date: 11-15-06
 Sample Type: Bulk
 Depth (ft.): 3

Moisture Added (ml)	100	150	200	250	
TEST NO.	1	2	3	4	5
Wt. Comp. Soil + Mold (g)	3973	4103	4082	4040	
Wt. of Mold (g)	1942	1942	1942	1942	
Net Wt. of Soil (g)	2031	2161	2140	2098	
Wet Wt. of Soil + Cont. (g)	200.0	200.1	200.0	200.0	
Dry Wt. of Soil + Cont. (g)	188.5	184.9	181.2	178.3	
Wt. of Container (g)	0.0	0.0	0.0	0.0	
Moisture Content (%)	6.1	8.2	10.4	12.2	
Wet Density (pcf)	134.5	143.1	141.7	138.9	
Dry Density (pcf)	126.7	132.2	128.4	123.8	

40 Dry
 Moist

Mechanical Rammer
 Manual Rammer

Hammer Weight:

Drop:

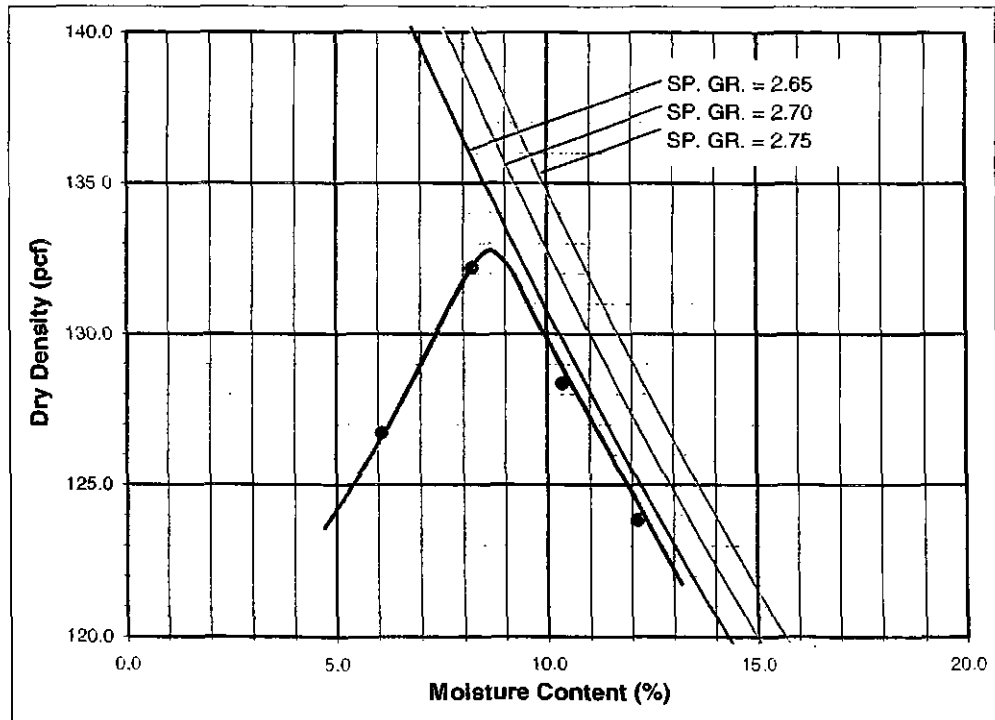
Mold Volume (ft.³):

PROCEDURE USED

Procedure A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold: 4 in. (101.6 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 25 (twenty-five)
 May be used if No.4 retained < 20%

Procedure B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold: 4 in. (101.6 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 25 (twenty-five)
 Use if + #4 > 20% and + 3/8" < 20%

Procedure C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold: 6 in. (152.4 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 56 (fifty-six)
 Use if + 3/8 in > 20% and + 3/4 in < 30%



OVERSIZE FRACTION	
Total Sample Weight (g):	<input type="text"/>
Weight Retained (g)	Percent Retained
<input type="text"/> Plus 3/4"	<input type="text"/>
<input type="text"/> Plus 3/8"	<input type="text"/>
<input type="text"/> Plus #4	<input type="text"/>

Maximum Dry Density (pcf)
 Optimum Moisture Content (%)
 Rock Correction Applied per ASTM D 4718
 Maximum Dry Density (pcf)
 Optimum Moisture Content (%)



LABORATORY COMPACTION OF SOIL (MOD.)

ASTM D 1557

Project Name: Nutmeg street
 Project No.: 10-8721g
 Lab No.: 16812
 Sample No.: TP-10
 Sample Description: SM, MEDIUM BROWN SILTY SAND WITH GRAVEL

Tested By: Eric West Date: 10-26-06
 Calculated By: Eric West Date: 11-15-06
 Sample Type: Bulk
 Depth (ft.): 5

Moisture Added (ml)	50	100	150		
TEST NO.	1	2	3	4	5
Wt. Comp. Soil + Mold (g)	3939	4062	4066		
Wt. of Mold (g)	1942	1942	1942		
Net Wt. of Soil (g)	1997	2120	2124		
Wet Wt. of Soil + Cont. (g)	200.6	201.0	200.1		
Dry Wt. of Soil + Cont. (g)	185.3	182.5	177.8		
Wt. of Container (g)	0.0	0.0	0.0		
Moisture Content (%)	8.3	10.1	12.5		
Wet Density (pcf)	132.6	140.8	141.0		
Dry Density (pcf)	122.5	127.8	125.3		

Preparation Method: Dry X
 Moist

Mechanical Rammer X
 Manual Rammer

Hammer Weight:

Drop:

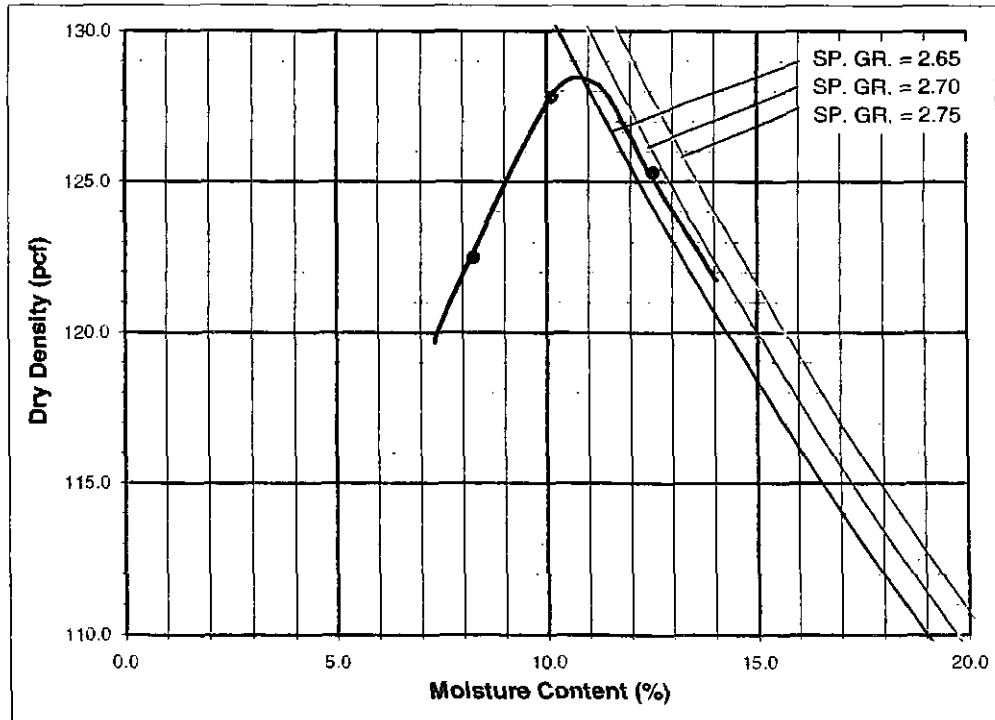
Mold Volume (ft.³):

PROCEDURE USED

Procedure A
 Soil Passing No. 4 (4.75 mm) Sieve
 Mold: 4 in. (101.6 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 25 (twenty-five)
 May be used if No.4 retained < 20%

Procedure B
 Soil Passing 3/8 in. (9.5 mm) Sieve
 Mold: 4 in. (101.6 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 25 (twenty-five)
 Use if + #4 > 20% and + 3/8" < 20%

Procedure C
 Soil Passing 3/4 in. (19.0 mm) Sieve
 Mold: 6 in. (152.4 mm) diameter
 Layers: 5 (Five)
 Blows per layer: 56 (fifty-six)
 Use if + 3/8 in > 20% and + 3/4 in < 30%



OVERSIZE FRACTION	
Total Sample Weight (g):	17208
Weight Retained (g)	Percent Retained
402	Plus 3/4" 2.3
1668	Plus 3/8" 9.7
	Plus #4

Maximum Dry Density (pcf)

Optimum Moisture Content (%)

Rock Correction Applied per ASTM D 4718

Maximum Dry Density (pcf)

Optimum Moisture Content (%)

APPENDIX D

STANDARD SPECIFICATIONS FOR GRADING

APPENDIX D

STANDARD SPECIFICATIONS FOR GRADING

Section 1 - General

The guidelines contained herein represent Construction Testing & Engineering's standard recommendations for grading and other associated operations on construction projects. These guidelines should be considered a portion of the project specifications. Recommendations contained in the body of the previously presented soils report shall supersede the recommendations and or requirements as specified herein. The project geotechnical consultant shall interpret disputes arising out of interpretation of the recommendations contained in the soils report or specifications contained herein.

Section 2 - Responsibilities of Project Personnel

The geotechnical consultant should provide observation and testing services sufficient to assure that geotechnical construction is performed in general conformance with project specifications and standard grading practices. The geotechnical consultant should report any deviations to the client or his authorized representative.

The Client should be chiefly responsible for all aspects of the project. He or his authorized representative has the responsibility of reviewing the findings and recommendations of the geotechnical consultant. He shall authorize or cause to have authorized the Contractor and/or other consultants to perform work and/or provide services. During grading the Client or his authorized representative should remain on-site or should remain reasonably accessible to all concerned parties in order to make decisions necessary to maintain the flow of the project.

The Contractor should be responsible for the safety of the project and satisfactory completion of all grading and other associated operations on construction projects, including, but not limited to, earth work in accordance with the project plans, specifications and controlling agency requirements.

Section 3 - Preconstruction Meeting

A preconstruction site meeting shall be arranged by the owner and/or client and shall include the grading contractor, the design engineer, the geotechnical consultant, owner's representative and representatives of the appropriate governing authorities.

Section 4 - Site Preparation

The client or contractor should obtain the required approvals from the controlling authorities for the project prior, during and/or after demolition, site preparation and removals, etc. The appropriate approvals should be obtained prior to proceeding with grading operations.

Clearing and grubbing should consist of the removal of vegetation such as brush, grass, woods, stumps, trees, root of trees and otherwise deleterious natural materials from the areas to be graded. Clearing and grubbing should extend to the outside of all proposed excavation and fill areas.

Demolition should include removal of buildings, structures, foundations, reservoirs, utilities (including underground pipelines, septic tanks, leach fields, seepage pits, cisterns, mining shafts, tunnels, etc.) and other man-made surface and subsurface improvements from the areas to be graded. Demolition of utilities should include proper capping and/or rerouting pipelines at the project perimeter and cutoff and capping of wells in accordance with the requirements of the governing authorities and the recommendations of the geotechnical consultant at the time of demolition.

Trees, plants or man-made improvements not planned to be removed or demolished should be protected by the contractor from damage or injury.

Debris generated during clearing, grubbing and/or demolition operations should be wasted from areas to be graded and disposed off-site. Clearing, grubbing and demolition operations should be performed under the observation of the geotechnical consultant.

Section 5 - Site Protection

Protection of the site during the period of grading should be the responsibility of the contractor. Unless other provisions are made in writing and agreed upon among the concerned parties, completion of a portion of the project should not be considered to preclude that portion or adjacent areas from the requirements for site protection until such time as the entire project is complete as identified by the geotechnical consultant, the client and the regulating agencies.

Precautions should be taken during the performance of site clearing, excavations and grading to protect the work site from flooding, ponding or inundation by poor or improper surface drainage. Temporary provisions should be made during the rainy season to adequately direct surface drainage away from and off the work site. Where low areas cannot be avoided, pumps should be kept on hand to continually remove water during periods of rainfall.

Rain related damage should be considered to include, but may not be limited to, erosion, silting, saturation, swelling, structural distress and other adverse conditions as determined by the geotechnical consultant. Soil adversely affected should be classified as unsuitable materials and should be subject to overexcavation and replacement with compacted fill or other remedial grading as recommended by the geotechnical consultant.

The contractor should be responsible for the stability of all temporary excavations. Recommendations by the geotechnical consultant pertaining to temporary excavations (e.g., backcuts) are made in consideration of stability of the completed project and, therefore, should not be considered to preclude the responsibilities of the contractor. Recommendations by the geotechnical consultant should not be considered to preclude requirements that are more restrictive by the regulating agencies. The contractor should provide during periods of extensive rainfall plastic sheeting to prevent unprotected slopes from becoming saturated and unstable. When deemed appropriate by the geotechnical consultant or governing agencies the contractor shall install checkdams, desilting basins, sand bags or other drainage control measures.

In relatively level areas and/or slope areas, where saturated soil and/or erosion gullies exist to depths of greater than 1.0 foot; they should be overexcavated and replaced as compacted fill in accordance with the applicable specifications. Where affected materials exist to depths of 1.0 foot or less below proposed finished grade, remedial grading by moisture conditioning in-place, followed by thorough recompaction in accordance with the applicable grading guidelines herein may be attempted. If the desired results are not achieved, all affected materials should be overexcavated and replaced as compacted fill in accordance with the slope repair recommendations herein. If field conditions dictate, the geotechnical consultant may recommend other slope repair procedures.

Section 6 - Excavations

6.1 Unsuitable Materials

Materials that are unsuitable should be excavated under observation and recommendations of the geotechnical consultant. Unsuitable materials include, but may not be limited to, dry, loose, soft, wet, organic compressible natural soils and fractured, weathered, soft bedrock and nonengineered or otherwise deleterious fill materials.

Material identified by the geotechnical consultant as unsatisfactory due to its moisture conditions should be overexcavated; moisture conditioned as needed, to a uniform at or above optimum moisture condition before placement as compacted fill.

If during the course of grading adverse geotechnical conditions are exposed which were not anticipated in the preliminary soil report as determined by the geotechnical consultant additional exploration, analysis, and treatment of these problems may be recommended.

6.2 Cut Slopes

Unless otherwise recommended by the geotechnical consultant and approved by the regulating agencies, permanent cut slopes should not be steeper than 2:1 (horizontal: vertical).

The geotechnical consultant should observe cut slope excavation and if these excavations expose loose cohesionless, significantly fractured or otherwise unsuitable material, the materials should be overexcavated and replaced with a compacted stabilization fill. If encountered specific cross section details should be obtained from the Geotechnical Consultant.

When extensive cut slopes are excavated or these cut slopes are made in the direction of the prevailing drainage, a non-erodible diversion swale (brow ditch) should be provided at the top of the slope.

6.3 Pad Areas

All lot pad areas, including side yard terrace containing both cut and fill materials, transitions, located less than 3 feet deep should be overexcavated to a depth of 3 feet and replaced with a uniform compacted fill blanket of 3 feet. Actual depth of overexcavation may vary and should be delineated by the geotechnical consultant during grading.

For pad areas created above cut or natural slopes, positive drainage should be established away from the top-of-slope. This may be accomplished utilizing a berm drainage swale and/or an appropriate pad gradient. A gradient in soil areas away from the top-of-slopes of 2 percent or greater is recommended.

Section 7 - Compacted Fill

All fill materials should have fill quality, placement, conditioning and compaction as specified below or as approved by the geotechnical consultant.

7.1 Fill Material Quality

Excavated on-site or import materials which are acceptable to the geotechnical consultant may be utilized as compacted fill, provided trash, vegetation and other deleterious materials are removed prior to placement. All import materials anticipated for use on-site should be sampled tested and approved prior to and placement is in conformance with the requirements outlined.

Rocks 12 inches in maximum and smaller may be utilized within compacted fill provided sufficient fill material is placed and thoroughly compacted over and around all rock to

effectively fill rock voids. The amount of rock should not exceed 40 percent by dry weight passing the 3/4-inch sieve. The geotechnical consultant may vary those requirements as field conditions dictate.

Where rocks greater than 12 inches but less than four feet of maximum dimension are generated during grading, or otherwise desired to be placed within an engineered fill, special handling in accordance with the recommendations below. Rocks greater than four feet should be broken down or disposed off-site.

7.2 Placement of Fill

Prior to placement of fill material, the geotechnical consultant should inspect the area to receive fill. After inspection and approval, the exposed ground surface should be scarified to a depth of 6 to 8 inches. The scarified material should be conditioned (i.e. moisture added or air dried by continued discing) to achieve a moisture content at or slightly above optimum moisture conditions and compacted to a minimum of 90 percent of the maximum density or as otherwise recommended in the soils report or by appropriate government agencies.

Compacted fill should then be placed in thin horizontal lifts not exceeding eight inches in loose thickness prior to compaction. Each lift should be moisture conditioned as needed, thoroughly blended to achieve a consistent moisture content at or slightly above optimum and thoroughly compacted by mechanical methods to a minimum of 90 percent of laboratory maximum dry density. Each lift should be treated in a like manner until the desired finished grades are achieved.

The contractor should have suitable and sufficient mechanical compaction equipment and watering apparatus on the job site to handle the amount of fill being placed in consideration of moisture retention properties of the materials and weather conditions.

When placing fill in horizontal lifts adjacent to areas sloping steeper than 5:1 (horizontal: vertical), horizontal keys and vertical benches should be excavated into the adjacent slope area. Keying and benching should be sufficient to provide at least six-foot wide benches and a minimum of four feet of vertical bench height within the firm natural ground, firm bedrock or engineered compacted fill. No compacted fill should be placed in an area after keying and benching until the geotechnical consultant has reviewed the area. Material generated by the benching operation should be moved sufficiently away from the bench area to allow for the recommended review of the horizontal bench prior to placement of fill.

Within a single fill area where grading procedures dictate two or more separate fills, temporary slopes (false slopes) may be created. When placing fill adjacent to a false slope, benching should be conducted in the same manner as above described. At least a 3-foot vertical bench should be established within the firm core of adjacent approved compacted fill prior to placement of additional fill. Benching should proceed in at least 3-foot vertical increments until the desired finished grades are achieved.

Prior to placement of additional compacted fill following an overnight or other grading delay, the exposed surface or previously compacted fill should be processed by scarification, moisture conditioning as needed to at or slightly above optimum moisture content, thoroughly blended and recompacted to a minimum of 90 percent of laboratory maximum dry density. Where unsuitable materials exist to depths of greater than one foot, the unsuitable materials should be over-excavated.

Following a period of flooding, rainfall or overwatering by other means, no additional fill should be placed until damage assessments have been made and remedial grading performed as described herein.

Rocks 3 inch in maximum dimension and smaller may be utilized in the compacted fill provided the fill is placed and thoroughly compacted over and around all rock. No oversize material should be used within 3 feet of finished pad grade and within 1 foot of other compacted fill areas. Rocks 12 inches up to four feet maximum dimension should be placed below the upper 5 feet of any fill and should not be closer than 11 feet to any slope face. These recommendations could vary as locations of improvements dictate. Where practical, oversized material should not be placed below areas where structures or deep utilities are proposed. Oversized material should be placed in windrows on a clean, overexcavated or unyielding compacted fill or firm natural ground surface. Select native or imported granular soil (S.E. 30 or higher) should be placed and thoroughly flooded over and around all windrowed rock, such that voids are filled. Windrows of oversized material should be staggered so those successive strata of oversized material are not in the same vertical plane.

It may be possible to dispose of individual larger rock as field conditions dictate and as recommended by the geotechnical consultant at the time of placement.

The contractor should assist the geotechnical consultant and/or his representative by digging test pits for removal determinations and/or for testing compacted fill. The contractor should provide this work at no additional cost to the owner or contractor's client.

Fill should be tested by the geotechnical consultant for compliance with the recommended relative compaction and moisture conditions. Field density testing should conform to ASTM Method of Test D 1556-82, D 2922-81. Tests should be conducted at a minimum of 2 vertical feet or 1,000 cubic yards of fill placed. Actual test intervals may vary as field conditions dictate. Fill found not to be in conformance with the grading recommendations should be removed or otherwise handled as recommended by the geotechnical consultant.

7.3 Fill Slopes

Unless otherwise recommended by the geotechnical consultant and approved by the regulating agencies, permanent fill slopes should not be steeper than 2:1 (horizontal: vertical).

Except as specifically recommended in these grading guidelines compacted fill slopes should be over-built and cut back to grade, exposing the firm, compacted fill inner core. The actual amount of overbuilding may vary as field conditions dictate. If the desired results are not achieved, the existing slopes should be overexcavated and reconstructed under the guidelines of the geotechnical consultant. The degree of overbuilding shall be increased until the desired compacted slope surface condition is achieved. Care should be taken by the contractor to provide thorough mechanical compaction to the outer edge of the overbuilt slope surface.

At the discretion of the geotechnical consultant, slope face compaction may be attempted by conventional construction procedures including backrolling. The procedure must create a firmly compacted material throughout the entire depth of the slope face to the surface of the previously compacted firm fill intercore.

During grading operations, care should be taken to extend compactive effort to the outer edge of the slope. Each lift should extend horizontally to the desired finished slope surface or more as needed to ultimately established desired grades. Grade during construction should not be allowed to roll off at the edge of the slope. It may be helpful to elevate slightly the outer edge of the slope. Slough resulting from the placement of individual lifts should not be allowed to drift down over previous lifts. At intervals not exceeding four feet in vertical slope height or the capability of available equipment, whichever is less, fill slopes should be thoroughly dozer trackrolled.

For pad areas above fill slopes, positive drainage should be established away from the top-of-slope. This may be accomplished using a berm and pad gradient of at least 2 percent.

Section 8 - Trench Backfill

Utility and/or other excavation of trench backfill should, unless otherwise recommended, be compacted by mechanical means. Unless otherwise recommended, the degree of compaction should be a minimum of 90 percent of the laboratory maximum density.

Within slab areas, but outside the influence of foundations, trenches up to one foot wide and two feet deep may be backfilled with sand and consolidated by jetting, flooding or by mechanical means. If on-site materials are utilized, they should be wheel-rolled, tamped or otherwise compacted to a firm condition. For minor interior trenches, density testing may be deleted or spot testing may be elected if deemed necessary, based on review of backfill operations during construction.

If utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, the contractor may elect the utilization of light weight mechanical compaction equipment and/or shading of the conduit with clean, granular material, which should be thoroughly jetted in-place above the conduit, prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate, upon review of the geotechnical consultant at the time of construction.

In cases where clean granular materials are proposed for use in lieu of native materials or where flooding or jetting is proposed, the procedures should be considered subject to review by the geotechnical consultant. Clean granular backfill and/or bedding are not recommended in slope areas.

Section 9 - Drainage

Where deemed appropriate by the geotechnical consultant, canyon subdrain systems should be installed in accordance.

Typical subdrains for compacted fill buttresses, slope stabilization or sidehill masses, should be installed in accordance with the specifications.

Roof, pad and slope drainage should be directed away from slopes and areas of structures to suitable disposal areas via non-erodible devices (i.e., gutters, downspouts, and concrete swales).

For drainage in extensively landscaped areas near structures, (i.e., within four feet) a minimum of 5 percent gradient away from the structure should be maintained. Pad drainage of at least 2 percent should be maintained over the remainder of the site.

Drainage patterns established at the time of fine grading should be maintained throughout the life of the project. Property owners should be made aware that altering drainage patterns could be detrimental to slope stability and foundation performance.

Section 10 - Slope Maintenance

10.1 - Landscape Plants

To enhance surficial slope stability, slope planting should be accomplished at the completion of grading. Slope planting should consist of deep-rooting vegetation requiring little watering. Plants native to the southern California area and plants relative to native plants are generally desirable. Plants native to other semi-arid and arid areas may also be appropriate. A Landscape Architect should be the best party to consult regarding actual types of plants and planting configuration.

10.2 - Irrigation

Irrigation pipes should be anchored to slope faces, not placed in trenches excavated into slope faces.

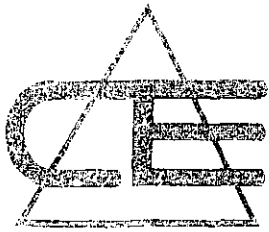
Slope irrigation should be minimized. If automatic timing devices are utilized on irrigation systems, provisions should be made for interrupting normal irrigation during periods of rainfall.

10.3 - Repair

As a precautionary measure, plastic sheeting should be readily available, or kept on hand, to protect all slope areas from saturation by periods of heavy or prolonged rainfall. This measure is strongly recommended, beginning with the period prior to landscape planting.

If slope failures occur, the geotechnical consultant should be contacted for a field review of site conditions and development of recommendations for evaluation and repair.

If slope failures occur as a result of exposure to period of heavy rainfall, the failure areas and currently unaffected areas should be covered with plastic sheeting to protect against additional saturation.



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November 27, 2006

CTE Project No. 10-8721E

Hilltop Group, Inc.
Attention: Mr. Mark Lemire
807 East Mission Road
San Marcos, California 92069

Subject: Limited Phase II Environmental Site Assessment
Nutmeg Project 4.5 Acre Site
2401 North Nutmeg Street (APN: 224-260-23)
Escondido, California

Reference: Limited Geotechnical Investigation
Nutmeg Project 4.5 Acre Site
2401 North Nutmeg Street (APN: 224-260-23)
Escondido, California
Dated November 13, 2006
CTE project 10-8721G

Site Assessment Mitigation (SAM) Manual
San Diego County Department of Environmental Health
Dated February 18, 2004

Waste Discharge Requirements for the Disposal
And/Or Reuse of Petroleum Fuel Contaminated Soils (FCS)
In the San Diego Region
California Regional Water Quality Control Board
Order No. R9-2002-0342
Dated December 11, 2002

Mr. Lemire:

In accordance with your authorization of our proposal dated October 31, 2006 (CTE Project Number E-0254), Construction Testing & Engineering, Inc. (CTE) has performed a limited Phase II Environmental Site Assessment (Phase II) of the subject site. We understand fill was imported to the site within this year (2006) from an unknown source. What has been

documentation, and placed without the knowledge and permission of the property owner. Additionally, permits from pertinent regulatory agencies were not secured for placement of the fill soil. The purpose of this limited Phase II is to evaluate the environmental condition of soil imported to the site and placed without permission of the property owner.

This work follows preparation of the above referenced Limited Geotechnical Investigation for the site. Based upon the results of our limited Phase II and review of the above referenced documents, additional environmental assessment of the site is recommended. Information regarding project scope, findings, and conclusions and recommendations is provided in the following.

1.0 PROJECT SCOPE

Our scope of services included:

- Collecting a grab sample for environmental analyses from two separate bulk samples collected for geotechnical purposes (two samples total).
- Laboratory analyses of two samples to detect the presence of chlorinated pesticides, PCBs, and total recoverable hydrocarbons (carbon chain quantitated) by EPA Methods 8081A, 8082 and 3550B, respectively. Additionally, California Title 22 metals were quantitated for total values by EPA Methods 3050B, 7471A, 6010B, 7471A as appropriate for the analyte.
- Review of above referenced documents.
- Preparation of this report.

2.0 FINDINGS

2.1 Site Description and Location

The project is located at the southwest corner of the intersection of North Nutmeg Street and North Centre City Parkway in Escondido, California. Interstate Highway I-15 bounds the west margin of the site. Land in the vicinity of the site is under-strewn or scattered low-density rural

residential. The site is vacant and, at the time of our geotechnical field exploration, predominantly bare of vegetation except along the property margins that supported grass, low brush, and oak trees. The site slopes at a relatively low gradient (less than estimated 10 percent) to the southwest where a catch basin is located. Site elevation is approximately 865 to 890 feet above mean sea level (msl). Reference to City of Escondido 2004 topographic maps indicates that the imported fill was placed in a shallow swale that drained to the southwest toward a catch basin that collects and conveys water off site.

2.2 Site Geology

Site geology consists of crystalline bedrock of the Cretaceous Mirriam Mountain Monzogranite overlain by soils deposits recognized as Quaternary Older Alluvium, Colluvium and Undocumented Fill. Bedrock was encountered from 4 to 16 feet below the ground surface in subsurface explorations for the referenced CTE geotechnical report. On-site natural soil deposits (Older Alluvium and Colluvium) generally consist of medium dense to loose silty sand with clay. The Undocumented Fill extended to a depth of at least six feet and is located on the north approximate one-half of the site. These materials were observed to consist mainly of loose, dry, light brown, silty, fine to coarse grained sand with some clay, gravels and cobbles. The Undocumented Fill commonly contained construction debris such as geogrid fabric, twine, plastic, screws, pipes, etc. A layer near the bottom of the Undocumented Fill was up to approximately 12 inches thick and contained numerous vegetation fragments including stems, branches, leaves and roots that appeared to be derived from on site materials.

Groundwater was encountered between 5 and 16 feet below the ground surface in several test pits placed in Undocumented Fill on the south margin of the site, and was observed to occur proximal to the upper portion of the crystalline bedrock. Review of available historic topographic maps indicates the subsurface water occurred in a natural southwest draining swale that was covered by the Undocumented Fill. No surface water seeps or springs were observed at the site.

2.3 Analytical Results

Analytical results are attached as Appendix A to this report. The results of the analyses do not indicate the presence of chlorinated pesticides or polychlorinated biphenyl (PCB) compounds. The analyses did detect the presence of petroleum hydrocarbon compounds. Additionally, the laboratory analyses yielded total values for various California Title 22 metals.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the laboratory analytical results and review of referenced documents additional environmental site assessment is warranted. The laboratory detections for petroleum hydrocarbons are low, in some instances at the laboratory detection limit. However, the detections may be indicative of environmentally impacted soil placement on the site. Most of the detected hydrocarbons are in a range that is indicative of motor oil, grease and asphalt. However, there are detections, albeit at low concentrations, for hydrocarbons in a range possibly indicative of gasoline and/or diesel fuels. Values for Title 22 metals do not appear high, but may not be typical to concentrations of the native on-site soils. Groundwater is present at the site to within five feet of the ground surface at the central east one-half of the site, and appears to flow east along the top of crystalline bedrock in a drainage covered by Undocumented Fill.

Concentrations of chemicals contained in the Undocumented Fill could potentially impact groundwater.

Based upon general reference to San Diego County Department of Environmental Health (DEH) standards and discussion with their solid waste management personnel, illegal dumping is placement of any waste on a site without the knowledge or permission of the owner. CTE understands the source of soil placed on the site is unknown to the property owner and was placed without their permission. The relatively low detected petroleum hydrocarbon concentrations and presence of construction debris suggest the Undocumented Fill may be considered inert waste by the Regional Water Quality Control Board (RWQCB). Groundwater at the site is not likely utilized for potable water supply. However, in most cases the RWQCB requires protection of groundwater in areas where fill soil containing chemical compounds (including petroleum hydrocarbons) and concentration of metal constituents not equivalent to site background values are placed.

CTE recommends that additional soil sampling be performed to confirm the results of preliminary screening samples. The soil sampling should be: a) at a minimum of four separate locations within the Undocumented Fill and b) two separate locations outside the Undocumented Fill to collect materials suitable for evaluating background conditions. The samples should at minimum be analyzed for total recoverable hydrocarbons, volatile organic and hydrocarbon constituents and California Title 22 metals. The results of the sampling and laboratory analyses would be beneficial for determinations pertaining to the regulatory status of

the site, including State of California Integrated Waste Management Board grant or loan funding programs for site cleanup.

4.0 CLOSING

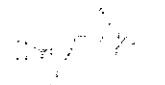
This is a limited environmental screening report conducted according to current practice and the standard of care exercised by reputable consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be present. This report makes no representations regarding legal conditions of the site.

Our conclusions and recommendations are based on an analysis of the observed conditions. If conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if required, will be provided upon request.

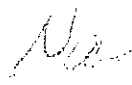
We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

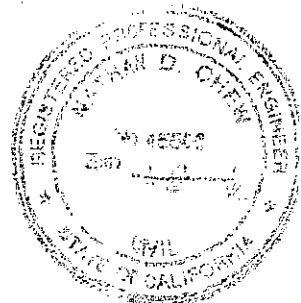
Respectfully submitted,

CONSTRUCTION TESTING & ENGINEERING, INC.


Gregory F. Rzonca, CEG# 1100
Senior Engineering Geologist




Nathan Chew, R.C.E.# 45365
Senior Engineer



Attachments: Laboratory Analytical Results

APPENDIX A
LABORATORY ANALYTICAL RESULTS

November 14, 2006

Greg Rzonca
Construction Testing & Engineering
1441 Montiel Road
Escondido, CA 92026-1111

Subject: Calscience Work Order No.: 06-11-0417
Client Reference: Nutmeg Street

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/7/2006 and analyzed in accordance with the attached chain-of-custody.

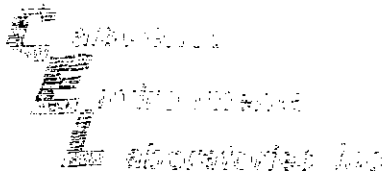
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned

Sincerely,



Kenneth W. Clark
President/Manager
1441 Montiel Road
Escondido, CA 92026-1111
Phone: 760-734-1111
Email: kclark@cte.com



Environmental Laboratories Inc.

Construction Testing & Engineering
 4411 Montiel Road
 Escondido, CA 92026-1400

Date Received: 11/07/06
 Work Order No.: 06-11-0417
 Preparator: EPA 8060B / EPA 7471A Total
 Method: EPA 8110B / EPA 7471A
 Unit: mg/kg

Project: Nutmeg Street

Page 1 of 1

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/07/06	11/09/06	061107L06

Comment(s): -Mercury was analyzed on 11/8/2006 12:34:04 PM with batch 061108L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	6.22	0.75	1		Molybdenum	ND	0.250	1	
Barium	162	0.500	1		Nickel	4.72	0.25	1	
Beryllium	0.547	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	0.552	0.250	1	
Chromium	8.24	0.25	1		Thallium	ND	0.750	1	
Cobalt	8.32	0.25	1		Vanadium	34.6	0.2	1	
Copper	12.0	0.5	1		Zinc	45.7	1.0	1	
Lead	5.57	0.50	1						

TP10 #2	06-11-0417-2	11/06/06	Solid	11/07/06	11/09/06	061107L06
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Comment(s): -Mercury was analyzed on 11/8/2006 12:36:21 PM with batch 061108L01

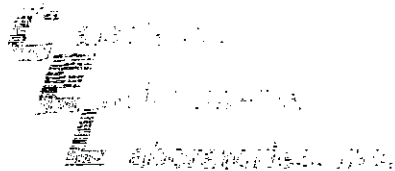
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Mercury	ND	0.0835	1	
Arsenic	4.09	0.75	1		Molybdenum	ND	0.250	1	
Barium	97.1	0.5	1		Nickel	13.2	0.2	1	
Beryllium	0.474	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	0.481	0.250	1	
Chromium	22.1	0.2	1		Thallium	ND	0.750	1	
Cobalt	11.4	0.2	1		Vanadium	33.9	0.2	1	
Copper	19.3	0.5	1		Zinc	30.8	1.0	1	
Lead	5.01	0.50	1						

Method Blank	089-94-007-4,233	N/A	Solid	11/08/06	11/08/06	061108L01
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Parameter	Result	RL	DF	Qual
Mercury	ND	0.0835	1	

Method Blank	097-94-002-0,368	N/A	Solid	11/07/06	11/08/06	061107L06
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Antimony	ND	0.750	1		Lead	ND	0.500	1	
Arsenic	ND	0.750	1		Molybdenum	ND	0.250	1	
Barium	ND	0.500	1		Nickel	ND	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	ND	0.250	1		Thallium	ND	0.750	1	
Cobalt	ND	0.250	1		Vanadium	ND	0.250	1	
Copper	1	0.50	1		Zinc	1	1.0	1	



Environmental Sciences Laboratory, Inc.
 Construction Testing & Engineering
 1441 Montal Road
 Escondido, CA 92026-1111

Date Recd: 11/17/06
 Work Order No:
 Preparation:
 Method:
 Units:

11/17/06
 06-11-04-17
 EPA 3550B
 TPH - Carbon Range
 mg/kg

Project: Nutmeg Street

Page 1 of 1

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/08/06	11/09/06	06110806

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	ND		1	
C8	ND		1		C23-C24	ND		1	
C9-C10	ND		1		C25-C28	ND		1	
C11-C12	ND		1		C29-C32	0.43		1	
C13-C14	ND		1		C33-C36	0.62		1	
C15-C16	ND		1		C37-C40	1.0		1	
C17-C18	ND		1		C41-C44	1.6		1	
C19-C20	ND		1		C7-C44 Total	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	39	61-145							

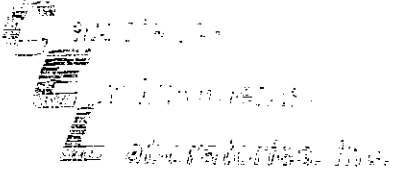
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TP16 #2	06-11-0417-2	11/05/06	Solid	11/06/06	11/09/06	06110906

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
C7	ND		1		C21-C22	3.3		1	
C8	ND		1		C23-C24	3.9		1	
C9-C10	ND		1		C25-C28	10		1	
C11-C12	ND		1		C29-C32	22		1	
C13-C14	0.081		1		C33-C36	26		1	
C15-C16	0.36		1		C37-C40	23		1	
C17-C18	1.2		1		C41-C44	28		1	
C19-C20	2.0		1		C7-C44 Total	120	5	1	
Surrogates:	REC (%)	Control Limits		Qual					
Decachlorobiphenyl	92	61-145							

Handwritten notes: 'G' with arrow pointing to C9-C10, 'Lubric' with arrow pointing to C21-C22.

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	06-11-0417-150	N/A	Solid	11/09/06	11/09/06	06110906

Parameter	Result	RL	DF	Qual
TPH as Diesel	ND	5.0	1	
Surrogates:	REC (%)	Control Limits		Qual
Decachlorobiphenyl	94	61-145		



Environmental Laboratories, Inc.

Construction Testing & Engineering
 1041 Montiel Road
 Escondido, Ca 92026-1111

Date Received: 11/7/06
 Work Order No: 06-11-0417
 Preparation: EPA 8245
 Method: EPA 8081/8082
 Units: ug/kg

Project: Nutmeg Street

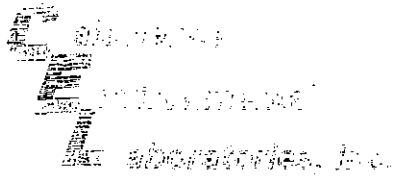
Page 1 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
TP1 #1	06-11-0417-1	11/06/06	Solid	11/06/06	11/10/06	06110417

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Heptachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Heptachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldehyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Decachlorobiphenyl	50	50-130			2,4,5,6-Tetrachloro-m-Xylene	62	50-130		

TP10 #2	06-11-0417-2	11/06/06	Solid	11/06/06	11/10/06	06110417
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Heptachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Heptachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldehyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>
Decachlorobiphenyl	50	50-130			2,4,5,6-Tetrachloro-m-Xylene	53	50-130		



10000 10th Street

Environmental Testing & Engineering
 1447 Montiel Road
 Escondido, CA 92026-1111

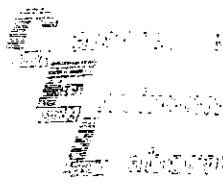
Date Received: 11/17/06
 Work Order No.: 06-11-0417
 Flypaper#: EP-3545
 Method: EPA 8021/8082
 Units: ug/kg

Project: Muirag Street

Page 2 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Salt ID
Method Blank:	095-01-014-2,903	MA	Solid	11/08/06	11/10/06	061100110

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Alpha-BHC	ND	5.0	1		4,4'-DDT	ND	5.0	1	
Gamma-BHC	ND	5.0	1		Endosulfan Sulfate	ND	5.0	1	
Beta-BHC	ND	5.0	1		Methoxychlor	ND	5.0	1	
Hepachlor	ND	5.0	1		Chlordane	ND	50	1	
Delta-BHC	ND	5.0	1		Toxaphene	ND	100	1	
Aldrin	ND	5.0	1		Aroclor-1016	ND	50	1	
Hepachlor Epoxide	ND	5.0	1		Aroclor-1221	ND	50	1	
Endosulfan I	ND	5.0	1		Aroclor-1232	ND	50	1	
Dieldrin	ND	5.0	1		Aroclor-1242	ND	50	1	
4,4'-DDE	ND	5.0	1		Aroclor-1248	ND	50	1	
Endrin	ND	5.0	1		Aroclor-1254	ND	50	1	
Endrin Aldhyde	ND	5.0	1		Aroclor-1260	ND	50	1	
4,4'-DDD	ND	5.0	1		Aroclor-1262	ND	50	1	
Endosulfan II	ND	5.0	1		Endrin Ketone	ND	5.0	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>		<u>Qual</u>	<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control</u>		<u>Qual</u>
		<u>Limits</u>					<u>Limits</u>		
Decachlorobiphenyl	79	50-130			2,4,5,6-Tetrachloro-m-Xylene	89	50-130		



Environmental Testing & Engineering
 Laboratories, Inc.
 1441 Montiel Road
 Escandido, CA 92026-1111

1441 Montiel Road, Escandido, CA 92026-1111

Date Received: 11/07/06
 Work Order No: 06-11-04-17
 Preparation: EPA 8050B
 Method: EPA 6010B

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0244-2	Solid	ICP 3000	11/07/06	11/08/06	06110706

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Antimony	59	60	50-115	1	0-20	
Arsenic	89	91	75-125	2	0-20	
Barium	56	81	75-125	8	0-20	8
Beryllium	93	96	75-125	3	0-20	
Cadmium	39	33	75-125	4	0-20	
Chromium	87	93	75-125	4	0-20	
Cobalt	57	95	75-125	6	0-20	
Copper	86	92	75-125	4	0-20	
Lead	87	93	75-125	5	0-20	
Molybdenum	87	91	75-125	4	0-20	
Nickel	86	94	75-125	6	0-20	
Selenium	83	87	75-125	5	0-20	
Silver	93	94	75-125	1	0-20	
Thallium	85	87	75-125	2	0-20	
Vanadium	75	89	75-125	7	0-20	
Zinc	77	90	75-125	6	0-20	

2007-11-16

10700 Montiel Road
Secondido, CA 92028-1111
Laboratories, Inc.

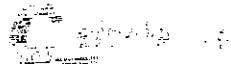
Construction Testing & Engineering
1441 Montiel Road
Secondido, CA 92028-1111

Date Received: 11/17/06
Work Order No: 06-1104-17
Preparation: EPA 8550B
Method: EPA 8012B (M)

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0533-1	Solid	GC 15	11/08/06	11/09/06	06-1106506

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	87	88	84-130	2	0-15	



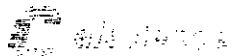
Construction Testing & Engineering, Inc.
 1441 Morris Road
 Escondido, CA 92026-1111

Date Received: 11/07/06
 Work Order No: 06-11-04-17
 Preparation: EPA 7471A Total
 Method: EPA 8471A

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TP1 #1	Solid	Mercury	11/08/06	11/08/06	081109501

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	111	116	75-136	4	0-16	



Construction Testing & Engineering, Inc.
 1441 Montiel Road
 Escondido, CA 92026-1111

Environmental Analytical & Engineering

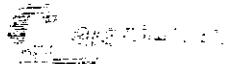
Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92026-1111

Date Received: 11/07/08
 Work Order No: 05-11-0417
 Preparation: EPA 81545
 Method: EPA 8081A

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
06-11-0453-1	Solid	GC 15	11/08/08	11/08/08	06110810

Parameter	MS %REC	MSD %REC	%REC CL	RED	RPD CL	Qualifiers
Gamma-BHC	118	93	50-135	24	0-25	
Heptachlor	100	83	50-135	18	0-25	
Endosulfan I	0	0	50-135	0	0-25	3
Dieldrin	805	302	50-135	43	0-25	3,4
Endrin	393	248	50-135	48	0-25	3,4
4,4'-DDT	110	89	50-135	21	0-25	



Environmental Sciences & Laboratories, Inc.
Construction Testing & Engineering

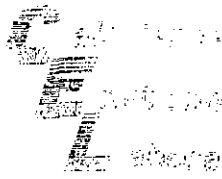
1447 Montiel Road
 Escondido, CA 92026-1117

Date Received: N/A
 Work Order No: 06-11-04-17
 Preparation: EPA 80508
 Method: EPA 80108

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
097-01-062-8,366	Solid	ICP 3300	11/08/06	0611071-06	0611071-06

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Antimony	25.0	24.4	98	80-120	
Arsenic	25.0	24.2	97	80-120	
Barium	25.0	25.8	103	80-120	
Beryllium	25.0	24.3	97	80-120	
Cadmium	25.0	24.7	99	80-120	
Chromium	25.0	25.2	101	80-120	
Cobalt	25.0	25.0	104	80-120	
Copper	25.0	24.5	98	80-120	
Lead	25.0	25.1	100	80-120	
Molybdenum	25.0	24.5	100	80-120	
Nickel	25.0	25.7	103	80-120	
Selenium	25.0	22.6	90	80-120	
Silver	12.5	11.8	95	80-120	
Thallium	25.0	25.8	103	80-120	
Vanadium	25.0	24.0	96	80-120	
Zinc	25.0	25.3	101	80-120	



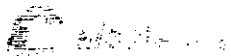
Environmental Testing & Engineering, Inc.
 1441 Montiel Road
 Escondido, CA 92026-1111

Construction Testing & Engineering 1441 Montiel Road Escondido, CA 92026-1111	Date Received: N/A Work Order No: 06-11-0417 Preparation: EPA 8550S Method: TPH - Carbon Range
---	---

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-275-150	Solid	GC 15	11/08/06	11/09/06	061108B06

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	80	80	75-123	0	0-12	



Environmental Sciences, Inc.
3000 Montiel Road

Construction Testing & Engineering
 1241 Montiel Road
 Escondido, CA 92026-3111

Date Received:
 Work Order No:
 Preparation:
 Method:

10/A
 08-11-04 17
 EPA 747 1A Total
 EPA 747 1A

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
059-04-007-A,232	Solid	Mercury	11/09/00	11/09/00	021108L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Mercury	100	100	82-124	0	0-16	



Environmental Quality Systems Laboratories, Inc.
 20000 E. Bay Area Blvd., Suite 100, Hayward, CA 94545

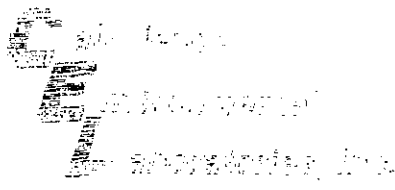
Construction Testing & Engineering
 1441 Montiel Road
 Escondido, CA 92029-1411

Date Received: N/A
 Work Order No: 06-11-04-17
 Preparation: EPA 8540
 Method: EPA 8081/8082

Project: Nutmeg Street

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
055-01-014-2,903	Solid	GC 16	11/08/06	11/09/06	061108L10

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gamma-BHC	107	106	50-135	1	0-25	
Heptachlor	96	95	50-135	1	0-25	
Endosulfan I	93	102	50-135	9	0-25	
Dieldrin	97	95	50-135	1	0-25	
Endrin	96	92	50-135	2	0-25	
4,4'-DDT	105	101	50-135	4	0-25	
Aroclor-1260	122	110	50-135	3	0-25	



Environmental Sciences, Inc.
10000 Westpark Drive, Suite 1000
Houston, Texas 77036

Work Order Number: 08-17-0417

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSDRPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Non-target Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit. % Recovery and/or RPD = N/A
V	Analyte presence was confirmed on secondary column.

CHAIN OF CUSTODY RECORD

Date 11/6/06

Page 1 of 1

CLIENT: 1411 Mantel Road
 STATE: CA ZIP: 92026
 PROJECT: grape character
 24 HR 48 HR 72 HR 5 DAYS 70 DAYS

CLIENT PROJECT NAME / NUMBER: Nubna Street P.O. NO. _____
 PROJECT CONTACT: Greg Roman LAB USE ONLY:
 SAMPLER(S) (SIGNATURE): [Signature] COELT LOG CODE: COOLER RECEIPT: _____
 TEMP: _____

ADDITIONAL COMMENTS: Standard turnaround

REQUESTED ANALYSES

REPORTING OPTIONS: BASIC REPORTING FORMS COELT EDF
 SPECIAL INSTRUCTIONS: Standard turnaround

TPH (5)	TPH (D) or	BTX / MTBE (8260B) or	OXYGENATES (8260B)	VOCs (8260B)	5035 ENCORE PPEP	SVOCs (8270C)	PEST (8001A)	PCBs (8082)	CAC, T22 METALS (6010B) / 717-24	PHAs (8310) or (8270C)	VOCs (TO-15A) or (TO-15)	THMs (10-20)	THMs (10-20)

FIELD POINT NAME (FOR COELT EDF)	SAMPLING		MATRIX	NR. OF CONT.
	DATE	TIME		
	11/6/06	1930	Soil	3
	11/6/06	1945	Soil	3

Received by: (Signature) [Signature] Date: 11/7/06 Time: 12:00
 Received by: (Signature) [Signature] Date: 11/7/06 Time: 12:00
 Received for Laboratory by: (Signature) _____ Date: _____ Time: _____

SAMPLE RECEIPT FORM

CLIENT: CJE

DATE: 11/16

TEMPERATURE - SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided
- Chilled, cooler without temperature blank.
- Chilled and placed in cooler with wet ice.
- Ambient and placed in cooler with wet ice.
- Ambient temperature.
- 7.6 °C Temperature blank.

LABORATORY (Other than Calscience Courier):

- °C Temperature blank.
- °C IR thermometer.
- Ambient temperature.

Initial: [Signature]

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: _____ No (Not Intact): _____ Not Present:

Initial: [Signature]

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with custody papers.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on sample label(s).....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOA vial(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initial: [Signature]

COMMENTS:

.....

.....

.....

.....

**APPENDIX G
PHOTOGRAPHIC LOG**

DRAFT



Photograph 1 – View looking towards the west-northwest, taken east of the intersection of N. Centre City Parkway and N. Nutmeg Street.



Photograph 2 – View looking towards the north-northwest, from the central region of the property.



Photograph 3 – View looking towards the north, from the south-central region of the property.



Photograph 4 – View looking towards the south-southwest, from the northeastern region of the property.



Photograph 5 – View looking towards the west, from the northeastern region of the property.



Photograph 6 – View looking towards south, from the central region of the subject property; along N. Nutmeg Street.



Photograph 7 – View looking towards the west-southwest, from the central region of the subject property; along N. Nutmeg Street.



Photograph 8 – View looking towards the east-southeast, from the central region of the subject property; along N. Nutmeg Street.



Photograph 9 – View looking towards the southeast, from the west-central perimeter of the subject property.



Photograph 10 – View looking towards the northwest, taken from just beyond the southeastern perimeter of the subject property.



Photograph 11 – View of a storm drainage, located near the eastern perimeter of the property; along N. Centre City Parkway and north of N. Nutmeg Street.



Photograph 12 – View looking at a water utility connection, located at the east-central region of the property, along the north side of N. Nutmeg Street.

APPENDIX H
VAPOR ENCROACHMENT SCREEN USER QUESTIONNAIRE

DRAFT



ASTM E2600-10
VAPOR ENCROACHMENT SCREENING – USER QUESTIONNAIRE

Project Name: EEI Project CCI-72599.1/6.87-Acres of Undeveloped Land APNs 224-260-23-00, 224-260-46-00, and 224-260-47-00

Project Address: SW of Oakwind Lane and N. Centre City Parkway, Escondido, CA 92026

1. Property type: Commercial Industrial Multi-Tenant Vacant Land
2. Are there any buildings/ structures on the property? Yes No Unknown
If yes, type construction _____
3. Will buildings/structures be constructed on the property in the future? Yes No Unknown
If yes, type construction Standard wood construction
4. If buildings exist or are proposed, do/will they have elevators? Yes No
5. Type of level below grade (existing or proposed)? Full Basement Crawl Space Slab on grade
 Parking Garage Multi-level
6. Ventilation in level below grade? Yes No Unknown
7. Sump pumps, floor drains, or trenches (existing or proposed)? Yes No Unknown
8. Radon or methane mitigation system installed? Yes No Unknown
9. Heating system type (existing or proposed)? (CHECK ALL THAT APPLY)
 Hot Air Circulation Electric Baseboard Hot Air Radiation Heat Pump Hot Water Radiation
 Wood Stove Kerosene Heater Steam Radiation Fireplace Coal Furnace Radiant Floor Heat
 Hot Water Circulation Fuel Oil Furnace Gas Furnace Other
10. Type of fuel energy (existing or proposed)? (CHECK ALL THAT APPLY)
 Natural Gas Electric Propane Fuel Oil Kerosene Wood Coal Solar Other
11. Have there ever been any environmental problems at the property? Yes No Unknown
If yes, describe) Illegal clearing of costal sage. Resolved with agencies and mitigated.
12. Does/will a gas station or dry cleaner operate anywhere on the property? Yes No Unknown
13. Do any tenants use hazardous chemicals in relatively large quantities on the property? Yes No
 Unknown
If yes, describe _____
14. Have any tenants ever complained about odors in the building or experienced health-related problems that may have been associated with the building? Yes No Unknown

15. Are the operations (or proposed operations to be performed) on the property OSHA regulated?

Yes No Unknown

16. Are there any existing or proposed underground storage tanks (USTs) or above ground storage tanks (ASTs)? Yes No Unknown

17. Are there any sensitive receptors (for example, children, elderly, people in poor health, and so forth) that occupy or will occupy the property? Yes No Unknown

Parcel ID # 224-260-23-00, -46-00 and -47-00

Preparer:

Name: Jason Greminger

Address: 160 Industrial St. Suite 200. San Marcos, CA 92078

Signature:  _____

Date: 9/5/17 _____