



September 23, 2022

c/o Mr. Michael Ramirez
MJN FUEL INC.
4300 Edison Avenue
Chino, California 91710

RE: Beyond Food Mart Palmdale (25th Street & Ave R) Gas Station Toxic Air Contaminant Health Risk Assessment Technical Memorandum
Project No. 19524

Dear Mr. Ramirez,

Ganddini Group, Inc. is pleased to provide this tier 2 screening level Toxic Air Contaminant (TAC) Health Risk Assessment (HRA) Technical Memorandum for the Beyond Food Mart Palmdale (25th Street & Ave R) project. The 5.69-acre project site is located at the northwest corner of 25th Street East and Avenue R in the City of Palmdale, California. The project site is currently vacant and zoned C-1. A project location map, showing the project's location, is provided on Figure 1. A glossary is provided in Appendix A to assist the reader with technical terms related to this TAC HRA.

PROJECT DESCRIPTION

The proposed project involves construction and operation of a 7,460 square foot convenience store gas station with eight (8) dual-sided fuel pumps (i.e., 16-vehicle fueling positions) and an approximately 1,790 square foot automatic car wash tunnel. The proposed project also involves the construction of a raised median on 25th Street along the project frontage. Vehicular access is proposed to be provided by one driveway at Avenue R providing right turn in/out and left turn in access and one driveway at 25th Street providing right in/out only access. The project site plan is shown on Figure 2.

POLLUTANTS

TOXIC AIR CONTAMINANTS

Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as from accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Sources of toxic air

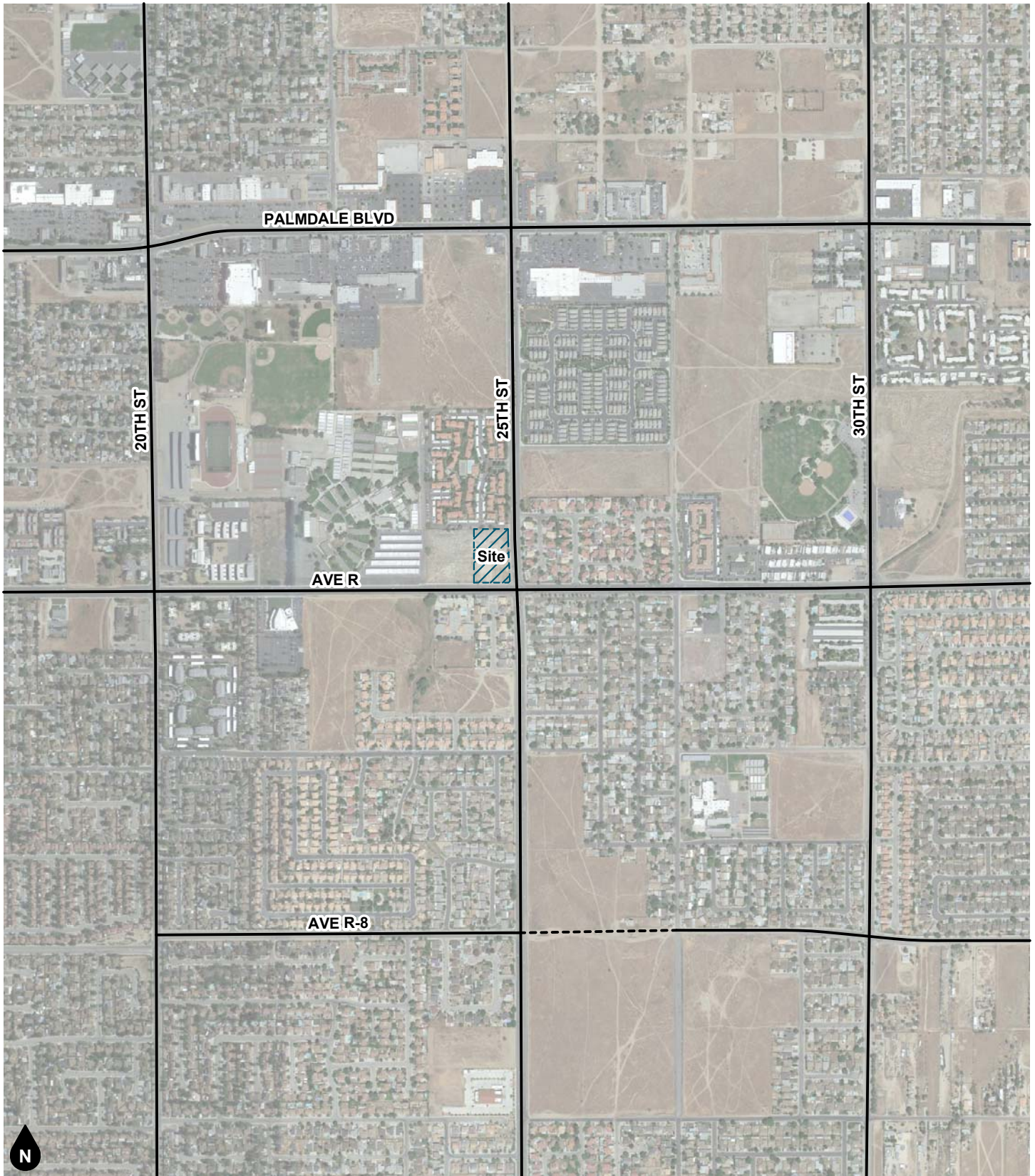


Figure 1
Project Location Map

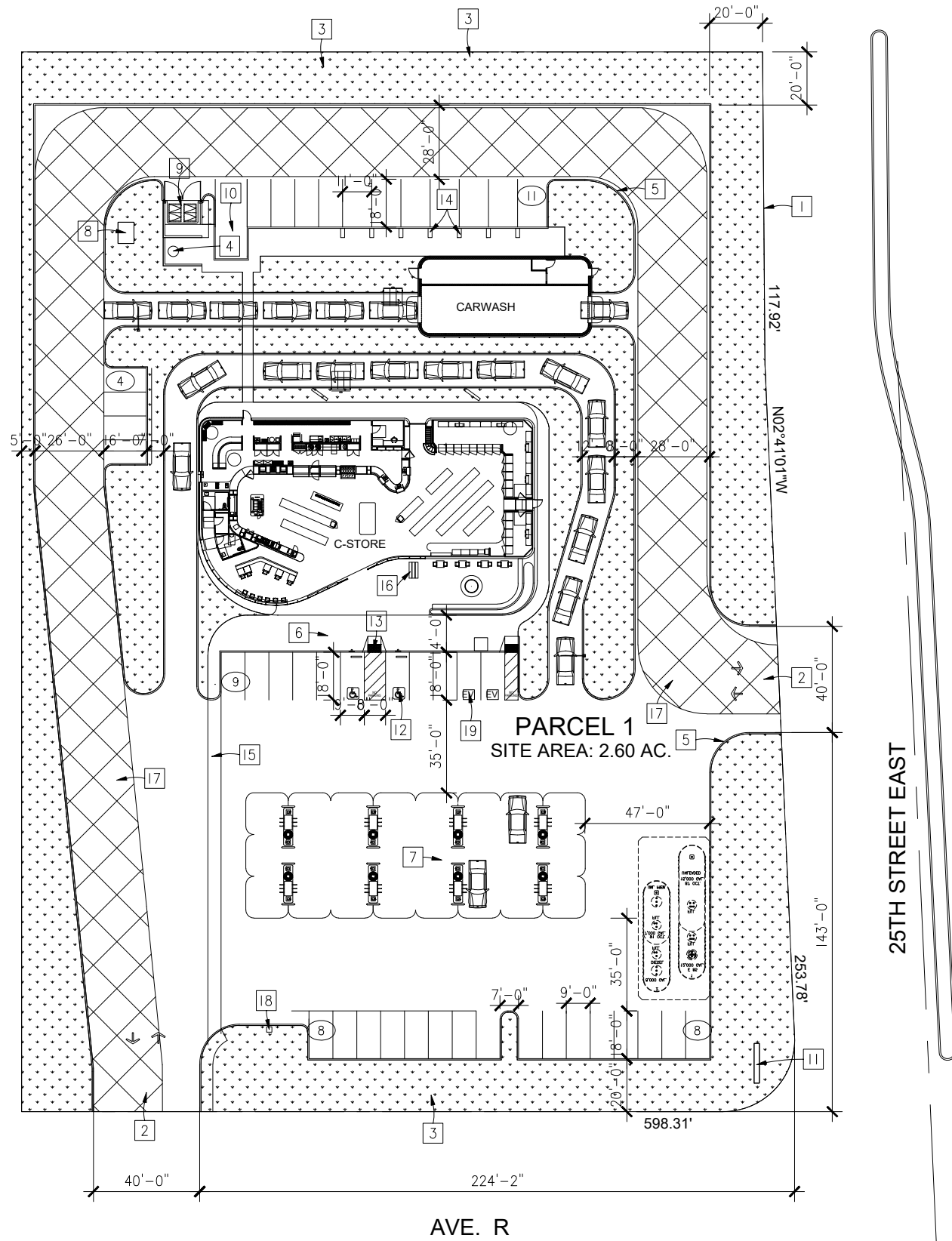


Figure 2
Site Plan

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contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM_{2.5} because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

CARB have monitoring networks that measure ambient concentrations of certain TACs that are associated with important health-related effects and are present in appreciable concentrations in the area. The CARB publishes annual Statewide, air basin, and location-specific summaries of the concentration levels of several TACs and their resulting cancer risks¹. The most recent summary is the CARB Air Quality Almanac for 2013 (CARB 2013). The Almanac presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. DPM is not directly measured but is indirectly estimated based on fine particulate matter measurements and special studies on the chemical speciation of ambient fine particulate data along with receptor modeling techniques. CARB showed that Diesel PM emissions decreased 37 percent from 2000 to 2010 primarily as a result of more stringent emissions standards and the introduction of cleaner burning diesel fuel. Emissions from diesel mobile sources are projected to continue to decrease after 2010. Overall, statewide emissions are forecasted to decline by 71 per cent between 2000 and 2035. CARB estimates that 78 percent of the known statewide cancer risks are from the top 10 outdoor air toxics in addition to DPM.

Estimates of total cancer risk Statewide have shown a steady decline from the early 1990s when the cancer risk from DPM was estimated to be 1,696 in one million. By the year 2000, the cancer risk was estimated to be 1,005 in one million or a reduction of 41 percent. Reductions in cancer risk are expected to continue into the future as new emission controls are implemented that further reduce DPM emissions, the major component of the total airborne cancer risk. Table 1 provides this summary of TACs and health risk information from the ARB Annual Toxic Summary for the most recent three-year period, 2018-2020 for the Azusa air monitoring station, the closest air monitoring station to the project site with recent data, located approximately 31.5 miles southeast of the project site. The cancer risk attributable to the non-DPM chemicals (i.e., the 10 TACs measured by the ARB described above) have also shown significant reductions at the Azusa location declining from an estimated cancer risk of 257 in one million in 2018, to 249 in one million in 2019.

¹ Cancer risk is expressed as a probability of an individual out of a population of one million contracting cancer via a continuous exposure to TACs over a 30-year lifetime.

REGULATORY SETTING

According to the Antelope Valley Air Quality Management District (AVAQMD) California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using AVAQMD significance threshold criteria number 4.

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

As stated in the AVAQMD CEQA and Federal Conformity Guidelines, under significance threshold criteria number 4 a significant impact will occur if a project exposes sensitive receptors to substantial pollutant concentrations including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

The project is proposing a gasoline fueling station in proximity to existing residential uses and will be a source of toxic air contaminants; therefore, a qualitative analysis of the gas station's toxic air contaminant emissions has been conducted.

OPERATIONS-RELATED TOXIC AIR CONTAMINANTS

As stated previously, the project site is proposed to be developed with a 7,460 square foot convenience store gas station with eight (8) dual-sided fuel pumps (i.e., 16-vehicle fueling positions) and an approximately 1,790 square foot automatic car wash tunnel. Therefore, the project includes the construction and operation of an 8-fuel pump (16-fueling position) gas station. Per the project applicant, the proposed gasoline service station is anticipated to have up to approximately 700,000 gallons of throughput annually. Furthermore, the project site includes sensitive receptors within 300 feet of the proposed gasoline service station. Therefore, the potential cancer risk and HI from the proposed gasoline service station have been calculated.

CARB and California Air Pollution Control Officers Association (CAPCOA) provide an Industrywide Risk Assessment Look-up Tool which can be used to calculate potential health risk and HI levels at sensitive receptors in proximity to gasoline service stations. The proposed project's cancer risk and HI were calculated using this tool as well as the guidelines described in the CARB and CAPCOA Gasoline Service Station Risk Tool Users Guide (February 18, 2022).²

The closest residential receptors to the proposed gasoline service station are located south of Avenue R and east of 25th St East, at a distance of approximately 160 feet (~49 meters) from the service station canopy. Furthermore, Palmdale High School is located approximately 421 feet (~128 meters) to the west of the proposed service station canopy, and business receptors associated with the proposed drive-through to be located within the proposed convenience store are located approximately 67 feet (~20 meters) north of the service station canopy.

² California Air Resources Board Gasoline Service Station Industrywide Risk Assessment Guidelines obtained at <https://ww2.arb.ca.gov/resources/documents/gasoline-service-station-industrywide-risk-assessment-guidance>

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The gas-station portion of the project will be required to comply with the requirements stated in AVAQMD Rule 461 Gasoline Transfer and Dispensing. As stated in AVAQMD Rule 461, gasoline dispensing facilities are required to use Phase I/II EVR (enhanced vapor recovery) systems. Phase II EVR have an average efficiency of 95.1 percent and Phase I EVR have an average efficiency of 98 percent.³ Therefore, potential for fugitive VOC or TAC emissions from the gasoline pumps is negligible.

Assuming 700,000 gallons per year of throughput for this gasoline-dispensing facility and with incorporation of Phase I/II EVR systems, using the CARB Risk Assessment Look-up Tool, the maximum residential cancer risk is 1.37 in a million, the maximum worker cancer risk is 0.25 in a million. In addition, the chronic HI is 0.01 and the acute HI is 0.57. Therefore, the proposed project will not exceed the AVAQMD thresholds of a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1. The CARB Risk Assessment Look-up Tool final print out has been included as Appendix B.

As such, the project will not be a significant source of toxic air contaminants emissions and sensitive receptors would not be exposed to toxic sources of air pollution. Therefore, the project will not result in significant impacts.

CONCLUSIONS

As discussed above, the proposed project will not be a significant source of toxic air contaminants emissions and sensitive receptors would not be exposed to toxic sources of air pollution. Therefore, this technical memorandum found that the toxic air contaminant health risk impacts associated with the proposed gasoline fueling facility are considered to be less than significant. No further analysis or mitigation is required.

It has been a pleasure to service your needs on the Beyond Food Mart Palmdale (25th Street & Ave R) project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 975-3100.

Respectfully submitted,
GANDDINI GROUP, INC.



Katie Wilson, M.S.
Senior Air Quality Analyst

³ Source: ARB's: Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities (12/23/2013), ARB's Attachment 1: Revised Emission Factors for Phase II Vehicle Fueling at California Gasoline Dispensing Facilities (12/23/2013)

APPENDIX A

GLOSSARY

AQMP	Air Quality Management Plan
AVAQMD	Antelope Valley Air Quality Management District
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH ₄	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LST	Localized Significant Thresholds
MDAB	Mojave Desert Air Basin
MTCO ₂ e	Metric tons of carbon dioxide equivalent
MMTCO ₂ e	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
O ₃	Ozone
OPR	Governor's Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particle matter
PM ₁₀	Particles that are less than 10 micrometers in diameter
PM _{2.5}	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPB	Parts per billion
PPM	Parts per million
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SF ₆	Sulfur hexafluoride
SIP	State Implementation Plan
SO _x	Sulfur Oxides
TAC	Toxic air contaminants
UNFCCC	United Nations Framework Convention on Climate Change
VOC	Volatile organic compound

APPENDIX B

RISK ASSESSMENT LOOK-UP TOOL FINAL PRINT OUT

2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool
Version 1.0 - February 18, 2022

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	700000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	500	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	Lancaster	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	49	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	20	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	128	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
Risk Value	Results	
Max Residential Cancer Risk (chances/million)	1.37	
Max Worker Cancer Risk (chances/million)	0.25	
Chronic HI	0.01	
Acute HI	0.57	
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