DOCKETED	
Docket Number:	24-OPT-04
Project Title:	Potentia-Viridi Battery Energy Storage System
TN #:	261419
Document Title:	DR Response 2 - Attachment 17, Revised Section 3-9, Public Health
Description:	This revised section discusses activities that could potentially affect public health as they relate to the construction and operation of the project.
Filer:	Ronelle Candia
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	1/29/2025 8:47:05 AM
Docketed Date:	1/29/2025

Attachment 17

Revised Section 3.9, Public Health

3.9 Public Health

This section discusses activities that could potentially affect public health as they relate to the construction and operation of the proposed Potentia-Viridi Battery Energy Storage System (Project). A health risk assessment (HRA) was performed to assess potential effects and public exposure associated with airborne emissions from the Project. Section 3.9.1 describes the affected environment. Section 3.9.2 presents an environmental analysis of the operation of the power facility and associated facilities. Section 3.9.3 discusses cumulative effects. Section 3.9.4 discusses mitigation measures. Section 3.9.5 presents applicable laws, ordinances, and regulations; permit requirements; schedules; and agency contacts. Section 3.9.6 provides references cited or consulted in preparing this section. Appendix 3.1B provides the HRA support data.

The proposed Project is a 400 megawatt facility composed of lithium-iron phosphate, or similar technology batteries, inverters, medium-voltage transformers, a switchyard, a collector substation, and other associated equipment to interconnect into the Pacific Gas and Electric (PG&E) Tesla substation. The facility will be restricted to the public with security fencing surrounding the perimeter. A detailed description of the Project is presented in section 2, Project Description.

Air will be the dominant pathway for public exposure to chemical substances released by the Project. Emissions to the air will consist primarily of construction equipment including vehicle exhaust and fugitive dust. Potential health risks from combustion emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways were included in the health risk modeling. The HRA was conducted following the guidelines established by the California Office of Environmental Health Hazard Assessment (OEHHA), the California Air Resources Board (CARB), and the Bay Area Air Quality Management District (BAAQMD).

Combustion byproducts with established California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS), including nitrogen oxides (NO_x), carbon monoxide (CO), and fine particulate matter (PM_{10}/$PM_{2.5}$) are addressed in Section 3.1, Air Quality. However, some discussion of the potential health risks associated with these substances is presented in this section. Human health risks associated with the potential accidental release of stored acutely hazardous materials, if applicable, are discussed in Section 3.5, Hazardous Materials Handling.

3.9.1 Affected Environment

Project Location

The Project is located in census tract Alameda County 4511.04, which has a population of 7,164 people per the American Community Survey (U.S. Census Bureau 2022). There are several communities within the BAAQMD's jurisdiction that have been identified under AB 617's Community Health protection Program including East and West Oakland, Richmond, and Southeast San Fransisco. The Community Health Protection Program's goal is to reduce emissions of toxic air contaminants and criteria air pollutants in communities affected by a high cumulative exposure burden. None of these identified communities are within a 6-mile radius of the Project but they represent the most relevant public health studies near the Project. No other public health studies related to respiratory illnesses, cancers, or related diseases within a 6-mile radius of the Project site were identified in the last 5 years.

Characterization of Risks from Toxic Air Pollutants

Toxic Air Contaminants (TACs). A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases—gas and particle—both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2019). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2019). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines, including trucks, buses, and cars; and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2019). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and older people, who often have chronic health problems.

The estimated cancer risk to the maximally exposed individual receptor located at the Project is below the 10 × 10-6 significance level as shown in Table 3.9-2. These risk estimates were calculated using assumptions that are highly health conservative. Evaluation of the risks associated with the Project emissions should consider that the conservatism in the assumptions and methods used in risk estimation considerably overstates the risks from Project emissions. Based on the results of this HRA, there are no significant public health effects anticipated from emissions of toxic pollutants to the air from the operation of the Project.

3.9.2 Environmental Analysis

The environmental effects on public health from the construction and operation of the Project is presented in the following sections.

3.9.2.1 Significant Criteria

3.9.2.1.1 Cancer Risk

Cancer risk is the probability or chance of contracting cancer over a human lifetime. Any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk. The BAAQMD has established a maximum incremental cancer risk threshold of ≥10 in 1 million (BAAQMD 2023).

3.9.2.1.2 Non-Cancer Risk

Non-cancer health effects can be classified as either chronic or acute. In determining the potential health risks of non-cancerous air toxics, it is assumed there is a dose of the chemical of concern below which there would be no effect on human health. The air concentration corresponding to this dose is called the Reference Exposure Level. Non-cancer health risks are measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its Reference Exposure Level. Hazard quotients for pollutants affecting the same target organ are typically summed with the resulting totals expressed as hazard indices for each organ system. The BAAQMD has established that an incremental hazard index of less than 1.0 is an insignificant health risk (BAAQMD 2023). Reference Exposure Levels used in the hazard index calculations were those published in the Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values dated October 2, 2020.

3.9.2.2 Construction Phase Effects

Construction of the Project is estimated to require 18 months to complete. Construction activity and the resulting emissions at the Project site would be in line with emissions at most construction sites. Construction of the Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources emissions. Internal combustion diesel engines used by construction equipment, haul trucks, and vendor trucks (i.e., delivery trucks) would emit diesel particulate matter (DPM). For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., heavy-duty diesel trucks). For the construction HRA, the California Emissions Estimator Model (CalEEMod) scenario for the Project was adjusted to reduce diesel truck one-way trip distances to 0.25 miles to estimate emissions from truck pass-by at proximate receptors (SJVAPCD 2018). The air dispersion modeling methodology was based on BAAQMD's generally accepted modeling practices. Air dispersion modeling was performed using the U.S. Environmental Protection Agency's (EPA's) American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 21112 modeling system (computer software) with the Lakes Environmental Software implementation/user interface, AERMOD View Version 12.0 The HRA followed the OEHHA 2015 guidelines (OEHHA 2015) and BAAQMD guidance to calculate the health risk impacts at all proximate receptors as further discussed below. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the BAAQMD and EPA guidance and identified as representative of the Project site and Project activities. Principal parameters of this modeling are presented in Table 3.9-1.

Table 3.9-1. ~~American Meteorological Society/Environmental Protection Agency Regulatory Model~~ Construction HRA AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest 3-year meteorological data (2013-2016) for the Livermore Station were obtained from BAAQMD as the recommended meteorological station and input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. The rural dispersion option was selected based on the site's rural location.
Terrain Characteristics	The elevation of the modeled site is approximately 125 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
Source Release Characterizations	Air dispersion modeling of DPM from construction equipment was conducted using emissions estimated using CalEEMod, assuming emissions would occur 8 hours per day, 5 days per week. Vendor and hauling trips were modified to account only for emissions occurring within 0.25 miles of the Project site. The Project area was modeled as a series of adjacent line-volume sources.
Receptors	Discrete receptors were placed over residences proximate to the Project site. Figure 3.9-1 shows the maximally exposed individual resident, maximally exposed individual worker and the maximally exposed school receptor.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; CalEEMod = California Emissions Estimator Model. See Appendix 3.1B for additional information.

The health risk calculations were performed using the Hotspots Analysis and Reporting Program Version 2 (HARP2) Air Dispersion and Risk Tool (Version 21112). AERMOD was run with all sources emitting unit emissions (1 gram per second) to obtain the necessary input values for HARP2. The line of volume sources was partitioned evenly based on the 1-gram-per-second emission rate. The ground-level concentration plot files were then used to estimate the long-term cancer health risk to an individual and the non-cancer chronic health indices. There is no Reference Exposure Level for acute health impacts from DPM, and, thus, acute risk was not evaluated. Table 3.9-2 shows the results of the construction HRA.

Table 3.9-2. Construction Health Risk Assessment Results – Prior to Mitigation

Impact Parameter	Units	Project Impact	BAAQMD CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	Per Million	37.26	10	~~ficant with mitigation~~ Potentially Significant
Chronic Hazard Index – Residential	Index Value	0.03	1.0	Less than Significant
$PM_{2.5}$	Index Value	0.072	1.0	Less than Significant

Notes: BAAQMD = Bay Area Air Quality Management District; CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index. $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter.
Sources: Appendix 3.1B and BAAQMD 2023.

The results of the HRA demonstrate that the TAC exposure from construction diesel exhaust emissions would result in cancer risk above the 10 in 1 million threshold and Chronic Hazard Index less than 1. Therefore, TAC emissions from construction of the Project would result in a potentially significant impact and thus mitigation is required. Mitigation measure MM-AQ-1 is outlined in section 3.9.4.1

Table 3.9-3 summarizes the results of the construction HRA after implementation of **MM-AQ-1** for construction of the proposed Project.

Table 3.9-3. Construction Activity Health Risk Assessment Results After Mitigation

Impact Parameter	Units	Project Impact	BAAQMD CEQA Threshold	Level of Significance
Offsite				
Cancer Risk	Per Million	~~4.49~~ 1.27	10.0	Less than Significant with mitigation
HIC	Not Applicable	0.001	1.0	Less than Significant
$PM_{2.5}$	$\mu g/m^3$	~~0.072~~ 0.01	0.3	Less than significant

Source: Appendix 3.1B
Notes: BAAQMD = Bay Area Air Quality Management District; CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index. $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter.

As shown in Table 3.9-3, Project construction activities with implementation of MM-AQ-1 would result in a Residential Maximum Individual Cancer Risk of ~~4.02~~ 1.27 in 1 million, which would not exceed the significance threshold of 10 in 1 million. Project construction would result in a Residential Chronic Hazard Index of 0.001, which is below the 1.0 significance threshold. Therefore, impacts related to construction TAC emissions would be less than significant.

3.9.2.3 Commissioning Phase Effects and Operational Phase Effects

Commissioning Phase

As the Project is a Battery Energy Storage System, commissioning of the Project is not anticipated to have any additional impacts beyond what has been considered for operation or result in greater intensity of activity than construction, so a separate commissioning impact analysis is not provided.

Operational Phase

As discussed in Section 2, the Project would include the development of an approximately 400-megawatt battery energy storage system (BESS) and associated infrastructure. A BESS is stationary equipment that receives electrical energy and then utilizes batteries to store that energy to supply electrical energy at a future time. Power released or captured by the Project would be transferred to and from the PG&E Tesla substation via a loop-in generation transmission line that will interconnect to a PG&E switchyard to be constructed within the Project site. The Project would consist of lithium-ion batteries, installed in racks, and contained inside non-habitable enclosures; inverters; medium-voltage transformers; an PG&E switchyard; a Project substation; and other associated equipment. The O&M building would be powered via a distribution line from the Project substation ~~and would not include any significant on-site stationary sources Therefore, the Project would not result in regular TAC emissions during normal operation, and health effects are anticipated to be less than those from construction. Therefore, no operational modeling was conducted~~. The project would include two stationary generators for use as back-up power in the event of an emergency. The greatest potential for TAC emissions during Project operation would be DPM emissions from the testing and maintenance associated with the two emergency generators. As a precautionary measure, an operational HRA was performed to assess the impact of operation on sensitive receptors proximate to the Project Site. The operational HRA follows the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for

Preparation of Health Risk Assessments (OEHHA Guidelines) (OEHHA 2015). Cancer risk parameters, such as age-sensitivity factors, daily breathing rates, exposure period, fraction of time at home, and cancer potency factors were based on the values and data recommended by OEHHA are implemented in CARB's HARP2, which was used to estimate risk from operational activities.

The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment.

A dispersion modeling analysis was conducted of DPM emitted from the emergency generators for the HRA to assess the health risk impacts of operation on off-site receptors. The dispersion modeling was performed using the AERMOD, which is the model BAAQMD requires for atmospheric dispersion of emissions. Principal parameters of this modeling are presented in Table 3.9-4.

Table 3.9-4. Operational HRA AERMOD Principal Parameters

Parameter	Details
Dispersion Model	The air dispersion model used was AERMOD Version 23132, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 12.0.0. A unit emission rate (1 gram per second [g/s]) was normalized over the two adjacent point sources for the AERMOD run to obtain the X/Q values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength. It is used as a way to simplify the representation of emissions from many sources. The maximum concentrations were determined for the 1-hour and PERIOD averaging periods.
Meteorological Data	The latest three-year meteorological data (2013-2016) for the Livermore Station were obtained from BAAQMD as the recommended meteorological station and input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. The rural dispersion option was selected based on the site's rural location.
Terrain Characteristics	The elevation of the modeled site is approximately 125 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
Elevation Data	Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution.
Emission Sources and Release Parameters	Air dispersion modeling of DPM from the emergency generators was conducted using emissions estimated using the CalEEMod. The maximum daily emissions were used in the screening assessment. The emergency generators were modeled as point sources
Source Release Characterizations	The following source parameters were assumed: Generator 1, release height 16.5 feet, exit temperature 966.2°F, stack diameter of 2.3 feet, and gas exit flow rate of 24,791 cubic feet per minute (CFM); and Generator 2, release height 16.5 feet, exit temperature 966.2°F, stack diameter of 2.3 feet, and gas exit flow rate of 24,791 CFM.
Receptors	Discrete receptors were placed over residences and workplaces proximate to the Project site. Figure 3.9-1 shows the maximally exposed individual resident, maximally exposed individual worker and the maximally exposed school receptor.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; DPM = diesel particulate matter; CalEEMod = California Emissions Estimator Model.
See Appendix 3 for additional information.

Dispersion model plot files from AERMOD were then imported into HARP2 (Version 22118) to determine health risk, which requires peak one-hour emission rates and annual emission rates for all pollutants for each modeling source. For the operational HRA, the TAC exposure period was assumed to be starting from the third trimester of pregnancy for 30 years for all receptor locations.

In addition to evaluating the potential project's incremental contribution to cancer and non-cancer health risk impacts, a cumulative health risk assessment was performed to include other stationary sources of TACs within 6 miles of the project site. The BAAQMD Stationary Source Screening Map was used to identify and download cancer risk, chronic hazard index, and $PM_{2.5}$ concentrations from permitted stationary sources of TAC's within 6 miles of the project site (BAAQMD 2024). In accordance with BAAQMD guidance, the values obtained from the BAAQMD Stationary Source Screening Map must be adjusted based on the distance from the source to the receptor using the BAAQMD Health Risk Calculator with Distance Multipliers tool (BAAQMD 2022). The distance multiplier tool only has values out to 1,000 feet from the source. In consultation with the BAAQMD, an exponential trendline was fitted to the values in the BAAQMD Health Risk Calculator with Distance Multipliers tool and used to determine multipliers for distances up to 6 miles from the project site (Lau, pers. Comm., 2024). As applicable, these extrapolated multipliers were used with the results of the facilities within 6 miles of the project site. The BAAQMD Health Risk Calculator with Distance Multipliers tool does not apply to gasoline dispensing facilities and thus no distance multiplier was used. Results of the operational HRA are presented in Table 3.9-5. Detailed operational model outputs are presented in Appendix 3.

Table 3.9-5. Operational Health Risk Assessment Results - Unmitigated

Source	Cancer Risk (per million)	HIC	$PM_{2.5}$ ($\mu g/m^3$)
Project	3.03E-1	7.00E-05	7.286E-02
Pacific Gas and Electric Co	3.98E-32	0.00E+00	0.00E+00
California Department of Water Resources	1.97E-30	0.00E+00	0.00E+00
Waste Management of Alameda County	5.66E-22	8.86E-24	9.93E-23
Verizon Wireless - Hwy 205/580	1.18E-12	0.00E+00	0.00E+00
San Luis & Delta Mendota Water Authority (SLDMWA)	9.68E-14	2.59E-17	1.29E-16
Mariposa Energy LLC	2.08E-26	1.37E-28	3.26E-26
EB Reg Comm Systems Authority	4.03E-17	0.00E+00	0.00E+00
New Cingular Wireless PCS LLC dba AT&T Mobility	9.81E-35	0.00E+00	0.00E+00
Verizon Wireless (Windfarm)	2.02E-23	1.04E-26	3.12E-26
Pacific Gas and Electric Company	1.53E-02	0.00E+00	2.87E-05
Golden Hills LLC Wind Energy Central	6.00E-04	0.00E+00	0.00E+00
State of CA-Dept of Water Resources	5.50E-01	0.00E+00	0.00E+00
Waste Management of Alameda County	1.40E-01	0.00E+00	0.00E+00
San Luis & Delta Mendota Water Authority	1.00E-02	0.00E+00	0.00E+00
Total	**1.02**	**0.0001**	**0.073**
BAAQMD CEQA Threshold	100	10.0	0.8
Level of Significance	Less Than Significant	Less Than Significant	Less Than Significant

Source: Appendix 3.
Notes: CEQA = California Environmental Quality Act

As shown in Table 4.2-14, the TAC emissions from operation of the Project would result in a Maximum Individual Cancer Risk of one in a million and a Chronic Hazard Index of 0.0001, which are below the significance thresholds. The Project operational TAC health risk impacts would be less than significant without mitigation.

3.9.2.4 Hazardous Materials

Hazardous materials may be used and stored at the Project site during construction of the Project. The hazardous materials stored in significant quantities on site and descriptions of their uses are presented in Section 3.5, Hazardous Materials Handling, of this application. Use of chemicals at the Project site will be following standard practices for storage and management of hazardous materials. The normal use of hazardous materials, therefore, will not pose significant effects on public health. While mitigation measures will be in place to prevent releases, accidental releases that migrate off site could result in potential effects to the public. See Section 3.5, Hazardous Materials Handling, for a full discussion of effects related to hazardous materials.

3.9.2.5 Odors

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Project does not include any of these uses. The Project entails operation of a BESS and would not create any new sources of odors during operation. Therefore, the Project would result in an odor impact that is **less than significant**.

3.9.2.6 Summary of Effects

The results of the construction HRA shown in Table 3.9-~~2~~3, demonstrate that the Project would not result in a significant incremental health risk from construction of the Project after the inclusion of **MM-AQ-1**. As discussed previously, commissioning ~~and operation~~ of the Project would not result in emissions greater than those estimates for construction of the Project. The results of the operational HRA shown in Table 3-9-5 demonstrate that the Project would result in a significant incremental or cumulative heath risk after accounting for nearby sources. Therefore, commissioning and operation of the Project would also not result in significant incremental health risks. Additionally, the results from the criteria air pollutant impact analysis (see Section 3.1, Air Quality) determined that the Project would not result in significant impacts related to criteria air pollutant emissions.

3.9.3 Cumulative Effects

The California Energy Commission typically requires cumulative modeling if a proposed project is within 0.5 miles of an existing major toxics emissions source. Based on CARB's Pollution Mapping Tool, the nearest tracked facility is a biogas power plant approximately 5 miles southeast of the Project site (CARB 2023). Therefore, there were no tracked sources within 0.5 miles of the Project site, and no cumulative effects from nearby sources are anticipated.

3.9.4 Mitigation Measures

Any mitigation measures (if applicable) are discussed in the section below.

3.9.4.1 Criteria Pollutants

Emissions of criteria pollutants would be reduced from compliance with applicable BAAQMD rules such as Rule 403, Fugitive Dust, and Rule 1113, Architectural Coatings (see Section 3.1, Air Quality). The Project would not result in emissions that exceed the major source screening threshold of 250 tons per year. Therefore, the Project would be considered a New Source Review minor source for all criteria air pollutants under federal regulations. As such, the Project would not be required to implement the requirements of the federal Prevention of Significant Deterioration program. Additionally, the Project would not exceed the CAAQS or NAAQS for all pollutants. Therefore, mitigation is not required.

3.9.4.2 Toxic Pollutants

As discussed in Section 3.9.2.2, the results of the HRA demonstrate that TAC exposure from construction diesel exhaust emissions would result in cancer risk above the 10 in 1 million threshold. Therefore, TAC emissions from construction of the Project would result in a potentially significant impact and thus mitigation is required. Mitigation Measure **MM-AQ-1** requires the following:

MM-AQ-1 Require Use of Tier 4 Off-Road Equipment During Construction. Prior to the commencement of construction activities for the Project, the Applicant shall require its construction contractor to demonstrate that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Final engines.

In the event of changed circumstances (e.g., changes in the availability of specific types of construction equipment), the applicant may submit a request to the CEC to apply an equivalent method of achieving project-generated construction emissions that fall below the numeric cancer risk standards established by the BAAQMD. Documentation using industry-standard emission estimation methodologies shall be furnished to the CEC demonstrating that estimated project-generated construction emissions would not exceed the applicable BAAQMD cancer risk threshold with the alternate construction method(s). If the documentation demonstrates that project-generated construction emissions will remain below the applicable BAAQMD cancer risk threshold, then the CEC may approve the alternate construction method(s), at the CEC's discretion. Required construction equipment fleet and methodologies approved by the CEC shall be included in the contract specifications for the applicant's construction contractor.

Mitigation Measure **MM-AQ-1,** shown above would reduce TAC emissions and the resulting cancer risk to below the 10 in million thresholds established by the BAAQMD. Therefore, impacts related to TAC emissions would be less than significant with mitigation.

3.9.4.3 Hazardous Materials

See Section 3.5.4, Mitigation Measures, in Section 3.5, Hazardous Materials Handling, for a full discussion of mitigation measures related to hazardous materials.

3.9.5 Laws, Ordinances, Regulations, and Standards

3.9.5.1 Federal LORS

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting NAAQS for major air pollutants; setting hazardous air pollutant standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric ozone (O_3) protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the NAAQS within mandated time frames.

3.9.5.2 State LORS

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High priority" facilities are required to perform an HRA, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply

to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

3.9.5.3 Local LORS

Bay Area Air Quality Management District

BAAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SFBAAB, where the Project site is located. BAAQMD's clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the federal and California Clean Air Acts.

On April 19, 2017, BAAQMD adopted Spare the Air: Cool the Climate – Final 2017 Clean Air Plan (2017 Clean Air Plan; BAAQMD 2017). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the 2017 Clean Air Plan includes all feasible measures to reduce emissions of O_3 precursors (ROGs and NO_x) and reduce O_3 transport to neighboring air basins. In addition, the 2017 Clean Air Plan builds on BAAQMD efforts to reduce $PM_{2.5}$ and TACs. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

BAAQMD establishes and administers a program of rules and regulations to attain and maintain state and national air quality standards and regulations related to TACs. The rules and regulations that may apply to the Project include, but would not be limited to, the following:

- **Regulation 2, Rule 1 – Permits.** This rule specifies the requirements for authorities to construct and permits.
- **Regulation 6, Rule 1 – General Requirements.** This rule limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions, and opacity.
- **Regulation 6, Rule 3 – Wood-Burning Devices.** This rule limits the emissions of particulate matter and visible emissions from wood-burning devices used for primary heat, supplemental heat, or ambiance.
- **Regulation 6, Rule 6 – Prohibition of Trackout.** This rule addresses fugitive road dust emissions associated with trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sites (sites of 1 acre or more).
- **Regulation 8, Rule 1 – General Provisions.** This rule limits the emission of organic compounds into the atmosphere.
- **Regulation 8, Rule 3 – Architectural Coatings.** This rule limits the quantity of ROGs in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the BAAQMD.
- **Regulation 8, Rule 15 – Emulsified and Liquid Asphalts.** This rule limits the emissions of ROGs caused by the use of emulsified and liquid asphalt in paving materials and paving and maintenance operations.

Table 3.9-6. LORS

Agency	Applicable Law, Ordinance, Regulation or Standard	Overview
CARB	Air Toxics Program	The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code.
	Diesel Risk Reduction Plan	In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program.

3.9.5.4 Permits Required and Schedule

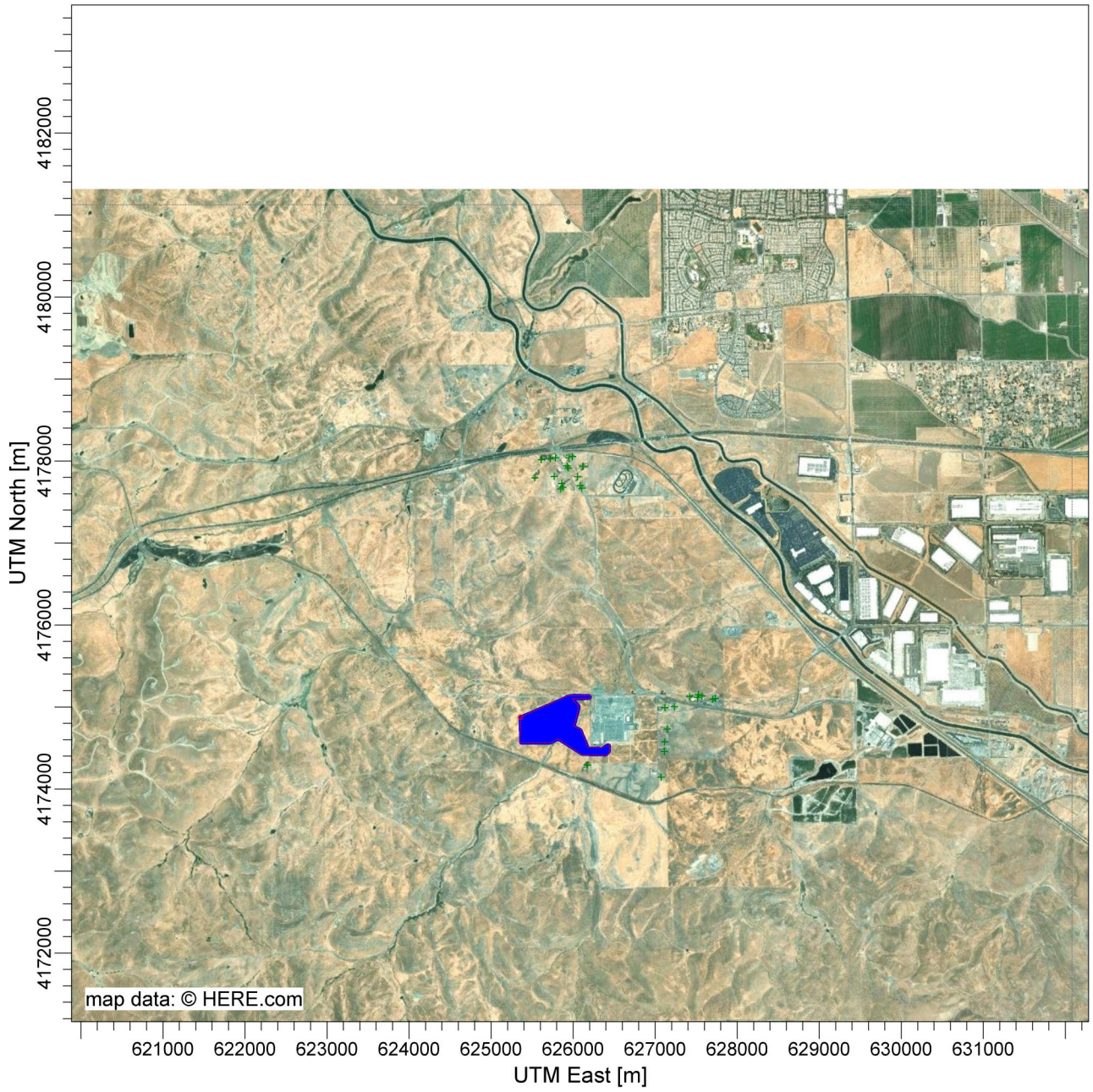
See Section 3.1.2, Regulatory Items Affecting New Source Review, in Section 3.1, Air Quality, for a description of the permitting requirements and schedules. See Section 3.5, Hazardous Materials Handling, for a discussion of hazardous materials business plan. Table 3.8-7 Lists the relevant agency contacts.

Table 3.9-7. Permits and Agency Contacts

Issue/Approval	Agency	Contact
Public exposure to air pollutants	California Air Resources Board	Steven S. Cliff, Executive Officer 1001 I Street, Sacramento, CA 95814 (800) 242-4450
	Bay Area Air Quality Management District	Isis O. Virrueta Air Quality Engineer II (she/her) Bay Area Air Quality Management District Engineering Division ivirrueta@BAQMD.gov

PROJECT TITLE:

Construction HRA Receptor Locations



COMMENTS: MEIR - 625 feet from Project construction boundary MEIW - 1,920 feet from Project construction boundary MESR - 3.30 miles from Project construction boundary.	SOURCES: **2**	COMPANY NAME:	
	RECEPTORS: **32**	MODELER:	
		SCALE: 1:77,933 0 3 km	
		DATE: **1/23/2025**	PROJECT NO.:

INTENTIONALLY LEFT BLANK

3.9.6 References

BAAQMD 2017. Spare the Air: Cool the Climate – Final 2017 Clean Air Plan. April 19, 2017. Accessed May 2019. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

BAAQMD. 2022. Health Risk Calculator with Distance Multipliers. May 3. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/public-baaqmd-health-risk-calculator-beta-5-0-xlsx-xlsx.xlsx?rev=78c153babffa426ba9ca15a31776e035&sc_lang=en

BAAQMD. 2023. *California Environmental Quality Act Air Quality Guidelines.* April 2023. Accessed March 2024. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

BAAQMD. 2024. Stationary Source Screening Map. August 1. https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3

California Energy Commission. July 2021. California Code of Regulations, Title 20. Public Utilities and Energy, Division 2. State Energy Resources Conservation and Development Commission. Available: https://www.energy.ca.gov/sites/default/files/2021-07/Title%2020%20Updated%20July%2023%2C%202021.pdf.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. CARB, Stationary Source Division, Mobile Source Control Division. October 2000. Accessed November 2023. http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf.

CARB. 2019. "Overview: Diesel Exhaust and Health." Accessed May 2019. https://www.arb.ca.gov/research/diesel/diesel-health.htm.

CARB. 2023. CARB Pollution Mapping Tool (v.26). Accessed October 2023. https://www.arb.ca.gov/carbapps/pollution-map/.

Lau, V. 2024. Health Risk Calculator with Distance Multipliers. Email between V. Lau (Bay Area Air Quality Management District) and A. Poll (Dudek). November 14, 2024.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments*. Air, Community, and Environmental Research Branch, OEHHA, California Environmental Protection Agency. February 2015. Accessed October 2023. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

SJVAPCD (San Joaquin Valley Air Pollution Control District). 2018. "APR 2030 Project Ambient Air Quality Analysis Applicability Determination Under CEQA." June 12, 2018. https://ww2.valleyair.org/media/bo3hz35n/apr-2030.pdf.

U.S. Census Bureau 2022. Census Tract 4511.04 Alameda County Demographics and Housing Estimates. https://data.census.gov/table/ACSDP5Y2022.DP05?q=Population%20Total&g=1400000US06001451104&y=2022.