4.0 AIR QUALITY

Emissions from construction and operation of the proposed project and alternatives could affect air quality and result in a health risk to sensitive receptors in the immediate project area and surrounding region. This chapter describes the current environmental setting surrounding the proposed project and alternatives areas, predicts potential air quality-related significant impacts of the proposed project and alternative areas, and describes mitigation measures to be implemented as part of the proposed project that would reduce those significant impacts. Related discussion is presented in Chapter 5.0: Greenhouse Gas Emissions.

Guidelines and key sources of data used in the preparation of this chapter include:

- Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Guidelines (BAAQMD, 2011b and BAAQMD, 2012)
- U.S. Environmental Protection Agency (EPA), Proposal to Designate an Emission Control Area for Nitrogen Oxides, Sulfur Oxides and Particulate Matter, Technical Support Document, Chapter 2: Emission, EPA-420-R-09-007 (EPA, 2009)
- EPA, AP-42 Chapter 1: External Combustion (EPA, 2010b)
- California Air Resources Board (CARB), Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix C (CARB, 2007a)
- EPA TANKS modeling software (version 4.0.9d) (EPA, 2006b)
- EPA AERMOD modeling software was used to calculate air dispersion; analysis was performed per the BAAQMD's Recommended Methods for Screening and Modeling Risks and Hazards (EPA, 2006a)
- Outputs from AERMOD were input into the CARB's Hotspots Analysis and Reporting Program (HARP) modeling to determine criteria pollutant concentrations and to perform health risk calculations (CARB, 2009)

- Existing pollutant concentrations were obtained from BAAQMD-operated air quality monitoring stations

- California Emissions Estimator Model (CalEEMod) (version 2011.1)

4.1 ENVIRONMENTAL SETTING

4.1.1 Regulatory Context

This section describes the regulatory agencies governing air quality and emissions, and specifies how regulations may relate to the proposed project. The Federal Clean Air Act (CAA) of 1970 and its subsequent amendments established both air quality regulations and the National Ambient Air Quality Standards (NAAQS). At the same time, enforcement of these standards was delegated to the states. In the State of California, the CARB is responsible for enforcing air quality standards and pollution regulations. The CARB has, in turn, delegated the specific responsibility of regulating stationary emission sources to local air agencies. In the San Francisco Bay Area air basin, the local air agency is the BAAQMD. The following is a summary of the key federal, State, and local air quality rules, policies, and agreements that may apply to the project and its related activities.

4.1.1.1 Federal Regulations

<u>Federal Clean Air Act</u>

The CAA and its subsequent amendments form the basis for the national air pollution control effort. Basic CAA elements include the NAAQS for major air pollutants, hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

While the EPA is responsible for establishing and implementing most of the CAA, including setting up and reviewing the NAAQS and judging the adequacy of State Implementation Plans (SIPs), they have delegated the authority to implement many federal programs to the states. However, they purposefully retained an oversight role to ensure implementation.

The provisions of the CAA that may be relevant to this project are listed below, with discussion following:

- Air Quality Control Regions (AQCR)
- NAAQS
- General Conformity de Minimis Thresholds
- Prevention of Significant Deterioration Requirements (PSD)
- New Source Review (NSR)

- New Source Performance Standards (NSPS)
- National Emission Standard for Hazardous Air Pollutants (NESHAPs)
- Title V Operating Permits

Air Quality Control Regions

Because air pollution is not limited to political or state boundaries, the CAA established AQCR to divide the country into regional air basins. Interstate or intrastate AQCR are designated by the EPA for the attainment and maintenance of NAAQS. The project site is located in northeastern Contra Costa County (County), belonging to the San Francisco Bay Area Intrastate AQCR (Title 40 Code of Federal Regulations [CFR] Part 81.21).

National Ambient Air Quality Standards

The EPA established NAAQS in 40 CFR Part 50. NAAQS initially included both primary and secondary standards for six principal pollutants, called "criteria" pollutants. This term is derived from the comprehensive health and damage effects review that culminates in the pollutant-specific air quality criteria documents that precede the determination of the standards. The initial six criteria pollutants were ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 micrometers in diameter (PM_{10}), and lead. In 1997, particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) was added to the list.

The primary standards of NAAQS were established to protect public health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly. Secondary standards were designed to protect public welfare, including protection against decreased visibility, and damage to property and natural ecosystems from air pollution.

The EPA, CARB, and local air pollution control districts determine air quality "attainment" status by comparing local ambient air quality measurements obtained from State or local ambient air monitoring stations with the NAAQS and California Ambient Air Quality Standards (CAAQS). Those areas that meet NAAQS and CAAQS are classified as "attainment" areas; areas that do not meet these standards are classified as "nonattainment" areas. Depending on the extent to which NAAQS and CAAQS are exceeded, different levels of nonattainment may be assigned. Areas that have insufficient air quality data may be identified as unclassifiable areas. These attainment designations are determined on a pollutant-by-pollutant basis.

General Conformity de Minimis Thresholds

Section 176(c) of the CAA states that a federal agency cannot support an activity unless the agency determines it would conform to the most recent EPA-approved SIP. This means that projects using federal funds or requiring federal approval must not: (1) cause or contribute to any new violation of a NAAQS; (2) increase the frequency or severity of any existing violation; or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone.

The General Conformity de Minimis Threshold (general conformity) regulations apply to a federal action in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the federal action equal or exceed certain de minimis rates. Exceedance of certain de minimis rates require the federal agency to make a determination of general conformity, a process which is discussed below. Even if a federal action's emissions would be below de minimis rates, if this total represents 10 percent or more of the nonattainment or maintenance area's total emissions of that pollutant, the federal action is considered regionally significant and the federal agency must make a determination of general conformity.

The general conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to EPA guidance (EPA, 1994), before any approval is given for a federal action to go forward, the regulating federal agency must apply the applicability requirements found at 40 CFR 93 Section 153(b) to the federal action and/or determine the regional significance of the federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. The guidance states that the applicability analysis can be, but is not required to be, completed concurrently with any analysis required under the National Environmental Policy Act (NEPA). If the regulating federal agency determines that the general conformity regulations do not apply to the federal action, no further analysis or documentation is required. If the general conformity regulations do apply to the federal action, the regulating federal agency must next conduct a conformity evaluation in accordance with the criteria and procedures in the implementing regulations, publish a draft determination of general conformity for public review, and then publish the final determination of general conformity.

40 CFR 93 Section 153 defines de minimis levels, that is, the minimum threshold for which a conformity determination must be performed for various criteria pollutants in various areas. Table 4-1 summarizes the de minimis threshold levels based upon an area’s attainment status of the NAAQS.

Table 4-1: EPA General Conformity de Minimis Thresholds

Pollutant[1]	**Area Type**	**Tons per Year**
Ozone (VOC or NO_x)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO_x)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
CO, SO_2 and NO_2	All nonattainment and maintenance	100
PM_{10}	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Lead	All nonattainment and maintenance	25

Source: EPA, 40 CFR 93, Section 153.
[1]Pollutants:
VOC = volatile organic compound
NO_x = nitrogen oxide
CO = carbon monoxide
SO_2 = sulfur dioxide
NO_2 = nitrogen dioxide
PM_{10} particulate matter less than 10 micrometers in diameter

Prevention of Significant Deterioration Requirements

The federal PSD preconstruction permit program has been established to prevent deterioration of air quality in those areas that already meet NAAQS for one or more criteria pollutants. The PSD program establishes allowable concentration increases for attainment pollutants when new emission sources are classified as major sources. The allowable concentration increases provide room for economic growth while preserving existing air quality, protecting public health and welfare, and protecting national parks and wilderness areas.

For a new emission source to be considered “major,” it must be listed under one of the 28 PSD source categories and either emit or have the potential to emit 100 tons per year (or more) of any regulated pollutant. If the source, outside of the 28 PSD categories, has the potential to emit pollutants in amounts equal to or greater than 250 tons per year, it may be considered a “major” source. Under this program, the new construction or modification must use air pollution control equipment and procedures determined to be the most effective for the project (i.e., Best Available Control Technology [BACT]). Usually the state or local permitting agency determines BACT on a case-by-case basis. Further, under this program, applicants must provide a detailed evaluation of the proposed project’s air quality impact on the local and regional environment. This evaluation must address air quality, visibility, soils, vegetation, and any specific air quality issues that may apply in national parks or wilderness areas. Projects that do not exceed the PSD thresholds are not subject to this regulation. In 2008, the EPA delegated authority to BAAQMD to issue and modify PSD permits for most facilities in the San Francisco Bay Area (Bay Area). The proposed facility would not be subject to PSD.

New Source Review

NSR is a preconstruction permitting program established as part of the 1977 CAA Amendments, and applies to new and modified major sources. It serves two important purposes: (1) it ensures that air quality is not significantly degraded from the addition of new and modified stationary sources; and (2) it ensures that any large new or modified industrial source would be as clean as possible based on the Lowest Achievable Emission Rate (LAER) (known as BACT under BAAQMD rules), and that advances in pollution control occur concurrently with industrial expansion. Sources with emissions that exceed certain thresholds must provide emissions data to assure that regional emissions do not increase as the result of economic development. NSR permits are legal documents by which facility owners/operators must abide. The permits specify what construction is allowed, what emission limits must be met, and often how the emissions source may be operated.

New Source Performance Standards

NSPS, contained in 40 CFR Part 60, cover many different industrial source categories. Enforcement of most NSPS has been delegated to local air districts, and most NSPS are incorporated by reference into BAAQMD regulations.

In general, local emission limitation rules established to meet Best Available Retrofit Control Technology (BARCT) requirements in California, under their NSR requirements, are far more prescriptive than the NSPS requirements.

National Emission Standard for Hazardous Air Pollutants

EPA is required to identify and list as “hazardous air pollutants” (HAPs) all air pollutants not already identified as criteria pollutants that "may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible or incapacitating reversible illness." For each pollutant identified, EPA was to then promulgate NESHAPs at levels that would ensure the protection of the public health with an ample margin of safety and to prevent any significant and adverse environmental effects, which may reasonably be anticipated, on wildlife, aquatic life, or other natural resources. The current list of HAPs was adopted as part of the 1990 CAA Amendments, and includes 188 compounds with the majority being VOCs. Examples of HAPs include: benzene, which is found in gasoline; perchlorethlyene, which is used at and emitted from some dry cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries. Examples of other listed HAPs include dioxin, asbestos, toluene, and metals, such as cadmium, mercury, chromium, and lead compounds.

<u>Emission Standards for Non-Road Diesel Engines</u>

To reduce emissions from off-road diesel equipment (e.g., construction-type equipment), the EPA established a series of increasingly cleaner and more stringent emission standards for new off-road diesel engines. Tier I standards were phased in from 1996 to 2000 (years referenced are the years of engine manufacture), depending on the engine horsepower (hp) category. Tier II standards were phased in from 2001 to 2006; and Tier III standards were phased in from 2006 to 2008. Tier IV standards, which allow add-on emission control equipment to attain them, are being phased in from 2008 to 2015. Marine vessels and locomotives are exempt from this regulation and are regulated as discussed below.

<u>Emission Standards for Marine Diesel Engines</u>

The EPA has set marine diesel engine standards under Section 213 of the CAA, which directs the agency to set emission standards for various classes or categories of new non-road engines and vehicles. These standards are being phased in over time. Table 4-2 provides a summary of marine engine categories.

Table 4-2: Marine Engine Categories

Category	Displacement per Cylinder (D)[1]	
	Tier I - II	Tier III - IV
1	D < 5 dm^3 and Power ≥ 50 hp	D < 7 dm^3
2	5 dm^3 ≤ D < 30 dm^3	7 dm^3 ≤ D < 30 dm^3
3	D ≥ 30 dm^3	

Source: DieselNet, 2011.
[1]Units:
dm^3 = liters per cylinder displacement
hp = Horsepower

In addition, to reduce emissions from marine diesel engines, the EPA established emission standards for new engines according to engine categories (e.g., Categories 1, 2, and 3) and manufacture years, as discussed below.

Emission Standards – Category 1 and 2

Category 1 and Category 2 marine diesel engines typically range in size from approximately 700 hp to 11,000 hp. These engines are used to provide propulsion power on many kinds of vessels, including tugboats, pushboats, supply vessels, and other commercial vessels in and around ports. Auxiliary engines on tanker vessels are usually Category 1 and 2 marine diesel engines. The EPA Tier I standards were phased in from 2004 to 2006 (years referenced are the years of engine manufacture), and the Tier II standards were phased in from 2004 to 2007, depending on the engine category and engine size. The engine-based Tier III standards for Category 1 and 2 marine diesel engines are phasing in over 2009 to 2014, and the Tier IV standards, with an emphasis on the use of emission after-treatment technology, would be phased in from 2014 to 2017.

Emission Standards - Category 3

Category 3 marine diesel engines are usually used on main propulsion engines on larger cargo vessels, including oil tanker vessels. Tier I emission standards for Category 3 marine diesel engines built in 2004 and later have been in effect since 2004. In 2010, EPA adopted more stringent Tier II and Tier III emission standards for newly built Category 3 engines. The Tier II standards were applied to newly built and rebuilt engines beginning in 2011, and they require more efficient use of current engine technologies, such as engine timing, engine cooling, and advanced electronic controls. The Tier III standards would apply to newly built and rebuilt engines beginning in 2016 and would require the use of high-efficiency emission control technology such as selective catalytic reduction to achieve NO_x reductions 80 percent below the Tier I levels.

Emission Standards for Locomotives

To reduce emissions from switch and line-haul locomotives, EPA established a series of increasingly strict emission standards for new or remanufactured locomotive engines. The standards have been adopted by the EPA in two regulatory actions. In December 17, 1997, the EPA adopted the first emissions regulation for railroad locomotives, requiring locomotive engines manufactured or remanufactured from 1973 to 2001 to meet Tier 0 standards, 2002 to 2004 to meet Tier I standards, and 2005 and later to meet Tier II standards (EPA, 1997). Subsequently, in March 14, 2008, the EPA adopted more stringent emissions regulation for railroad locomotives (EPA, 2008). The regulation sets new emission standards for newly-built and remanufactured locomotive engines. The standards for newly-built locomotive engines are implemented in two tiers: Tier III standards took effect in 2012 and Tier IV standards take effect in 2015. The regulation also sets new emissions standards for remanufactured Tiers 0, 1 and 2 locomotive engines, phasing in from 2008 to 2010.

Nonroad Diesel Fuel Rule

With this rule, EPA set sulfur limitations for nonroad diesel fuel, including locomotives and marine vessels (though not for the marine residual fuel used by very large engines on oceangoing vessels [OGVs]). For the proposed project, this rule affects line-haul locomotives; the California Diesel Fuel Regulations (described below) generally preempt this rule for other sources, such as switching locomotives, construction equipment, and cargo-handling equipment. Under this rule, the diesel fuel used by line-haul locomotives was limited to 500 ppm (low sulfur diesel) starting June 1, 2007; and was further limited to 15 ppm starting January 1, 2012 (EPA, 2004b).

International Maritime Organization Marine Pollution Annex VI

The International Maritime Organization (IMO) is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. The IMO Marine Pollution Annex VI (Annex VI) was promulgated in May 2005. This Annex VI sets limits on oxides of sulfur (SO_x[1]) and mono nitrogen oxides (NO_x[2]) emissions from ship exhausts and prohibits deliberate emissions of ozone-depleting substances. Specifically, it sets new international NO_x emission limits on Category 3 (greater than 30 liters per cylinder displacement) marine engines installed on new vessels retroactive to the year 2000. For OGV main propulsion engines (less than 130 revolutions-per-minute engine speed), the NO_x limits are approximately 6 percent lower than the average emissions from pre-Annex ships. Annex VI established tiered emissions

[1] SO_x is a common abbreviation for oxides of sulfur and is meant to encompass sulfur monoxide (SO), sulfur dioxide (SO_2), and sulfur trioxide (SO_3) as well as less common oxygen and sulfur combinations. SO_x is used throughout this document; however, on occasion SO_2 is used when a regulation or modeling software specifically refers to this particular oxide of sulfur.

[2] NO_x is a common abbreviation for mono nitrogen oxides, such as nitric oxide (NO) and nitrogen dioxide (NO_2).

standards for new engines with respect to NO_x. Tier I engines (built before 2011) must meet a 17 grams per kilowatt-hour (g/kW-hr) NO_x limit. Tier II engines (built in 2011-2015) must meet a NO_x limit of 14 g/kW-hr; and Tier III engines (built in 2016 or later) must meet a NO_x limit of 3.4 g/kW-hr. It is anticipated that NO_x after-treatment would be required to meet the Tier III standard.

On March 26, 2010, the IMO officially designated waters off North American coasts (out to 200 miles) as an Emission Control Area (ECA) in which stringent international emission standards would apply to ships. The North American ECA became effective in August 2012 with an initial fuel sulfur limit of 1.0 percent (10,000 ppm). The fuel sulfur limit would decrease to 0.1 percent (1,000 ppm) in 2015. Consistent with the IMO fuel standards, the EPA also adopted a rule in 2009 for Category 3 marine engines and forbid the production and sale of fuel with greater than 1,000 ppm for use in waters within a U.S. ECA by 2015.

Title V Operating Permits

Title V of the CAA requires the EPA to develop a federal operating permit program that is implemented under 40 CFR 70. This program is administered by BAAQMD under Regulation II, Rule 6. Permits must contain emission estimates based on potential-to-emit, identification of all emission sources and controls, a compliance plan, and a statement indicating each source's compliance status. The permits must also incorporate all applicable federal, state, or air quality control district orders, rules, and regulations. For a new emission source to be considered "major" under Title V it must have the potential to emit 100 tons per year (or more) of any regulated pollutant or 10 tons per year or more of a single hazardous air pollutant, or 25 tons per year or more of a combination of hazardous air pollutants. Because the proposed facility is not expected to be considered a "major" facility under Title V, it would not be subject to Title V permitting.

4.1.1.2 State Regulations

The CARB was created by the Mulford-Carrell Air Resources Act in 1968, before NAAQS were established. The primary responsibilities of the CARB are to: (1) develop, adopt, implement, and enforce the State's motor vehicle pollution control program; (2) administer and coordinate the State's air pollution research program; (3) adopt and update the CAAQS; (4) review the operations of the local air pollution control districts; and (5) review and coordinate the SIPs for achieving NAAQS.

The Federal CAA requires the EPA to set outdoor air quality standards for the nation; however, it allows states to adopt additional or more protective air quality standards if needed. There are considerable differences between state and federal standards currently in effect in California. This is primarily due to the unique meteorological problems in California and the differences of opinion from medical panels established by CARB and EPA regarding pollutant levels that protect susceptible members of the population from adverse health impacts with an adequate degree of safety. Besides setting more protective state air quality standards for the seven federally-regulated criteria pollutants, California has set standards for some pollutants that are not addressed by federal regulations. These pollutants include sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. In addition to its more stringent ambient air quality standards, California implements more stringent regulations than those of the federal government for vehicle emissions, under various State programs administered by CARB.

State Implementation Plan

In areas that do not attain a NAAQS, the federal CAA requires preparation of a SIP, detailing how the State would attain the NAAQS within the federally-mandated deadlines. In California, local districts adopt new rules to demonstrate attainment mitigation measures to prevent potential significant impacts.

California Clean Air Act

The CAA of 1988 outlines a program to attain the CAAQS by the earliest practical date. Because the CAAQS are more stringent than the NAAQS, attainment of the CAAQS requires more emissions reductions than what would be required to show attainment of the NAAQS. Similar to the federal system, the State requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region. In general, California air districts, including BAAQMD, are required to adopt regulations imposing BARCT requirements on most categories of stationary emissions sources.

California Diesel Fuel Regulation

The California Diesel Fuel Regulation, set by the CARB, limits sulfur for diesel fuel sold in California for use in on-road and off-road motor vehicles. Under this regulation, diesel fuel used in motor vehicles, except harbor craft and intrastate locomotives, has been limited to 500 ppm sulfur since 1993. The sulfur limit was reduced to 15 ppm effective September 1, 2006. Harbor craft (including tugboats) and intrastate locomotives were originally excluded from the 1993 regulation, but were later included in 2004 through amendments made to the California Standards for Motor Vehicle Diesel Fuel. These amendments first went into effect in the South Coast Air District for harbor craft in January 2006, and as of January 2007 they applied to harbor craft and locomotives throughout the rest of the State.

Off-Road Diesel Vehicle Regulation

The CARB's California Off-Road Diesel Vehicle Regulation, Title 13, Article 4.8, Chapter 9, California Code of Regulations (CCR) affects all self-propelled off-road diesel vehicles over 25 hp. The regulation: (1) imposes limits on idling, buying older off-road diesel vehicles, and selling vehicles (beginning in 2008); (2)

requires all vehicles to be reported to CARB and labeled with CARB designated equipment identification numbers (beginning in 2009); and (3) begins gradual requirements in 2014 for fleets to eliminate older engines, replace them with newer engines, and install exhaust retrofits. The primary purpose of this regulation is to reduce emissions of NO_x and PM from off-road diesel vehicles.

Measures to Reduce Emissions from Goods Movement Activities

In April 2006, the CARB approved the Emission Reduction Plan for Ports and Goods Movement in California (Plan). The Plan is an essential component of California's effort to reduce community exposure to air pollution and to meet new federal air quality standards for O_3 and particulate matter (PM). The Plan proposes measures that would reduce emissions from the main sources associated with ships, harbor craft, terminal equipment, trucks and locomotives.

In 2008, the CARB conducted a public hearing to consider adoption of regulations to reduce emissions of diesel PM, NO_x, and SO_x from the use of main engines, auxiliary diesel engines and diesel-electric engines, and boilers operated on OGVs located within regulated California waters, which include all California inland waters, all California estuarine waters, and within 24 nautical miles of the California baseline (from the mainland and island shorelines). Following the public hearing, in May 2009, the California Office of Administrative Law approved Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline (13 CCR, Section 2299.2). This regulation consists of a Phase I fuel requirement that beginning on July 1, 2009, ship auxiliary diesel engines operating in regulated California waters use marine diesel oil with a maximum of 0.5 percent sulfur or marine gas oil (MGO) with a maximum of 1.5 percent sulfur. The Phase II fuel requirement of this regulation requires reducing both fuel sulfur limits to 0.1 percent beginning on January 1, 2012. On June 23, 2011, amendments to this regulation were endorsed by CARB to delay implementation of Phase II until January 1, 2014. In addition, the sulfur content limit for MGO was reduced from 1.5 percent to 1 percent beginning on August 1, 2012. This aligns with the date that the 1 percent fuel sulfur requirement in the federal IMO ECA begins. Amendments of this regulation became effective at the end of 2011.

Statewide Portable Equipment Registration Program

The Statewide Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts.

4.1.1.3 Local Regulations

<u>Bay Area Air Quality Management District</u>

The BAAQMD has the delegated authority for implementing and enforcing local, state, and federal air quality regulations in nine counties of California's San Francisco Bay Area: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Napa counties, southwestern Solano, and southern Sonoma.

Clean Air Plan

The Federal CAA and the California CAA require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). In September 2010, BAAQMD adopted the Bay Area 2010 Clean Air Plan (CAP), and certified the Final Environmental Impact Report on the CAP. The 2010 CAP serves to update the San Francisco Bay Area Ozone Plan in compliance with the requirements of the California CAA. In addition, the 2010 CAP provides an integrated, multi-pollutant strategy to improve air quality, protect public health, and protect the climate.

California Environmental Quality Act Guidelines

The BAAQMD's CEQA Guidelines are developed to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. The primary purpose of the guidelines is to provide a means to identify proposed local plans and development projects that may have a significant adverse effect on air quality and public health. The BAAQMD updated these CEQA Guidelines in June 2010 to include reference to the revised air quality thresholds of significance (revised thresholds) adopted by the air district on June 2, 2010 to assist local agencies in the review of projects under CEQA. The BAAQMD further updated CEQA Guidelines in May 2011. The revised thresholds adopted in June 2010 were challenged in a lawsuit, and on March 5, 2012, BAAQMD was ordered by the Alameda County Superior Court to set aside these revised thresholds and cease dissemination of them until the air district has complied with CEQA regarding adopting these revised thresholds. In response to the court's order, the BAAQMD updated the CEQA guidelines in May 2012 accordingly and is no longer recommending the use of the revised thresholds as a generally applicable measure of a project's significant air quality impact. Lead agencies are now tasked with determining appropriate air quality thresholds of significance based on substantial evidence in the record. Because the court did not determine whether the thresholds were valid on the merits, the City of Pittsburg, as the lead agency of this project, has determined that the BAAQMD CEQA Guidelines (version May, 2011), in combination with BAQQMD's Revised Draft Options and Justification Report (BAAQMD, 2010), provide substantial evidence to support the revised thresholds of significance. Therefore, the city Planning Department has decided to continue the use of these revised thresholds for the air quality analysis for this project under CEQA. A summary of these revised thresholds for construction and operations are provided in Table 4-3.

Bay Area Air Quality Management District Rules and Regulations

The following paragraphs outline pertinent BAAQMD rules and regulations:

Regulation I – General Provisions and Definitions: This regulation includes sections on exclusions, breakdown procedures, registration, right-of-access, sampling facilities, record maintenance, and provisions, such as public nuisance.

Regulation II – Permits: This regulation specifies the requirements for authorities to construct and permits to operate.

Regulation II, Rule 1- General Requirements: Rule 1 provides an orderly procedure for the review of new sources of air pollution, and of the modification and operation of existing sources, and of associated air pollution control devices, through the issuance of permits (e.g., Authority to Construct and Permit to Operate).

Regulation II, Rule 2 – New Source Review: Rule 2 provides for a review of new and modified sources and provides mechanisms, including the use of BACT, Best Available Control Technology for Toxics, and emission offsets, by which authority to construct such sources may be granted. Rule 2 also implements federal New Source Review and Prevention of Significant Deterioration requirements.

Regulation II, Rule 4 – Emission Banking: Rule 4 includes procedures for emission banking and offsets, and it establishes a small facility bank for offsets for eligible facilities. The banking of emission reduction credits is intended to provide a mechanism for sources to obtain offsets under the New Source Review regulations contained in Regulation II, Rule 2 of the BAAQMD.

Regulation II, Rule 5- New Source Review of Toxic Air Contaminants: The purpose of Rule 5 is to provide for the review of new and modified sources of toxic air contaminant (TAC) emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. This regulation requires that a health risk screening analysis shall be prepared following the BAAQMD's Health Risk Screening Analysis Guidelines for new and modified sources subject to this rule.

Regulation II, Rule 6- Major Facility Review: The purpose of Rule 6 is to implement the operating permit requirements of Title V of the federal CAA as amended in 1990. This rule shall not alter any other requirements of applicable

Table 4-3: Thresholds of Significance for Air Emissions[1]

Pollutant	Construction-related	Operations-related	
Project-level			
Criteria Air Pollutants and Precursors (Regional)[2]	**Average Daily Emissions (pounds per day)**	**Average Daily Emissions (pounds per day)**	**Maximum Annual Emissions (tons per year)**
POC	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Risk and hazards for new sources and receptors (Individual Project)	Same as operational thresholds	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of greater than 10.0 in a million Increased non-cancer risk of greater than 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average Zone of Influence: 1,000-foot radius from property line of source or receptor	

Pollutant	Construction-related	Operations-related	
Project-level			
Criteria Air Pollutants and Precursors (Regional)[2]	**Average Daily Emissions (pounds per day)**	**Average Daily Emissions (pounds per day)**	**Maximum Annual Emissions (tons per year)**
Risk and hazards for new sources and receptors (Cumulative Threshold)	Same as operational thresholds	Compliance with Qualified Community Risk Reduction Plan OR Cancer risk greater than 100 in a million (from all local sources) Non-cancer risk greater than 10.0 Hazard Index (from all local sources) (Chronic)[3] Ambient $PM_{2.5}$ increase: greater than 0.8 $\mu g/m^3$ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor	
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant	
Odors	None	Five confirmed complaints per year averaged over three years	

Source: BAAQMD, 2011
[1]The BAAQMD thresholds are currently the subject of judicial action (see Section 4.1.1.3).
[2]POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
CO = carbon monoxide

[3] The Hazard Index is a summation of the hazard quotients for all chemicals to which an individual is exposed. A hazard index value of 1.0 or less than 1.0 indicates that no adverse human health effects are expected to occur, and a higher hazard index value indicates that adverse human health effects are more likely to occur. Chronic hazards are health effects associated with relatively long period of continuous or repeated exposure. Acute hazards are health effects that could occur rapidly after short-term exposure.

federal, state, or District orders, rules or regulations, except for monitoring, recordkeeping, and reporting requirements that are subsumed using the permit shield. The proposed facility would not be a major source and therefore, is not subject to Title V.

Regulation II, Rule 9 – Interchangeable Emission Reduction Credits: Rule 9 regulates use and trading of Interchangeable Emission Reduction Credits from stationary sources of NO_x.

Regulation III – Fees: Regulation III identifies the fees that are applicable to permit modifications, new facilities, and permitted emissions. The required fees are submitted with the application for Authority to Construct and/or Permit to Operate in compliance with Regulation III.

Regulation VI – Particulate Matter and Visible Emissions: Regulation VI consists of provisions that limit the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.

Regulation VII – Odorous Substances: Regulation VII establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds.

Regulation VIII – Organic Compounds: Regulation VIII limits the atmospheric emission of organic compounds from aboveground storage tanks; from transfer operations at non-gasoline organic liquid bulk terminals and bulk plants; and from leaking equipment at petroleum refineries, chemical plants, marine tank vessel operations, bulk plants and bulk terminals. Further, this regulation specifies the requirements to limit emissions of organic compounds to the atmosphere during marine tank vessel operations.

Regulation IX – Inorganic Gaseous Pollutants: Regulation IX establishes emission limits for inorganic gaseous pollutants, such as SO_2 and NO_x from various sources and operations, such as thermal oxidizers, boilers, and heaters. This regulation tends to be more stringent than Reasonably Available Control Technology (RACT).

Regulation X - Standards of Performance for New Stationary Sources: Regulation X establishes emission and/or performance standards for new plants and other sources. The rules are incorporated by reference to the provisions of Part 60, Chapter 1, Title 40, of CFR.

Contra Costa County

The Conservation Element of the *Contra Costa County General Plan* includes goals and policies that aim to improve local and regional air quality throughout the County. The following air resources policies may apply:

- Policy 8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.
- Policy 8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

These policies are consistent with the CEQA review process.

City of Pittsburg

The Resource Conservation element of the *City of Pittsburg General Plan* includes analysis of air quality, goals, and policies to improve local and regional air quality throughout the City of Pittsburg (City). The following air resources policies may apply:

- 9-P-29: Cooperate with the BAAQMD to achieve emissions reductions for O_3 and its precursors.
- 9-P-30: Cooperate with BAAQMD to ensure compliance with dust abatement measures during construction.

4.1.2 Existing Conditions

4.1.2.1 Regional Meteorological Conditions

The climate of the San Francisco Bay Area, along with much of coastal California, is controlled by a semi-permanent high-pressure system that is centered over the northeastern Pacific Ocean. In the summer, the relatively northern location of this strong high-pressure system results in clear skies inland and frequent coastal fog. Very little precipitation occurs during the summer months because storm systems are blocked by the high-pressure system. Beginning in the fall and continuing through the winter, the high-pressure system weakens and moves southward, allowing storm systems originating from the Alaska Gulf and the Pacific Ocean into the area. Temperature, winds, and rainfall are more variable during these months.

The predominant regional surface winds during the winter are northerly and southerly. During the spring, summer, and autumn, the winds are stronger and westerly. These strong westerly winds are caused by the combination of high-pressure offshore and a thermal low-pressure resulting from higher temperatures inland.

Atmospheric stability and mixing heights are important parameters in the determination of pollutant dispersion. Atmospheric stability reflects the amount of atmospheric turbulence and mixing. In general, the less stable an atmosphere, the greater the turbulence, resulting in more mixing and better dispersion.

The mixing height, measured from the ground upward, is the height of the atmospheric layer at which convection and mechanical turbulence promote mixing. Good ventilation results from a high mixing height and at least moderate wind speeds within the mixing layer. In general, the frequent occurrence of temperature inversions over the San Francisco Bay Area limits this mixing height and consequently limits the availability of air for dilution.

In the Carquinez Strait region, where the project is specifically located, low mixing depths and low wind speeds typically occur when the pressure gradient direction shifts to an easterly direction due to a high-pressure system over the Central Valley. Furthermore, if this occurs in the summer or autumn, the winds from the Central Valley are warmer, increasing photochemical activity, and contain more pollutants than the usually cooler marine air. An easterly flow is more common during the winter when the high-pressure system over the Pacific Ocean is no longer offshore. During the spring, summer, and autumn, the air pollution potential in the region is moderated by strong westerly winds.

Average temperature and precipitation data have been collected at Antioch, the long-term surface meteorological station nearest to the project site, and are presented in Table 4-4. Average low and high temperatures during the summer vary from the mid-50s to the low 90s, respectively. As previously discussed, summer precipitation is extremely low due to the strong stationary high-pressure system off the coast that prevents most weather systems from moving through the area. The Antioch station receives an average of approximately 13 inches of rainfall annually. This amount is lower than most of the region because of a rain-shadow effect caused by Mount Diablo to the southwest. During the winter, average low and high temperatures vary from the mid-30s to the mid-60s, respectively. Approximately 80 percent of the precipitation in the area occurs from November through March, generally in association with storm systems that move through the region.

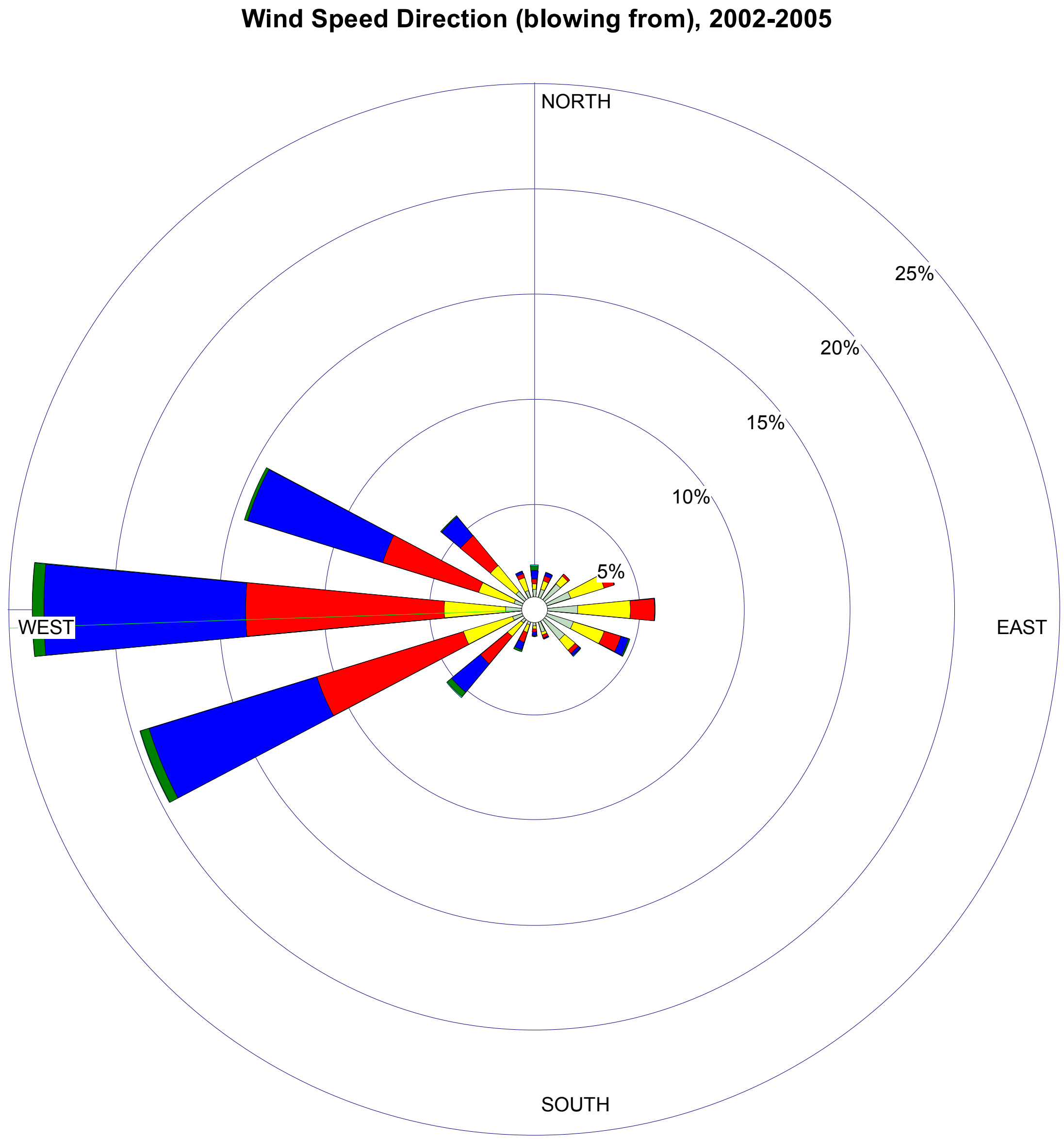
Winds measured at a weather station operated adjacent to the project site are predominantly from the west. The wind speed is often quite high, averaging about 10 miles per hour annually. Like the annual winds, the spring, summer, and autumn seasons have strong westerly winds. However, during the winter season, the prevalent wind direction switches to easterly, and is much more variable. Lighter wind speeds also occur in winter. The annual average pattern of joint wind speed and wind direction frequencies in the area is illustrated on Figure 4-1: Annual Windrose for the Pittsburg Meteorological Station. A detailed discussion of the meteorological data used to support dispersion modeling for evaluation of the project air quality impacts is presented in Section 4.2.1.

Table 4-4: Average Temperature and Precipitation

Month	Average Maximum Temperature (degrees Fahrenheit)	Average Minimum. Temperature (degrees Fahrenheit)	Average Total Precipitation (inches)
January	53.7	37.1	2.78
February	60.2	41.0	2.43
March	65.5	43.4	2.00
April	71.4	46.3	0.90
May	78.6	51.4	0.36
June	86.0	56.2	0.09
July	91.2	57.6	0.02
August	89.9	56.8	0.04
September	86.2	55.3	0.18
October	77.4	50.3	0.64
November	64.3	43.1	1.58
December	54.7	37.5	2.20
Annual	**73.3**	**48.0**	**13.22**

Source: National Weather Service, 2008

Figure 4-1
Annual Windrose for the Pittsburg Meteorological Station
City of Pittsburg
WesPac Pittsburg Energry Infrastructure Project



WIND SPEED
(Knots)

>= 22
17 - 21
11 - 17
7 - 11
4 - 7
1 - 4

Calms: 0.69%

Resultant Vector
268 deg - 46%

Average Wind Speed: 8.42 Knots

Start Date: 1/1/2002 - 0:00
End Date: 12/31/2005 - 23:00
Total Count: 34918 hours

WRPLOT View - Lakes Environmental Software

1/9/2012

CH X:\WesPac\4 Air Quality\mxd\Figure 4-1 Annual Windrose for the Pittsburg Meteorological Station.mxd

4.1.2.2 Existing Air Quality and Attainment Status

Ambient air quality standards have been established by both the federal government and the State of California to protect public health and welfare with an adequate margin of safety. Pollutants for which NAAQS or CAAQS have been set are often referred to as "criteria" air pollutants. These standards are reviewed on a legally-prescribed frequency and are revised, as warranted, by new health and welfare effects data. Each NAAQS or CAAQS is based on a specific averaging time over which the indicated pollutant concentration is measured. Different averaging times are based upon protection against short-term, high dosage effects, or long-term, low-dosage effects.

The ambient air quality in Contra Costa County (County) is monitored at a series of air quality monitoring stations operated by BAAQMD. The monitoring stations within the County that are closest to the project site are the Pittsburg - 10th Street Station (Pittsburg Station), less than a mile from the proposed project; the Concord - 2975 Treat Boulevard Station (Concord Station), approximately 9.8 miles southwest of the site; and the Bethel Island Road Station (Bethel Island Station), approximately 14 miles east of the site (see Figure 4-2: Air Quality Monitoring Station Locations).

The Pittsburg Station was removed from service at the end of 2008. The Concord and Bethel Island Stations remain in active service and monitor all criteria pollutant concentrations with the exception of lead; additionally, $PM_{2.5}$ is only monitored at the Concord Station. The closest station monitoring for lead is the San Francisco-Hunters Point Station, approximately 34 miles southwest of the proposed project. Air quality measurements taken at these stations are presented in Appendix B: Air Quality Monitoring Station Data.

Table 4-5 provides a summary of the NAAQS and CAAQS and background air quality levels from 2008 to 2010, followed by pollutant-specific discussions. The table presents the highest recorded concentrations and the highest number of total days exceeding the CAAQS and NAAQS at the three air quality monitoring stations nearest the proposed project.

<u>Ozone</u>

O_3 is a gas comprised of three oxygen atoms. It is not usually emitted directly into the air, but at ground level it is created by a chemical reaction between NO_x and VOCs in the presence of sunlight and heat. Ground-level O_3 is the primary constituent of smog. In addition, EPA studies have indicated that exposure to ground-level O_3 air pollution, even at very low levels, can cause a number of negative respiratory health effects, particularly over time. Currently, the San Francisco Bay Air Basin (Basin) has designations of non-attainment for the state 1-hour and 8-hour ozone standards and the federal 8-hour O_3 standard.

Table 4-5: Air Quality Standards and Attainment Status

Pollutant	Averaging Time	Highest Conc. Recorded Over 2008-2010[1]	California Standards (CAAQS) Concentration	California Standards (CAAQS) Attainment Status[2]	Highest Number of Total Days Exceeding State Standards Over 2008-2010	National Standards (NAAQS) Concentration	National Standards (NAAQS) Attainment Status	Highest Number of Days Exceeding Federal Standards Over 2008-2010
Ozone	8 Hour	0.09 ppm	0.070 ppm (137µg/m³)	N	23	0.075 ppm	N	-
	1 Hour	0.109 ppm	0.09 ppm (180 µg/m³)	N	9	-	-	-
Carbon Monoxide	8 Hour	1.44 ppm	9.0 ppm (10 mg/m³)	A	0	9 ppm (10 mg/m³)	A	0
	1 Hour	4.6 ppm	20 ppm (23 mg/m³)	A	0	35 ppm (40 mg/m³)	A	0
Nitrogen Dioxide	1 Hour	0.056 ppm	0.18 ppm (339 µg/m³)	A	0	0.100 ppm	U	0
	Annual Arithmetic Mean	0.01 ppm	0.030 ppm (57 µg/m³)	-	-	0.053 ppm (100 µg/m³)	A	-

Pollutant	**Averaging Time**	**Highest Conc. Recorded Over 2008-2010**[1]	**California Standards (CAAQS)**		**Highest Number of Total Days Exceeding State Standards Over 2008-2010**	**National Standards (NAAQS)**		**Highest Number of Days Exceeding Federal Standards Over 2008-2010**
			Concentration	***Attainment Status***[2]		***Concentration***	***Attainment Status***	
Sulfur Dioxide	24 Hour	0.006 ppm	0.04 ppm (105 μg/m³)	A	0	0.14 ppm (365 μg/m³)	A	-
	1 Hour	0.023 ppm	0.25 ppm (655 μg/m³)	A	0	0.075 ppm (196 μg/m³)	A	0
	Annual Arithmetic Mean	0.001 ppm	-	-	-	0.030 ppm (80 μg/m³)	A	-
Particulate Matter (PM_{10})	Annual Arithmetic Mean	24.1 μg/m³	20 μg/m³	N	-	-	-	-
	24 Hour	78.2 μg/m³	50 μg/m³	N	4	150 μg/m³	U	0
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	9.5 μg/m³	12 μg/m³	N	-	12 μg/m³	A	-
	24 Hour	60.3 μg/m³	-	-	-	35 μg/m³	N	-
Particulate Sulfates	24 Hour	-	25 μg/m³	A	-	-		-
Lead	30-day Average	-	1.5 μg/m³	-	-	-	A	-
	Calendar Quarter	-	-	-	-	1.5 μg/m³	A	-
	Rolling 3 Month Average	-	-	-	-	0.15 μg/m³	-	-

Pollutant	Averaging Time	Highest Conc. Recorded Over 2008-2010[1]	California Standards (CAAQS)		Highest Number of Total Days Exceeding State Standards Over 2008-2010	National Standards (NAAQS)		Highest Number of Days Exceeding Federal Standards Over 2008-2010
			Concentration	*Attainment Status*[2]		*Concentration*	*Attainment Status*	
Hydrogen Sulfide	1 Hour	-	0.03 ppm (42 $\mu g/m^3$) (26 $\mu g/m^3$)	U	-	-	-	-
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST[3])	-	-	U	-	-	-	-

[1]Units:
mg/m^3 milligrams per cubic meter
ppm parts per million
$\mu g/m^3$ micrograms per cubic meter

[2]Attainment Status:
A = Attainment
N = Non-attainment
- = Information Not Available
U = Unclassified

[3]PST = Pacific Standard Time

Source: BAAQMD, 2011

Figure 4-2
Air Quality Monitoring Station Locations
City of Pittsburg
WesPac Pittsburg Energy Infrastructure Project

TRC

7/18/2013

Terminal Boundary
Rail Transload Facility
Monitoring Station

N

1:150,000

1 inch = 2 miles

0 0.75 1.5 mi

Carbon Monoxide

CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution. CO emissions from wood-burning stoves and fireplaces may be significant sources of this pollutant. Health effects resulting from exposure to high CO levels can include chest pain in heart patients, headaches, and reduced mental alertness. The Basin is designated as attainment for the federal and the State CO standards.

Nitrogen Dioxide

NO_x emissions are primarily generated from the combustion of fuels. The two most prevalent oxides of nitrogen are nitric oxide (NO) and NO_2. Because NO converts to NO_2 in the atmosphere over time and NO_2 is the component of greatest interest and the indicator for the larger group of nitrogen oxides, NO_2 is listed as a criteria pollutant in NAAQS and CAAQS. The control of NO_2 is important because of this pollutant's role in the atmospheric formation of O_3, which is also a criteria air pollutant and the principal component of smog. NO_2 can also provoke eye, nose, throat irritation and cause impaired lung function and increased respiratory infections in children. The Basin is currently in attainment with the State's 1-hour NO_2 standard and the federal annual arithmetic mean standards, and unclassified with the federal 1-hour standard.

Sulfur Dioxide

SO_2 is one of a group of highly reactive gases known as "oxides of sulfur". It is emitted when sulfur-containing fuel is burned, or emitted from refineries or chemical plants that treat or refine sulfur or sulfur-containing chemicals. The largest sources of SO_2 emissions are from fossil fuel combustion at power plants. Exposure to SO_2 can increase lung disease and breathing problems for asthmatics. In addition, it reacts in the atmosphere to form acid rain, which is destructive to crops and vegetation, as well as buildings and other materials. The basin has been designated as attainment for the State and federal SO_2 standards.

Particulates

PM_{10}

Particulates in the air are caused by a combination of: (1) windblown fugitive dust or road dust; (2) particles emitted directly from combustion sources (primarily carbon particles); and (3) organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, sulfur oxides, and nitrogen oxides. Inhalable particulate matter, which has a diameter of 10 microns or less, is referred to as PM_{10}. It can contribute to increased health concerns, such as respiratory disease, lung damage, heart problems, cancer, and premature death. In 1987, the EPA adopted standards for PM_{10} and phased out the previous standards. The Basin is designated as nonattainment with respect to the state PM_{10} standards, and unclassified with respect to the federal PM_{10} standards.

$PM_{2.5}$

Particles less than 2.5 micrometers in diameter are called "fine" particles, also referred to as $PM_{2.5}$. $PM_{2.5}$ sources include combustion in motor vehicles and industrial sources, residential and agricultural burning, and from atmospheric reactions involving emitted NO_x, SO_x, and organics. The potential health effects of $PM_{2.5}$ are considered more serious than those of $PM_{10,}$ as particles in the $PM_{2.5}$ range are able to travel further into the respiratory tract and permanently lodge in the deepest and most sensitive areas of the lungs. For $PM_{2.5,}$ the Basin is designated as attainment with the federal annual arithmetic mean standards, and as non-attainment with the State annual arithmetic mean standard and the federal 24-hour standard.

<u>Particulate Sulfates</u>

Particulate sulfates are the product of further oxidation of SO_2. Sulfate compounds consist of primary and secondary particles. Fuel combustion is a source of sulfates, both primary and secondary. Secondary sulfate particles are produced when SO_x emissions are transformed into particles through physical and chemical processes in the atmosphere. Primary sulfate particles are also directly emitted from open pit mines, dry lakebeds, and desert soils. Particles can be transported long distances. The Basin is in attainment with the CAAQS for sulfates, and there is no NAAQS for sulfates.

<u>Lead</u>

Lead has long been recognized by the EPA as a harmful environmental pollutant. Lead exposure can occur through multiple pathways, including breathing, ingestion of lead in food, and from deteriorating paint, contaminated water, soil, and dust. Excessive exposure to lead can trigger seizures, mental retardation, behavioral disorders, and central nervous system damage. Lead gasoline additives, nonferrous smelters, and battery plants are the most significant contributors to atmospheric lead emissions.

Legislation in the early 1970s required gradual reduction of the lead content of gasoline over a period of time, which has dramatically reduced lead emissions from mobile and other combustion sources. In addition, unleaded gasoline was introduced in 1975, and together these controls have essentially eliminated violations of the lead standard for ambient air in urban areas. There are no monitoring stations in the County that measure lead concentrations; however, the Basin is considered in attainment for lead.

<u>Other State-Designated Criteria Pollutants</u>

Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The Basin is unclassified for visibility reducing particulates and hydrogen sulfide.

4.2 IMPACT ANALYSIS

4.2.1 Methodology for Impact Analysis

The methodology behind the impact analysis for this project is multi-faceted. Air pollutant emissions of precursor organic compounds (POC), CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ were quantified for both the construction and operations of the proposed project and alternatives. Using the project's construction and operational emissions estimates, an air dispersion modeling analysis was performed to predict the maximum offsite concentrations of $PM_{2.5,}$ diesel particulate matter (DPM) (in the form of PM_{10}), and other TACs from the proposed project and project alternatives. As required by BAAQMD, the maximum offsite 1-hour and 8-hour CO concentrations attributed to the project operations were also estimated in the dispersion modeling to assess the associated air quality impacts (in terms of CO) to the local residential area in proximity to the project site. A health risk assessment (HRA) was then performed using the output from the dispersion modeling analysis to evaluate the potential public health impacts associated with the TAC emissions that could be generated by the construction and operations of the proposed project and alternatives.

Maximum predicted air quality impact and public health risk potentials associated with the proposed project and alternatives were assessed quantitatively in comparison to the significance criteria identified in Section 4.2.2. The potential for odors generated by the proposed project and alternatives at sensitive receptors in the vicinity was also assessed qualitatively. Finally, mitigation measures were applied to the proposed activities that would exceed any of the significance criteria specified in Section 4.2.2. These mitigation measures were then evaluated as to their effectiveness in reducing impacts of the proposed project and alternatives.

The emission estimates, dispersion modeling, and health risk estimates presented in this document were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. The following sections summarize the methodology behind the impact analysis of air quality and health risk for the construction and operations of the proposed project and alternatives. Additional details regarding the impact analysis methodology and analysis assumptions are presented in Appendix C.

4.2.1.1 Project Construction Emissions

Construction activities for the proposed project and alternatives would require the use of various off-road heavy construction equipment, on-road trucks, dredging equipment, and tugboats. This equipment is considered the primary construction emission sources because these sources are typically powered by diesel fuel, which generates exhaust emissions in the form of $NO_{x,}$ PM_{10}, $PM_{2.5}$, POC, CO, and SO_x. In addition, off-road vehicles, on-road vehicles and construction equipment traveling over unpaved surfaces or other earthmoving activities, such as grading and paving would generate fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$.

As described in Chapter 2.0: Proposed Project and Alternatives, construction for the proposed project is divided into two major phases that consist of a total of five main construction activities, during which different areas within the project site would be disturbed at different times. Phase 1 is proposed to begin in October 2013 and be completed in January 2015. Phase 2 construction would begin in April 2014 and be completed in October 2015. Based on the project timeline and construction scope, construction for the proposed project was broken down into the following five main construction phases:

- Phase 1A: Demolition, grading, trenching, building construction, and architectural coating activities associated with construction of the Rail Transload Operations Facility (Rail Transload Facility), storage tank replacements and improvements, pump station improvements, electric substation and storm water improvements
- Phase 1B: Grading, trenching, and paving activities associated with pipeline connections to the KLM pipeline and pipeline from the Rail Transload Facility (Rail Pipeline)
- Phase 2A: Demolition and building construction activities associated with the marine terminal construction (including dredging)
- Phase 2B: Building construction and architectural coating activities associated with retrofitting the remaining storage tanks
- Phase 2C: Grading, trenching, building construction and paving activities associated with all other components within the storage terminal

As recommended by BAAQMD (A. Kirk, personal communication, February 25, 2013), emissions associated with construction of the proposed project were calculated using the California Emissions Estimator Model (CalEEMod). This model is a statewide land use emissions modeling program that was developed in collaboration with the air districts of California. It is designed to quantify construction emissions from a variety of emission sources associated with land use projects. For construction activities, CalEEMod quantifies criteria pollutants and greenhouse gas (GHG) emissions associated with construction activities, including demolition, grading, trenching, paving, architectural coating, and building construction.

CalEEMod utilizes different calculation methodologies for each construction type to estimate emissions from different construction activities. Therefore, each of the five main construction phases for the proposed project was further broken down into different subphases in the model based on the type of construction activity. Construction activities are expected to vary substantially from day to day. For the analysis of the maximum impacts to air quality and health risk, certain construction subphases, as indicated in Appendix C, were modeled to overlap with each other based on worst-case emissions scenario assumptions during project construction. Emission sources considered in CalEEMod for the emission estimates of construction activities include the following:

- Off-road construction equipment
- On-road vehicles and mobile equipment associated with worker commute trips, vendor commute trips, and hauling trips
- Fugitive emissions from grading, demolition, truck loading, and paved and unpaved roads
- POC emissions from architectural coating an asphalt paving

Emissions of $NO_{x,}$ PM_{10}, $PM_{2.5}$, POC, CO, and SO_x from off-road construction equipment were quantified in CalEEMod using emission factors derived from the OFFROAD 2007 air quality model for off-road equipment based on the equipment type, equipment horsepower rating, and the emission tier standard of the engine. During the marine terminal construction activities, tugboats would be used to haul dredge sediment in barges offsite for proper disposal. To maintain the consistency of the emission estimation methodology, this equipment was also modeled as construction equipment in CalEEMod, and emissions from this equipment were calculated using model default emission factors corresponding to the equipment power ratings. The emission estimates for off-road construction equipment also incorporated engine load factors. As recommended by BAAQMD, all model default engine load factors used for emissions estimates of off-road equipment (except for tugboats) were reduced by 33 percent in CalEEMod before being applied in the model's emissions calculations. This adjustment was made to account for the overestimation of default load factors in OFFROAD 2007 as acknowledged by CARB (CARB, 2010). Model default load factors without further adjustment were used in estimating emissions from tugboats used during construction. The emissions from off-road construction equipment were calculated in CalEEMod based on equipment emission factors, engine load factors in combination with assumptions regarding daily operating hours, and the duration of the construction subphase during which the equipment would be operated. It should be noted that certain construction equipment is not expected to be operated every day throughout the corresponding construction phases and thus, the emissions calculated in CalEEMod for off-road construction equipment are likely to be more than the emissions that would be generated during actual construction.

Emissions associated with on-road vehicles were quantified in CalEEMod using the model default vehicle fleet mixes, the emission factors derived from the EMFAC2007 on-road mobile source emission factor model together with assumptions regarding the number and length of on-road vehicle trips for workers, vendors and hauling. On-road mobile vehicles or equipment, such as haul trucks, that would be used during construction were first modeled as off-highway trucks to quantify the emissions generated onsite. To account for the emissions that would be generated from the on-road mobile equipment during offsite transport, additional vendor trips and vehicle miles traveled were added in the on-road vehicle emission estimates.

Fugitive dust emissions in the form of PM_{10} and $PM_{2.5}$ would be generated by various source activities occurring at the project construction site. The evaluation of fugitive emissions during construction incorporated emissions sources, such as dust from material movement, demolition activities, and vehicle traffic resulting from construction. Material movement during construction is mostly associated with the grading phases, which consists of three major activities: grading equipment passes, earth bulldozing, and truck loading. Within CalEEMod, the three primary operations that would generate dust emissions during the demolition phases are mechanical or explosive dismemberment, site removal of debris, and onsite truck traffic on paved and unpaved roads. Fugitive emissions from material movement and demolition activities were quantified in CalEEMod based on model defaults assumptions along with additional project specific information. Fugitive emissions associated with vehicle traffic, such as worker and vendor commute trips and hauling trips were calculated in the model based on emission factors from EMFAC2007 along with the estimated number of trips and vehicle miles traveled.

POC off-gassing emissions would be generated by architectural coating and asphalt paving activities. POC off-gassing emissions associated with architectural coating activities are the result of evaporation of solvents contained in surface coatings. The evaluation of POC emissions generated during architectural coating for the proposed project and project alternatives included emissions from the coatings of interior and exterior surface areas of the storage tanks and other project structures. POC emissions from the architectural coatings were calculated based on the coating area and the emission factors associated with the POC content in the paint. POC off-gassing emissions would also be generated from the asphalt paving of the project parking lots, and were calculated using the model default POC emissions rate and the project assumptions regarding the parking lot area.

As indicated in Chapter 2.0: Proposed Project and Alternatives, the Rail Transload Facility, four crude oil storage tanks and their respective pipelines would be constructed during the first major construction phase to support product delivered by pipeline from the Rail Transload Facility. The operations associated with completed portions of the crude oil storage tanks, Rail Transload Facility and pipelines are expected to occur concurrently with the second major construction phase. As recommended by BAAQMD (V. Lau, personal communication, March 13, 2013), the construction emissions associated with the proposed project and project alternatives were broken down into two construction scenarios ("Air Quality (AQ) Phase 1" and "AQ Phase 2") and separate air quality impact analyses and health risk assessments were performed for each. This was done to account for the project assumptions that the Rail Transload Facility and portions of the tank farm would be in operation while the rest of the marine terminal was being constructed during the period from October 2014 to October 2015. AQ Phase 1 only considers emissions associated with construction activities that would occur before the rail operations begin in October 2014. AQ Phase 2 incorporates all emissions associated with construction activities that would occur after the rail operations begins, in addition to the operating emissions that would occur simultaneously with the remaining construction activities.

Maximum daily and annual onsite and offsite emissions from the proposed construction activities were quantified for each construction subphase in the CalEEMod model. Maximum daily emissions were first calculated for each construction subphase in the model. The maximum total daily emissions were determined by first totaling the maximum daily emissions for each construction subphase that overlaps in time during each construction year. The maximum total daily emissions in each construction year were then reported in the model output by selecting the highest maximum daily emissions of these combined overlapping phases. Likewise, total annual emissions reported in the model output were calculated by summing the annual emissions from individual construction phases occurring during each construction year. For the consistent methodology for air quality impact analysis associated with project construction emissions, total project construction emissions calculated in CalEEMod were broken down into the two scenario construction emissions based on the proposed construction timeline. Total construction emissions for each scenario were then divided by the total numbers of calendar days of the construction period in each scenario to estimate average daily construction emissions for comparison to the BAAQMD construction emission thresholds of significance. Detailed CalEEMod modeling outputs and emission breakdown are presented in Appendix C: Air Quality and Greenhouse Gas Emissions Modeling Protocol and Appendix D: Air Quality and Greenhouse Gas Emissions Calculation and Modeling Results.

With the same methodology as described above, emission calculations were performed to quantify the project construction emissions for Alternative 1. In estimating construction emissions from the project alternatives, it was assumed that the project area of the marine terminal and the duration of tank retrofit work construction would be reduced in proportion to the reduced total tank working capacity in the tank farms. Detailed reduction ratio and emission calculations for Alternative 1 are also presented in Appendix C. Detailed air quality impact analysis and health risk assessment for AQ Phase 1 and AQ Phase 2 for the proposed project and project alternatives are summarized in Section 4.2.3, Impacts and Mitigation Measures.

4.2.1.2 Operational Emissions

The project site would be designed to transport and store virgin or partially refined crude oil. The major emission sources of this project would be the marine vessels that have onboard main propulsion engines, auxiliary engines, and boilers; tugboats that also have onboard main and auxiliary engines; rail locomotives; crude oil storage tanks; and storage terminal equipment (heaters and a thermal oxidizer) that would be operating on natural gas.

Tankers

The main propulsion engines, auxiliary engines, and the offloading boilers would be the major emission sources from marine vessels associated with the proposed project operation. For the purposes of this air quality analysis, vessel emission calculations were initiated at the pilot station 54 nautical miles from berth. The emissions were quantified by mode of vessel operation. In general, marine vessels approach a port area at cruise speed but reduce speed when they are positioned within a few miles from the port (known as a precautionary area). As the ships enter the near vicinity of the docking area (within approximately 1 mile), the ships reduce speed further and maneuver to the berth with the assistance of tugboats. Generally, this process includes four operating modes: cruising, reduced speed zone (precautionary zone cruising), maneuvering, and hoteling; as further described below:

- Vessels are generally considered to be in the cruising mode while in coastal waters until entering the precautionary zone and picking up the pilot. Upon departure, the vessel would be in cruising mode from the pilot drop-off point out to coastal waters. Emission sources during this transit include the main propulsion engine and auxiliary engines.

- Vessel maneuvering mode begins from the pilot pick-up and drop-off point to and from the berth. Emission sources during this transit include the main propulsion engine, auxiliary engines, and boilers.

- Hoteling mode is the time period during which a vessel is at berth; this mode ends when the vessel leaves the berth. Emission sources while the vessel is at berth include the ship boilers and auxiliary engines. The main propulsion engine is turned off during hoteling.

- Tugboats would be used to assist the vessels during the cruising and maneuvering modes between the pilot pick-up and drop-off point and the berth. Tugboat emission sources include the main propulsion engines and auxiliary engines.

Vessel size, offloading speed, and the number of vessel offloading events in a given period all play a direct role in air emissions from the marine terminal. To estimate air quality impacts for the proposed project operation, a facility utilization scenario was developed. Actual operation could vary from this scenario; however, project maximum emissions are not expected to be greater than the chosen scenario:

- Eighteen Panamax vessels, which have average capacity of 325,000 barrels (BBLs) and pumping rate of 33,340 BBLs per hour, would call at the marine terminal each month following project ramp-up (see additional discussion in Appendix C) for offloading crude oil.

- Each marine vessel calling at the marine terminal is expected to have one boiler, two main propulsion engines (main engines), and two auxiliary generators (auxiliary engines) onboard.

- There would be one escort tugboat from the Point Bonita Light/Mile Rock Light to berth to assist the marine vessel to the dock and back out to the pilot drop-off point.

- Two tugboats would be required during docking operations, and one tugboat would be required during undocking operations.

The combustion of marine diesel fuel in the main engines and auxiliary engines generates criteria air pollutants, specifically CO, NO_x, PM_{10}, $PM_{2.5}$, SO_x, POC, and TACs. The emission calculation methodology for vessel engines is a power-based methodology. It relies on assumptions regarding engine power rating, load factor, and hours of engine operation during each trip segment. Additionally, the vessel emission factors obtained from the CARB document, Emissions Estimation Methodology for Ocean-Going Vessels (2008) was used in combination with the engine rating, load factors, and hours of engine operation to calculate emissions from vessel main engines and auxiliary engines. For example, the cruising/maneuvering times were used in conjunction with engine rating, load factor, and engine emission factors to quantify vessel emissions during the cruising and maneuvering modes.

Besides vessel main engines and auxiliary engines, the offloading boiler is also a primary vessel emission source. Offloading boilers for the proposed project would be used during the vessel maneuvering and hoteling operation modes. The combustion of boiler fuel would generate air emissions in the form of CO, NO_X, PM_{10}, $PM_{2.5}$, SO_x, POC, and TACs. Boiler emissions during the hoteling mode were calculated based on project assumptions regarding boiler fuel consumption and quantity of material offloaded in combination with emission factors obtained from the EPA publication AP42 - Fuel Oil Combustion (EPA, 2010a). Boiler fuel consumption estimates are based upon engineering estimations of specific hydraulic conditions and energy requirements to transfer crude oil from the vessel to nearby storage tanks. During maneuvering mode, the onboard boilers would be warming up. For this analysis, the warm up functions were based upon industry standards for warm-up duration and the estimated load factors. When calculating emissions for hoteling mode (offloading emissions), the boiler emission estimates were adjusted to reflect a safety practice common on tankers whereby flue gases from the boilers are vented into the vessel crude oil storage tanks. For safety purposes, some boiler flue gases would be recirculated to the vessel tank headspace via an inert gas system. These inert gases are contained in the tank headspace and are not released to atmosphere (via a marine vapor emission control system, which reduces emissions to negligible quantities) until the vessel is loaded at its next port call. This practice, required as a safety measure, also reduces the emissions of boiler exhaust gases at berth. Therefore, boiler emissions during hoteling mode were estimated with consideration of boiler inerting savings, fuel consumption estimates, offloading cargo size, and corresponding emission factors.

Tugboats are normally needed to assist a vessel to the berth and back out to the pilot drop-off point. For this project, as outlined above, it is expected that one tugboat would be required from the Point Bonita Light/Mile Rock Light to berth, to assist the marine vessel to the dock. Once at dock, two tugboats would be required during docking operation, and one tugboat would be required during undocking operation. Because tugboats would be used only during vessel transiting and maneuvering modes, emissions from tugboat main engines and auxiliary engines were only quantified for these two operational modes. Emissions from the tugboat main engines and auxiliary engines were calculated based on the tugboat time in service, as well as assumptions on tugboat engine power ratings, engine load factors, and the tugboat emission factors, which were obtained from the CARB document, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix C (CARB, 2007a). The sulfur content of diesel fuel was assumed to be 15 ppm, which is the maximum allowable sulfur content in diesel fuel sold in California.

Daily maximum emissions from vessel (main and auxiliary) engines, offloading boilers, and tugboat (main and auxiliary) engines were calculated using the assumption that only one vessel would call at the project site per day. Annual emission rates were then quantified based on the projected number of ship calls during each year. Detailed emission calculations and assumptions are presented in Appendix C.

<u>Storage Tanks</u>

Crude oil offloaded from a vessel or delivered to the facility by pipeline from the Rail Transload Facility would be pumped to aboveground, floating roof storage/transfer tanks at the proposed project storage terminal. The tanks would store the crude oil until delivered offsite via pipeline. The project proposes to use six tanks located at the East Tank Farm and replace 4 existing 500,000 BBL tanks with four new 200,000 BBL internal floating roof tanks and use the remaining 500,000 BBL internal floating roof tanks in the South Tank Farm. One existing 54,000-BBL nominal capacity tank in the South Tank Farm would be redesigned to act as a surge tank to absorb sudden rises of pressure, as well as quickly provide extra oil during a brief drop in pressure).

Crude oil comes in many different forms, depending on its point of origin. For purposes of air quality impact analysis, the most relevant characteristic is vapor pressure. To adequately and conservatively assess the emissions from storage tanks, the worst-case scenario of crude oil storage with a reid vapor pressure (RVP) of 10 was assumed for the emission calculations.

Emissions from storage tanks are also affected by the number of times a tank is emptied and filled (also known as turnover). The estimated turnover per tank ranged between 12 and 100 turnovers per year.

With the assumptions regarding crude oil vapor pressure, annual tank turnover rate, and other fittings and instrumentation, the annual VOC and toxic emissions from storage tanks were calculated using EPA's publication AP-42 and the accompanying TANKS emission modeling software program (version 4.0.9d). Detailed modeling assumptions and the modeling results are summarized in Appendix C and Appendix D, respectively.

Tanker Loading Operations and Vapor Destruction Units

The primary purpose of the proposed marine berth is crude oil offloading, but there would be occasions in which crude oil or partially refined crude oil would be loaded onto tankers. Loading operations are sources of POC emissions and subject to BAAQMD Regulation 9 Rule 7 requirement for vapor control.

In order to comply with BAAQMD rules and minimize crude vapor emissions (i.e., POC), the project includes a thermal oxidizer connected to the vessel to destroy crude vapors that would otherwise be released from the vessel tank during loading events. It is expected that natural gas would be added to the crude vapor as make up fuel for combustion in the thermal oxidizer. Emissions of NO_x and CO from combustion of crude vapor and natural gas were quantified by using the BAAQMD maximum allowable concentration (15 parts per million by volume [ppmv] for NO_x and 400 ppmv CO at 3 percent O_2) in combination with the thermal oxidizer size (rating) and usage. Emissions of POC and TACs were calculated using BAAQMD maximum allowable crude vapor loss ratio during offloading events as well as operational assumptions specified in Appendix C. Emissions of other criteria pollutants (POC, PM_{10} and SO_2) and toxic air contaminants from combustion of natural gas in the thermal oxidizer were quantified based on natural gas usage with emission factors obtained from the EPA document, AP-42 Chapter 1 – External Combustion (2010b). The total emissions from thermal oxidizer are the sum of the emissions from the combustion of crude oil vapor and natural gas during offloading events as well as the residual uncombusted POC from the vessel loading events.

Crude Oil Heaters

Five natural gas-fired heaters would be installed at the storage terminal to heat the product, as necessary. Each heater has a fuel energy input rating of either 3.4 or 12 million British thermal units per hour. Combustion of natural gas in the heaters would generate emissions of criteria air pollutants, POC, TACs, and metals (such as arsenic, cadmium, chromium, etc.). Heater emission factors for NO_x and CO were converted from the BAAQMD maximum allowable concentration for process heaters as designated by Regulation 9, emission limit 9-7-307.2. (15 ppmv for NO_x and 400 ppmv CO at 3 percent O_2), while the heater emission factors for the other criteria pollutants, POC, SO_x, and PM_{10}, and TACs were obtained from the EPA's document, AP-42 Chapter 1 – External Combustion, May 2010. Maximum hourly and annual emissions from heaters were quantified using the size (rating) and usage of heaters in combination with the corresponding emission factors.

Locomotives

Locomotives would be used to pull crude oil rail cars from out of state to the Rail Transload Facility. These locomotives would emit combustion-related pollutants. Three locomotives are anticipated to be required to bring 100 fully loaded rail cars along the BNSF rail route to the Rail Transload Facility. Upon arrival at the Rail Transload Facility, a single locomotive would be used to position the cars for offloading into the pipeline. Once the rail cars are positioned, all three locomotives would detach and continue west to the maintenance/fueling facility in Richmond, CA. During the trip from the Rail Transload Facility to Richmond one locomotive would be operating with the other two in tow. During the return trip from Richmond to the Rail Transload Facility two locomotives would be operating with the third in tow. The locomotives would return from Richmond once offloading was complete. The maximum 104 empty rail cars would only require two locomotives to pull out of the region. Locomotive emissions were analyzed within the boundaries of the BAAQMD, which coincides with the County line on its eastern boundary. The BNSF rail route crosses the county/BAAQMD line approximately at Orwood, CA. Locomotive emissions were calculated based on project assumptions regarding engine tier standards, throttle positions, duty cycles, and characteristics of rail operations. Emission factors and locomotive fuel consumption information utilized for locomotive calculations were obtained from the revised Port of Oakland 2005 Seaport Air Emissions Inventory (2008). Detailed emission calculation assumptions are summarized in Appendix C.

Rail Transload Facility

Project emissions from the Rail Transload Facility would result from a diesel-powered locomotive used to position the rail cars prior to offloading and to reconnect the rail cars once empty. Locomotives would be subject to the federal emission standards and California's non-road diesel fuel rule. Detailed emission calculation assumptions regarding the locomotive operation at the Rail Transload Facility is provided in Appendix C.

Fugitive Emissions from Valves, Flanges, and Pumps

Movement of crude oil through imperfect piping and pumps would result in small amounts of POC vapor leaks. All products handled at the facility would be transported by pipeline, ship or barge. No products would be transported by truck. The project would have various piping, pumps, and other components both at the marine terminal and at the tank farms. The fugitive emissions for each type of equipment component were calculated based on component count estimates and standard emission factors for each component type. The project would comply with BAAQMD rules regulating fugitive emissions from such equipment, thereby minimizing emissions from these sources.

Vehicle Emissions

Project operation would generate very little vehicular traffic from personally owned vehicle (POV) commuter trips, company-owned vehicles, and vendor/delivery vehicles. All crude oil would leave the project facility via pipelines with no over land trucking required, so minimal truck traffic is expected to result from project operations. Therefore, a fleet mix that primarily consists of POV was assumed in assessing the vehicle emissions from the proposed project. CalEEMod was used to quantify air emissions from vehicles. This program calculates emissions from vehicle exhaust, tire wear, brake wear, and paved road dust using model default emission factors and project specific assumptions regarding trip rates, trip types, and travel lengths. Additional details regarding vehicle emissions are provided in Appendix C.

4.2.1.3 Air Dispersion Model

Air dispersion modeling analysis was performed per the BAAQMD's Recommended Methods for Screening and Modeling Risks and Hazards and the BAAQMD CEQA Air Quality Guidelines. The modeling was performed using the EPA American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 12345).

AERMOD uses mathematical formulations to characterize the atmospheric processes that disperse the project-generated air pollutant. The analysis simulated the proposed project-related emission sources, taking into consideration physical characteristics, activity levels, and operational locations of the sources. A variety of site-specific inputs for emission sources, receptors (i.e., residential receptors), and site conditions (i.e., meteorological data) were incorporated into AERMOD for modeling. AERMOD-ready hourly surface meteorological data obtained from the BAAQMD was used in the AERMOD model as the most representative meteorological data for dispersion calculations. This meteorological data consist of parameters, such as wind direction, wind speed, temperature, cloud cover, and upper-air meteorological temperature data. Both the construction and operational emissions sources related to the proposed project and alternatives were evaluated in the AERMOD model. The offsite ground-level concentrations of $PM_{2.5}$, DPM

(PM_{10}), TACs, and CO (for operational emissions only) at various locations (receptors) around the project site were calculated in the dispersion modeling and used to assess the impacts of the proposed project relative to the thresholds of significance. Appendix C discusses in details the dispersion modeling input and the modeling methodology.

4.2.1.4 Health Risk Assessment

A HRA was performed as required by BAAQMD Regulation II, Rule 5, New Source Review, following the California EPA Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines and the BAAQMD Recommended Methods for Screening and Modeling Local Risk and Hazards. As recommended by OEHHA and BAAQMD, the CARB HARP model (version 1.4d) and HARP on-ramp (version 1 02.03.2009) were used to perform a HRA for the construction and operations of the proposed project and alternatives. The HRA analyzed the proposed project emissions and human exposure to the emissions during a 70-year period from 2013 to 2082 for AQ Phase 1 and from 2014 to 2083 for AQ Phase 2 of the construction of the proposed project and project alternative, and 2015 to 2084 for the operations of the proposed project and project alternatives.

The risk model estimates potential cancer and non-cancer risks given a particular set of air pollutants and concentrations. The cancer risk and chronic non-cancer analyses were predominantly driven by DPM concentrations and other TAC emissions from diesel exhaust. However, the HRA considered all TACs that would be generated from the proposed project, including:

- DPM from off-road construction equipment and on-road vehicle exhaust;
- DPM from the internal combustion of fuel oils (e.g., heavy fuel oil or distillate fuels, such as diesel) for propulsion and auxiliary power of OGVs and harbor craft (for all movement of vessels [tugs included] in the shipping lanes [near-berth maneuvering, mooring, and hotel/offloading] and locomotives [near and within the Rail Transload Facility]);
- various TACs from the external combustion of distillate fuels in boilers for the production of steam onboard OGVs;
- various TACs (benzene, hexane, toluene, and xylene) in fugitive crude oil emissions released from crude oil storage tanks; and
- various TACs from the combustion of natural gas and crude oil vapors in vapor destruction units and heaters.

As discussed in the previous section, offsite ground-level concentrations from the project-generated emissions were first estimated by the AERMOD dispersion model. The maximum 1-hour and annual emissions determined by AERMOD were then input into HARP for risk calculations and evaluation of potential public health effects (cancer/non-cancer risks) from TAC emissions attributed to the construction and the operation of the proposed project and alternative. HRA modeling results were summarized to include maximum annual (carcinogenic, and non-carcinogenic) and hourly (acute non-carcinogenic) adverse health effects from the proposed project's TAC emissions.

Cancer risks and the chronic non-cancer hazard were assessed for long-term exposures. According to OEHHA and BAAQMD guidelines, the duration of exposure to project emissions was taken to be 24 hours per day, 350 days per year, for 70 years at the residential receptors. The 80th percentile inhalation-only pathway method was used in the cancer risk analysis, and the chronic non-cancer hazards were assessed using the high point estimate analysis method. As required by the BAAQMD, age sensitivity factors, which take into consideration the increased susceptibility of infants and children to carcinogens as compared to adults, were also incorporated into the risk analysis.

BAAQMD guidance for HRA requires a cumulative impact analysis for the proposed project and alternatives. The project-generated $PM_{2.5}$ emissions and risk estimates were combined with the values from other non-project-related emission sources within 1,000-feet radius of the project's fence line and compared to the BAAQMD thresholds of significance for cumulative impact analysis. Non-project-related emission sources within 1,000 feet include:

- Delta Diablo Sanitation, 7th Street and Montezuma Street
- Pacific Gas & Electric Company (PG&E), 690 West 10th Street
- Stripping Workshop, 564 West 10th Street
- West 10th Street (vehicle traffic)

Cumulative analysis of $PM_{2.5}$ concentration and risk estimates were performed on both the construction and the operations of the proposed project and alternatives. Detailed analysis assumptions regarding the non-project-related emission sources are summarized in Appendix C.

4.2.2 Significance Criteria

Although the BAAQMD's adoption of significance thresholds for air quality analysis in 2010 and 2011 are the subject of recent judicial actions, the City of Pittsburg Planning Department has determined that the last version of BAAQMD CEQA Air Quality Guidelines (version May, 2011), in combination with BAAQMD's Revised Draft Options and Justification Report (BAAQMD, 2010), provide substantial evidence to support the BAAQMD recommended thresholds adopted in May, 2010. Therefore, the Planning Department has determined they are appropriate for use in this analysis as standards of significance.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following:

- Non-compliance with feasible air pollution control measures set forth in BAAQMD CEQA Guidelines (version May, 2012)
- Emissions in exceedance of the BAAQMD significance threshold levels adopted in May, 2010, or representing a significant increase when compared to background levels
- Exposure of sensitive receptors to substantial pollutant concentrations
- A cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors, as set forth by the CEQA Guidelines' Thresholds of Significance adopted by the BAAQMD in May 2010)
- Creation of objectionable odors
- Emissions in excess of the federal General Conformity de Minimis Thresholds, where applicable
- Operational non-compliance with BAAQMD rules and regulations and, therefore, inability to pass preconstruction review and receive a permit

4.2.3 Impacts and Mitigation Measures

4.2.3.1 Proposed Project

Construction-Related Impacts

Impact Air Quality (AQ)-1: Construction emissions or health risk in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (AQ Phase 1) (Significant and unavoidable). AQ Phase 1 Construction (October 2013 to September 2014) of the proposed project would create emissions from construction equipment (POC, NO_x, exhaust-related PM_{10}/$PM_{2.5}$) and fugitive dust (PM_{10}/$PM_{2.5}$). Table 4-6 shows the average daily unmitigated construction-related emissions anticipated for each year for the proposed project. A complete breakdown of expected construction emissions per construction phase is provided in Appendix C. Unmitigated average daily construction emissions exceed the BAAQMD CEQA thresholds for NO_x. The

Table 4-6: Average Daily[1] Unmitigated AQ Phase 1 Construction Emissions

Pollutant Emissions[2]	POC	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} Dust	$PM_{2.5}$ Dust
AQ Phase 1 Totals (lbs/day[3] unmitigated)	37	247	17	17	61	6
Significance Threshold (lbs/day)	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	No	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total AQ Phase 1 emissions by 365 days for the period from October 2013 to September 2014.
[2]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]lbs/day = pounds per day
[4]BMPs = best management practices

largest source of construction emissions is expected to occur during construction of the pipeline and four new tanks.

AQ Phase 1 construction activity would be performed using the required best management practices (BMPs) established by the BAAQMD CEQA Guidelines (2011b) for the control of fugitive dust (both PM_{10} and $PM_{2.5}$) and, therefore, these emissions would be less than significant as per the BAAQMD CEQA thresholds of significance. Grading operations during construction would at a minimum be subject to the following fugitive dust BMPs:

- Exposed surfaces (e.g., parking areas, staging areas, soil piles [unless covered], graded areas, and unpaved access roads) would be watered two times per day, or as necessary.
- Haul trucks transporting soil, sand, or other loose material offsite would be covered.
- Tires of haul trucks would be washed prior to exiting the site, as needed.
- The entrance/exit points to the site, if unpaved, would be stabilized (e.g., with base rock).
- Visible mud or dirt tracked-out onto adjacent public roads would be removed using wet power vacuum street sweepers at least once per day or as necessary.

- All vehicle speeds on unpaved roads would be limited to 15 miles per hour.
- Grading operations would be sequenced to minimize duration of exposed areas.
- Roadways, driveways, and sidewalks to be paved would be completed as soon as possible, and building pads would be laid as soon as possible after grading unless seeding or soil binders would be used.
- Vehicle idling times would be minimized either by shutting equipment off when not in use and/or reducing the maximum idling time to 5 minutes.
- Construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications.
- A publicly visible sign would be posted, with the telephone number and person to contact regarding dust complaints. This person would respond within 48 hours and take corrective action as appropriate. The BAAQMD's phone number would be visible to ensure compliance with applicable regulations.

As described in Chapter 2.0: Proposed Project and Alternatives, Section 2.7.2, Environmental Commitment AQ-1 commits the project to complying with the above BMPs. Additional construction related BMPs that would assist in fugitive dust control would be required and documented in a project-specific construction stormwater pollution prevention plan (SWPPP). The construction SWPPP would be prepared prior to start of construction and would remain in effect throughout the construction period (see Section 2.7.13, Environmental Commitment WR-1).

Unmitigated construction-related health risk from the proposed project (as shown in Table 4-7) would result in risk levels below the BAAQMD's thresholds of significance. Health risks resulting from unmitigated AQ Phase 1 construction of the proposed project and existing surrounding emission sources (i.e., cumulative construction-related health risks) are provided in Table 4-8. As indicated in Table 4-8, cumulative significance thresholds are significantly higher than individual project thresholds, and cumulative impacts during construction are less than significant for all significance thresholds.

With mitigation (see Mitigation Measure AQ-1), the AQ Phase 1 construction-related ambient $PM_{2.5}$ concentration increase and health risk would be reduced. Average daily construction-related NO_x emissions for AQ Phase 1 would also be reduced with mitigation, but would remain above the BAAQMD CEQA threshold, and therefore, would remain significant under CEQA.

Table 4-7: Unmitigated Project AQ Phase 1 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index[1]	$PM_{2.5}$ Increase (micrograms per cubic meter)[2]
Proposed Project	4.37	0.010	0.0	0.05
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]The only construction toxin modeled was diesel particulate matter which is not an acute toxin within the Rail Transload Facility.
[2]Occurs at resident location (596975E, 4209375N).

Table 4-8: Unmitigated Cumulative AQ Phase 1 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Proposed Project	52.0	0.115	0.214
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Mitigation Measure AQ-1: Utilize equipment with Tier II engines or newer for AQ Phase 1 construction activities occurring before commencement of rail operations. Under this mitigation measure, the construction contractor shall be responsible for supplying construction equipment with Tier II engines or newer for construction activities associated with AQ Phase I (or all construction activities occurring prior to commencement of rail operations). If the required equipment is not available, the contractor shall be required to provide documentation showing that equipment with a Tier II or newer engine is not available within 200 miles of the project site. (Transporting Tier II equipment longer distances would neutralize the emissions benefit gained by its use on site). Table 4-9 shows a summary of the calculated average daily mitigated (Tier II engines or newer) construction emissions, Table 4-10 provides the mitigated construction-related health risks, and Table 4-11 provides the health risks resulting from construction with mitigation and surrounding emission sources (i.e., cumulative construction-related health risks with mitigation).

The proposed mitigation is expected to reduce the construction-related PM_{10} and $PM_{2.5}$ exhaust emissions, cancer health risks and chronic health hazard. Construction-related NO_x emissions is also expected to be reduced, but would remain above the BAAQMD CEQA threshold, and therefore, would remain significant under CEQA. It should be noted that with the proposed mitigation, the average daily construction-related POC emissions are expected to be increased, and would exceed the BAAQMD CEQA threshold. This emission increase is due to the tradeoff of engine emission levels that Tier II off-road engines generally result in lower PM_{10}, $PM_{2.5}$ and NO_x emission rates, but higher POC emissions rates, as compared to Tier I off-road engines.

Impact AQ-2: Construction emissions or health risk in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (AQ Phase 2). (Significant and unavoidable.) Although this impact is intended to address construction emissions only, as previously described in Section 4.2.1.1, AQ Phase 2 activities (expected to occur between October 2014 to October 2015) associated with the proposed project contemplates emissions from construction equipment (POC, NO_x, exhaust-related PM_{10}/$PM_{2.5}$), fugitive dust (PM_{10}/$PM_{2.5}$), and operation of four 200,000 BBL tanks, locomotives, and the Rail Transload Facility. The following analysis takes into account not only the construction emissions associated with AQ Phase 2, but also the operational emissions associated with the completed AQ Phase 1, resulting in a conservative emissions analysis for AQ Phase 2, as a whole. Table 4-12 shows the average daily unmitigated construction-related emissions anticipated for AQ Phase 2. A complete breakdown of expected construction emissions per construction phase is provided in Appendix D. Unmitigated average daily construction emissions

Table 4-9: Average Daily[1] Mitigated AQ Phase 1 Construction Emissions

Pollutant Emissions[2]:	POC	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} Dust	$PM_{2.5}$ Dust
AQ Phase 1 Totals (lbs/day mitigated)[3]	61	173	8	8	61	6
Significance Threshold	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total AQ Phase 1 emissions by 365 days for the period from October 2013 to September 2014.
[2]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]lbs/day = pounds per day
[4]BMPs = best management practices

Table 4-10: Mitigated Project AQ Phase 1 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index[1]	$PM_{2.5}$ Increase (micrograms per cubic meter)[2]
Proposed Project	1.58	0.0036	0.0	0.018[3]
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]The only construction toxin modeled was DPM, which is not an acute toxin at or within the Rail Transload Facility.
[2]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]Occurs at resident location (596975E, 4209375N).

Table 4-11: Mitigated Cumulative AQ Phase 1 Construction-related Health Risk

	Cancer Risk (in a million)	**Chronic Hazard Index**	**$PM_{2.5}$ Increase (micrograms per cubic meter)[1]**
Proposed Project	49.3	0.109	0.182
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Table 4-12: Average Daily[1] Unmitigated AQ Phase 2 Construction Emissions

Pollutant Emissions[2]:	**POC**	**NO_x**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**PM_{10} Dust**	**$PM_{2.5}$ Dust**
AQ Phase 2 Totals (lbs/day unmitigated)	64	275	18	18	37	4
Significance Threshold	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total AQ Phase 2 emissions by 395 days for the period from October 2014 to October 2015.
[2]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]lbs/day = pounds per day
[4]BMPs = best management practices

exceed the BAAQMD CEQA thresholds for POC and NO_x. The largest source of construction emissions is expected to be tug and barge emissions during construction of the wharf and other marine features.

Construction operations would be performed using the required BMPs established by the BAAQMD CEQA Guidelines (2011b) for the control of fugitive dust (both PM_{10} and $PM_{2.5}$) and, therefore, these emissions would be less than significant, as per the BAAQMD CEQA thresholds of significance. Fugitive dust BMPs are the same as those described for AQ Phase 1 construction, described above (see Chapter 2.0: Proposed Project and Alternatives, Section 2.7.2, Environmental Commitment AQ-1.)

Unmitigated AQ Phase 2 construction-related health risk from the proposed project (as shown in Table 4-13) would result in risk levels below the BAAQMD's thresholds of significance. Health risks resulting from unmitigated AQ Phase 2 construction of the proposed project and existing surrounding emission sources (i.e., cumulative construction-related health risks) are provided in Table 4-14. As indicated in Table 4-14, cumulative impacts during construction are less than significant for all significance thresholds.

With mitigation (see Mitigation Measure AQ-2), the AQ Phase 2 construction-related ambient $PM_{2.5}$ concentration and health risk would be reduced and would remain below the thresholds of significance. Average daily construction-related NO_x and PM_{10} exhaust, and $PM_{2.5}$ exhaust emissions would also be reduced with mitigation, but NO_x emissions would remain above the BAAQMD CEQA threshold, and therefore, would remain significant under CEQA. Under this mitigated scenario, average daily construction-related POC emissions would increase and would exceed the BAAQMD CEQA threshold for AQ Phase 2; therefore, POC would remain significant under CEQA. As mentioned in the Mitigation AQ-1, the emission increase of POC with the proposed mitigation is due to the tradeoff of emission levels for Tier II off-road engines, as compared to Tier I off-road engines. Thus, this impact would be significant and unavoidable for POC and NO_x emissions.

Table 4-13: Unmitigated Project AQ Phase 2 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Proposed Project (Construction and Operation)	8.80	0.0036	0.072	0.018[2]
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[2]Occurs at resident location (597300E, 4209375N).

Table 4-14: Unmitigated Cumulative AQ Phase 2 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Proposed Project	56.5	0.109	0.182
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Mitigation Measure AQ-2: Utilize equipment with Tier II engines or newer for AQ Phase 2 construction activities occurring after commencement of rail operations. Under this mitigation measure, the construction contractor shall be responsible for supplying construction equipment with Tier II engines or newer for construction activities associated with AQ Phase 2 (or all construction activities occurring after commencement of rail operations). If the required equipment is not available, the contractor shall be required to provide documentation showing that equipment with a Tier II or newer engine is not available within 200 miles of the project site. (Transporting Tier II equipment longer distances would neutralize the emissions benefit gained by its use on site). Table 4-15 shows a summary of the calculated average daily mitigated (Tier II engines or newer) construction emissions, Table 4-16 provides the mitigated construction-related health risks, and Table 4-17 provides the health risks resulting from construction with mitigation and surrounding emission sources (i.e., cumulative construction-related health risks with mitigation).

Table 4-15: Average Daily[1] Mitigated AQ Phase 2 Construction Emissions

Pollutant Emissions[2]:	POC	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} Dust	$PM_{2.5}$ Dust
AQ Phase 2 Totals (lbs/day mitigated)	85	208	10	10	37	4
Significance Threshold	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total emissions for AQ Phase 2 by 395 days for the period from October 2014 to October 2015.

[2]Pollutants:

POC = precursor organic compounds

NO_x = nitrogen oxide

PM_{10} = particulate matter less than 10 micrometers in diameter

$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

[3]lbs/day = pounds per day

[4]BMPs = best management practices

Figure 4-16: Mitigated Project AQ Phase 2 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Proposed Project	8.73	0.003	0.072	0.017
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[2]Occurs at resident location (597300E, 4209375N).

Table 4-17: Mitigated Cumulative Project AQ Phase 2 Construction-related Health Risk

	Cancer Risk (in a million)	Chronic Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Proposed Project	56.4	0.108	0.181
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

<u>Operational Impacts</u>

Impact AQ-3: Operations emissions in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (Less than significant with mitigation). Table 4-18 provides a summary of expected average daily and maximum annual emissions from operation of the proposed project. The unmitigated proposed project is expected to produce NO_x and POC emissions in excess of the significance threshold. PM_{10} and $PM_{2.5}$ are expected to be less than the significance threshold. Operation of the proposed project would not include exposed soil; and therefore, fugitive dust is expected to be negligible.

Table 4-19 shows the calculated average 8-hour and average 1-hour local CO concentration increases resulting from the proposed project. Both the 8-hour and 1-hour local CO concentration increases are expected to remain below the BAAQMD significance threshold, and are therefore, considered less than significant. Additionally, as shown in Table 4-5, the highest recently recorded CO concentrations at nearby monitoring stations are 1.44 ppm and 4.6 ppm for the 8-hour and 1-hour averages, respectively. Therefore, the proposed project and existing background concentrations would not combine to exceed the BAAQMD significance threshold.

Table 4-18: Proposed Project Unmitigated Operational Emissions

Total Pollutant Emissions[1]	Average Daily Emissions (pounds per day)				Maximum Annual Emissions (tons per year)			
	POC	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**POC**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	236	1,747	60	40	43	319	11	7.3
Significance Threshold	54	54	82	54	10	10	15	10
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	Yes	Yes	No	No

[1]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Table 4-19: Proposed Project Operational Local CO Concentration

	8-Hour Average (parts per million)	1-Hour Average (parts per million)
Proposed Project	0.075	0.137
Significance Threshold	9.0	20.0
Exceeds Significance Threshold (Yes/No)	No	No

Mitigation Measure AQ-3: Secure emission reduction credits (ERCs) to offset NO_x and POC emissions. Proposed project NO_x and POC emissions shall be fully offset through the purchase of equivalent ERCs. Per BAAQMD Regulations 2-2-215, 302, and 303, the proposed project is required to provide operational emission offsets in the form of ERCs on a pollutant-specific basis for increased emissions of nonattainment pollutants in excess of specified thresholds. Per regulations, POC emissions and NO_x emissions would be offset with ERCs at a ratio of 1.15:1.0. Over the years, tug boat and rail locomotive engine emission standards tend to become more stringent. Starting in 2027, it was assumed that Tier IV emission standards would be in place for both of these sources. Marine vessel emissions are also expected to become cleaner over time; however, no regulatory emission standard has been approved internationally for PM_{10}/$PM_{2.5}$. Table 4-20 summarizes the mitigated proposed project operational emissions which also reflect the Tier IV engine standards, which would be less than significant under CEQA.

Table 4-20: Proposed Project Mitigated Operational Emissions

Total Pollutant Emissions[1]:	Average Daily Emissions (pounds per day)				Maximum Annual Emissions (tons per year)			
	POC	NO_x	PM_{10}	$PM_{2.5}$	POC	NO_x	PM_{10}	$PM_{2.5}$
Proposed Project	0	0	53	33	0	0	9.6	6.0
Significance Threshold	54	54	82	54	10	10	15	10
Exceeds Significance Threshold (Yes/No)	No	No	No	No	No	No	No	No

[1]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Impact AQ-4: Health risk from project operations in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines. (Less than significant.) Table 4-21 shows the maximum project-related increase in health risk for residential receptors. The project-related increase in health risk is less than the CEQA threshold for all health risk categories. Figure 4-3: Incremental Cancer Risk for Residential Receptors over a 70-Year Period for the Proposed Project shows the risk contours related to operation emissions. The risk contours are created based on a conservative assumption that residents' location would not change over 70 years. The cancer risk related to the proposed project operation is less than the significance threshold of 10 in a million at all residential points. The maximum cancer risk (9.5 in a million) in a residential location is at coordinates 597625E, 4210750N, located near the marina. Although the project would result in locations with a calculated cancer risk greater than 10 in a million, these locations are either over the water or in other non-residential areas. Similarly, Figure 4-4: Ambient $PM_{2.5}$ Concentration Increase for the Proposed Project shows that the ambient increase is below the significance threshold at all residential locations.

Table 4-21: Project-related Maximum Residential Health Risk Increase

	Cancer Risk (in a million)	**Non-Cancer Risk Hazard Index (Chronic)**	**Non-Cancer Risk Hazard Index (Acute)**	**Ambient $PM_{2.5}$ Increase[2] (μg/m^3)[3]**
Proposed Project[1]	9.5	0.013	0.088	0.018
Significance Threshold	10.0	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]Reported risk based on maximum calculated risk at a residential location (597625E, 4210750N).
[2] $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]μg/m3 = micrograms per cubic meter

Mitigation Measure: No mitigation required.

Impact AQ-5: Cumulative criteria pollutant health risk in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines. (Less than significant.) Four emissions sources were documented within 1,000 feet of the proposed project boundary as described in Section 4.2.1.4 and Appendix C. These sources include Delta Diablo Sanitation, PG&E, Stripping Workshop, and West 10th Street. Table 4-22 provides the data for the proposed project and surrounding sources for cancer risk, chronic hazard index, and ambient $PM_{2.5}$ concentration increase. Cumulative risks of the proposed project and the four surrounding sources would not result in cumulative emissions in excess of BAAQMD thresholds.

Table 4-22: Proposed Project Cumulative Health Risk

	Cancer Risk (in a million)	**Hazard Index (Chronic)**	**$PM_{2.5}$ (μg/m^3)[1]**
Proposed Project and Surrounding Sources	57.2	0.118	0.182
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Mitigation Measure: No mitigation required.

X:\WesPac\DEIR Reissue\04 Air Quality\mxd\Figure 4-3 Incremental Cancer Risk for Residential Receptors over a 70-Year Period for the Proposed Project.mxd

Figure 4-3 Incremental Cancer Risk for Residential Receptors over a 70-year Period for the Proposed Project

City of Pittsburg

WesPac Pittsburg Energy Infrastructure Project

TRC

7/2/2013

Terminal Boundary

Rail Transload Facility

Cancer Risk x 10^{-6} (in a million)

Contour Interval 2 x 10^{-6} (2 in a million)

1:20,000

N

1 inch = 1,667 feet

0 800 1,600 ft

X:\WesPac\DEIR Reissue\04 Air Quality\mxd\Figure 4-4 Ambient PM2-5 Concentration Increase for the Proposed Project.mxd

Figure 4-4
Ambient $PM_{2.5}$ Concentration Increase for the Proposed Project
City of Pittsburg
WesPac Pittsburg Energy Infrastructure Project

Terminal Boundary
Rail Transload Facility
$PM_{2.5}$ (ug/m^3)
Contour Interval: 0.01 ug/m^3

1:20,000

N

1 inch = 1,667 feet

ft
0 800 1,600

TRC

7/2/2013

Impact AQ-6: Creation of objectionable odors (Less than significant). The nature of the proposed project operations, in particular the storage and transfer of crude and partially refined petroleum products, may create odors that could be detected in existing neighborhoods, particularly just east of the East Tank Farm. Odors could be created if oils stored in the tanks volatilize, that is, if odorous chemicals are emitted from the storage tank into the air and their resulting ground level concentrations after dilution remain high enough to be detected by residents.

The proposed facility would store crude oil and partially-refined crude oil, both of which comprise a complex mixture of hydrocarbon compounds. The hydrocarbons in these oils are largely “heavy,” which means that they do not tend to volatilize. In addition, as described in Chapter 2.0: Proposed Project and Alternatives, all tanks would be upgraded or built with new internal floating roofs, new and existing external fixed roofs, and associated seals that would serve as the primary system for controlling emissions and preventing oils from volatilizing into the environment. Floating roofs with primary and secondary seals are considered the BACT for crude oil tanks by the BAAQMD, and would be incorporated into applicable permits from the BAAQMD for Terminal operations.

The proposed tank farms have been previously used to store petroleum products when operated by PG&E. Interviews with former PG&E employees indicate that odor complaints were not a common occurrence. Even with the former fixed-roof configuration that was in use at the time, complaints received by PG&E were considerably less than five complaints per year, the significance threshold set by the BAAQMD. The new floating roofs and primary and secondary seals are anticipated to reduce odors even further below the levels experienced during historical operations by PG&E. Therefore, even given the proximity of the residential community, the proposed project is not expected to create odors that would generate complaints above the threshold frequency.

Mitigation Measure: No mitigation required.

Impact AQ-7: Emissions in exceedance of the General Conformity de Minimis Thresholds (Less than significant). Approval of the proposed project would not be dependent on federal funding or action and would, therefore, be excluded from the General Conformity Rule. As such, the General Conformity de Minimis Thresholds would not be not applicable and the proposed project is considered less than significant for this criterion.

Mitigation Measure: No mitigation required.

Impact AQ-8: Operational non-compliance with BAAQMD rules and regulations and, therefore, inability to pass pre-construction review and receive a permit (Less than significant). Emissions related to the operation of the proposed project would meet the BAAQMD rules and requirements, and necessary operating permit(s) would be obtained from the BAAQMD.

Mitigation Measure: No mitigation required.

4.2.3.2 Alternative 1: Reduced Onshore Storage Capacity

Construction-related Impacts

Impact AQ-9: Construction emissions or health risk in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (Significant and unavoidable). AQ Phase 1 construction (October 2013 to September 2014) for Alternative 1 is expected to be the same as AQ Phase 1, for the proposed project. Refer to Impact AQ-1 and Mitigation Measure AQ-1 for a discussion of these impacts. AQ Phase 2 construction (October 2014 to October 2015) of Alternative 1 would create similar but somewhat less total emissions as compared to the proposed project. Table 4-23 shows the average daily unmitigated construction-related emissions for AQ Phase 2 construction. A complete breakdown of expected construction emissions per construction phase is provided in Appendix D. Average daily construction emissions under Alternative 1 would be slightly less than the proposed project, but would remain above the BAAQMD CEQA thresholds for POC and NO_x. Similar to the proposed project, construction of Alternative 1 would be performed under BMPs for the control of fugitive dust (both PM_{10} and $PM_{2.5}$), and therefore, these emissions would be less than significant per the BAAQMD CEQA thresholds of significance.

Alternative 1 construction-related health risks and ambient $PM_{2.5}$ increase are summarized in Table 4-24. Similar to the proposed project, both the health risk and the ambient $PM_{2.5}$ increase are below the thresholds of significance. As indicated in the modeling output in Appendix D, Alternative 1's total unmitigated annual emissions of POC, NO_x, exhaust $PM_{10,}$ and exhaust $PM_{2.5}$ throughout AQ Phase 2 are reduced from the proposed project by 9 percent, 4 percent, 5 percent, and 5 percent, respectively. It should be noted that although the construction emissions of Alternative 1 would be lower than those of the proposed project, a smaller construction area would be involved for Alternative 1. Therefore, the construction-generated ambient $PM_{2.5}$ concentration increase is expected to be approximately the same as that of the proposed project, as shown in Table 4-13.

Cumulative health risk impacts resulting from the construction of Alternative 1 and existing surrounding emission sources are provided in Table 4-25. Cumulative impacts during construction are less than significant for all thresholds.

Table 4-23: Average Daily[1] Unmitigated AQ Phase 2 Construction Emissions for Alternative 1

Pollutant Emissions[2]:	POC	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} Dust	$PM_{2.5}$ Dust
AQ Phase 2 Totals (lbs/day unmitigated)	58	263	17	17	31	3
Significance Threshold	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total AQ Phase 2 emissions by 365 days for the period from October 2014 to October 2015.
[2]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]lbs/day = pounds per day
[4]BMPs = best management practices

Table 4-24: Unmitigated AQ Phase 2 Construction-related Health Risk for Alternative 1

	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Alternative 1	8.79	0.0036	0.072	0.018[2]
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[2]Occurs at resident location (597300E, 4209375N).

Table 4-25: Unmitigated Cumulative AQ Phase 2 Construction-related Health Risks for Alternative 1

	Cancer Risk (in a million)	Chronic Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Alternative 1	56.5	0.108	0.182
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Mitigation Measure AQ-4: Utilize construction equipment with Tier II engines or newer. Discussion of this mitigation measure is provided above for Impact AQ-1 and AQ-2. Table 4-26 provides the calculated average daily mitigated construction emissions, Table 4-27 provides the mitigated construction-related health risks, and Table 4-28 provides the health risks associated with Alternative 1 mitigated construction and surrounding emission sources (cumulative construction-related health risks with mitigation).

Construction-related PM_{10} and $PM_{2.5}$ exhaust emissions, health risk, and the ambient $PM_{2.5}$ concentration increase would be reduced with the proposed mitigation and would remain less than the significance threshold. Construction-related NO_x emissions would also be reduced with mitigation, but would remain above the BAAQMD CEQA threshold. Construction-related POC emissions would be increased with the proposed mitigation and remain above the BAAQMD CEQA threshold due to the tradeoff of engine emission levels for Tier II off-road engines, as discussed in the above sections. Therefore, these two criteria (POC and NO_x) would remain significant under CEQA.

Table 4-26: Average Daily[1] Mitigated AQ Phase 2 Construction Emissions for Alternative 1

Pollutant Emissions[2]:	**POC**	**NO_x**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**PM_{10} Dust**	**$PM_{2.5}$ Dust**
AQ Phase 2 Totals (lbs/day mitigated)	78	201	10	10	31	3
Significance Threshold	54	54	82	54	BMPs[4]	BMPs
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	No	No

[1]Average daily emissions were calculated by dividing total AQ Phase 2 emissions by 365 days for the period from October 2014 to October 2015.
[2]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[3]lbs/day = pounds per day
[4]BMPs = best management practices

Table 4-27: Mitigated AQ Phase 2 Construction-related Health Risk for Alternative 1

	Cancer Risk (in a million)	**Chronic Hazard Index**	**Acute Hazard Index**	**$PM_{2.5}$ Increase (micrograms per cubic meter)[1]**
Alternative 1	8.73	0.0034	0.072	0.017[2]
Significance Threshold	10	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
[2]Occurs at resident location (597300E, 4209375N).

Table 4-28: Mitigated Cumulative AQ Phase 2 Construction-related Health Risk for Alternative 1

	Cancer Risk (in a million)	Chronic Hazard Index	$PM_{2.5}$ Increase (micrograms per cubic meter)[1]
Alternative 1	56.4	0.108	0.181
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1] $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

<u>Operational Impacts</u>

Impact AQ-10: Operations emissions in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (Less than significant with mitigation). Table 4-29 provides a summary of expected emissions from operation of Alternative 1. It is estimated that Alternative 1 would reduce total annual POC, NO_x, PM_{10} (exhaust and fugitive) and $PM_{2.5}$ (exhaust and fugitive) emissions by approximately 18 percent, 16 percent, 11 percent, and 16 percent, respectively. Similar to the proposed project, Alternative 1 is expected to produce NO_x and POC emissions in excess of the significance threshold. PM_{10}, $PM_{2.5}$, and $PM_{10}/PM_{2.5}$ (fugitive dust only) are expected to be less than the significance thresholds.

Table 4-30 shows the calculated average 8-hour and average 1-hour local CO concentrations resulting from Alternative 1. Both the 8-hour and 1-hour local CO concentrations are the same as the proposed project and are expected to remain below the BAAQMD significance threshold, including the addition of existing background concentrations (refer to Impact AQ-3).

Operations-related NO_x and POC emissions would be fully offset under this mitigation measure, and, therefore, would be below the BAAQMD CEQA threshold and less than significant under CEQA.

> **Mitigation Measure AQ-5: Secure ERCs to offset NO_x and POC emissions.** Refer to discussion in Impact AQ-3 above. Table 4-31 provides the mitigated operational emissions for Alternative 1.

Table 4-29: Unmitigated Operational Emissions for Alternative 1

Total Pollutant Emissions[1]:	Average Daily Emissions (pounds per day)				Maximum Annual Emissions (tons per year)			
	POC	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**POC**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	194	1,466	53	34	35	268	9.8	6.1
Significance Threshold	54	54	82	54	10	10	15	10
Exceeds Significance Threshold (Yes/No)	Yes	Yes	No	No	Yes	Yes	No	No

[1]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Table 4-30: Operational Local CO Concentration for Alternative 1

	8-Hour Average (parts per million)	**1-Hour Average (parts per million)**
Alternative 1	0.075	0.137
Significance Threshold	9.0	20.0
Exceeds Significance Threshold (Yes/No)	No	No

Table 4-31: Mitigated Operational Emissions for Alternative 1

Total Pollutant Emissions[1]:	Average Daily Emissions (pounds per day)				Maximum Annual Emissions (tons per year)			
	POC	NO_x	PM_{10}	$PM_{2.5}$	POC	NO_x	PM_{10}	$PM_{2.5}$
Proposed Project	0	0	47	27	0	0	8.6	5.0
Significance Threshold	54	54	82	54	10	10	15	10
Exceeds Significance Threshold (Yes/No)	No	No	No	No	No	No	No	No

[1]Pollutants:
POC = precursor organic compounds
NO_x = nitrogen oxide
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Impact AQ-11: Health risk from project operations in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (Less than significant). Table 4-32 shows the maximum residential increase in health risks for Alternative 1. Figure 4-5: Incremental Cancer Risk for Residential Receptors over a 70-Year Period for Alternative 1 shows the risk contours related to operation. The cancer risk is less than the significance threshold of 10 in a million at all residential points. The maximum cancer risk for this alternative in a residential location (7.29 in a million) is at coordinates 597625E, 4210750N, near the marina.

Similar to the proposed project, Alternative 1 would result in locations with a calculated cancer risk greater than 10 in a million. These locations are either over the water or in other non-residential areas. Also similar to the proposed project, Figure 4-6: Ambient $PM_{2.5}$ Concentration Increase for Alternative 1, shows that the ambient increase is below the threshold at all residential locations.

X:\WesPac\DEIR Reissue\04 Air Quality\mxd\Figure 4-5 Incremental Cancer Risk for Residential Receptors over a 70-year Period for Alternative 1.mxd

Figure 4-5 Incremental Cancer Risk for Residential Receptors over a 70-Year Period for Alternative 1

City of Pittsburg

WesPac Pittsburg Energy Infrastructure Project

TRC

7/2/2013

Terminal Boundary

Rail Transload Facility

Cancer Risk x 10^{-6} (in a million)

Contour Interval 2 x 10^{-6} (2 in a million)

N

1:20,000

1 inch = 1,667 feet

0 800 1,600 ft

X:\WesPac\DEIR Reissue\04 Air Quality\mxd\Figure 4-6 Ambient PM2-5 Concentration Increase for Alternative 1.mxd

Figure 4-6
Ambient $PM_{2.5}$ Concentration Increase for Alternative 1
City of Pittsburg
WesPac Pittsburg Energy Infrastructure Project

Terminal Boundary
Rail Transload Facility
$PM_{2.5}$ (ug/m^3)
Contour Interval: 0.01 ug/m^3

1:20,000

N

1 inch = 1,667 feet

0 800 1,600 ft

TRC

7/2/2013

Table 4-32: Maximum Residential Health Risk for Alternative 1

	Cancer Risk (in a million)	**Non-Cancer Risk Hazard Index (Chronic)**	**Non-Cancer Risk Hazard Index (Acute)**	**Ambient $PM_{2.5}$ Increase[2] ($\mu g/m^3$)**
Alternative 1[1]	7.29	0.011	0.087	0.015
Significance Threshold	10.0	1.0	1.0	0.3
Exceeds Significance Threshold (Yes/No)	No	No	No	No

[1]Reported risk based on maximum calculated risk at a residential location (597625E, 4210750N).
[2]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter µg/m3 = micrograms per cubic meter

Mitigation Measure: No mitigation required.

Impact AQ-12: Cumulative criteria pollutant health risk in excess of the thresholds of significance identified in the BAAQMD CEQA Guidelines (Less than significant). Cumulative health risks associated with Alternative 1 would be similar to, but somewhat less than, those of the proposed project. Table 4-33 provides the data for Alternative 1 and surrounding sources for cancer risk, chronic hazard index, and $PM_{2.5}$ increase. Cumulative risks for Alternative 1 and the four surrounding sources would not result in cumulative emissions in excess of BAAQMD thresholds.

Table 4-33: Cumulative Health Risk for Alternative 1

	Cancer Risk (in a million)	**Chronic Hazard Index**	**$PM_{2.5}$ Increase (micrograms per cubic meter)[1]**
Alternative 1 and Surrounding Sources	55.0	0.115	0.179
Significance Threshold	100	10.0	0.8
Exceeds Significance Threshold (Yes/No)	No	No	No

[1]$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter

Mitigation Measure: No mitigation measures required.

Impact AQ-13: Creation of objectionable odors (Less than significant). Similar to the proposed project, the nature of the project operations under Alternative 1 has the potential to create odors in excess of concentrations that may cause odor complaints. However, the proposed South Tank Farm has been previously used to store petroleum products when operated by PG&E. As stated under Impact AQ-6, interviews with former PG&E employees indicate that odor complaints were not a common occurrence and were considerably less than the five complaints per year significance threshold set by the BAAQMD. Alternative 1 would include replacement of 4 existing tanks and refurbishment of all other remaining tanks (except for those located in within the East Tank Farm). All new or retrofitted tanks would have fixed external roofs and be fitted with floating internal roofs with primary and secondary seals, as per the latest industry standards for emission control. This is anticipated to reduce odors below the levels experienced during operations by PG&E. Therefore, Alternative 1 is not expected to create odors that would generate complaints above the threshold frequency. In addition, Alternative 1 would not include the use of storage tanks within the East Tank Farm. The East Tank Farm is the area of the project closest to residences; therefore, Alternative 1 would be expected to even further reduce the likelihood of objectionable odor beyond that expected under the proposed project.

Mitigation Measure: No mitigation measures required.

Impact AQ-14: Emissions in exceedance of the General Conformity de Minimis Thresholds (Less than significant). Approval of Alternative 1 would not be dependent on federal funding or action and would, therefore, be excluded from the General Conformity rule. As such, the General Conformity de Minimis Thresholds would not be applicable, and the proposed project is considered less than significant for this criterion.

Mitigation Measure: No mitigation required.

Impact AQ-15: Operational non-compliance with BAAQMD rules and regulations and, therefore, inability to pass pre-construction review and receive a permit. (Less than significant.) Emissions related to the operation of Alternative 1 would be expected to meet the BAAQMD rules and requirements, and it would be expected that the necessary operating permit(s) can be applied for and granted from the BAAQMD.

Mitigation Measure: No mitigation required.

4.2.3.3 Alternative 2: No Project

Under this alternative, construction and operation of the proposed project would not occur. Emissions, health risk, and odors would not be generated above current existing levels.

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