

**Initial Study/Negative Declaration for the  
Amendments to Bay Area Air Quality  
Management District Regulation 9, Rule 8**

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# Chapter 1

## Introduction

### **Purpose of this Document**

This Initial Study/Negative Declaration (IS/ND) assesses the environmental impacts of the proposed adoption of amendments to Regulation 9, Rule 8, by the Bay Area Air Quality Management District (BAAQMD or District). This assessment is required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §1400 et seq.). An IS/ND serves as an informational document to be used in the decision-making process for a public agency that intends to carry out a project; it does not recommend approval or denial of the project analyzed in the document. The BAAQMD is the lead agency under CEQA and must consider the impacts of the proposed rule amendments when determining whether to adopt them. The BAAQMD has prepared this IS/ND because no significant adverse impacts would result from the proposed rule amendments.

### **Scope of this Document**

This document evaluates the potential impacts of the proposed amendments on the following resource areas:

- aesthetics,
- agricultural resources,
- air quality,
- biological resources,
- cultural resources,
- geology and soils,
- hazards and hazardous materials
- hydrology and water quality,
- land use planning,
- mineral resources,
- noise,

- population and housing,
- public services,
- recreation,
- transportation and traffic, and
- utilities and service systems.

### **Impact Terminology**

The following terminology is used in this IS/ND to describe the levels of significance of impacts that would result from the proposed rule amendments:

- An impact is considered *beneficial* when the analysis concludes that the project would have a positive effect on a particular resource.
- A conclusion of *no impact* is appropriate when the analysis concludes that there would be no impact on a particular resource from the proposed project.
- An impact is considered *less than significant* if the analysis concludes that an impact on a particular resource topic would not be significant (i.e., would not exceed certain criteria or guidelines established by BAAQMD). Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that an impact on a particular resource topic would be significant (i.e., would exceed certain criteria or guidelines established by BAAQMD), but would be reduced to a less than significant level through the implementation of mitigation measures.

### **Organization of This Document**

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, “Introduction,” identifies the purpose, scope, and terminology of the document.
- Chapter 2, “Description of the Proposed Rule,” provides background information of Regulation 9, Rule 9, describes the proposed rule amendments, and describes the area and facilities that would be affected by the amendments.
- Chapter 3, “Environmental Checklist,” presents the checklist responses for each resource topic. This chapter includes a brief setting description for each resource

area and identifies the impact of the proposed rule amendments on the resources topics listed in the checklist.

- Chapter 4, “References Cited,” identifies all printed references and personal communications cited in this report.

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## Chapter 2

# Description of the Proposed Rule

### Background

The Bay Area Air Quality Management District (District) is proposing adoption of Regulation 9, Rule 8 (Rule 9-8): Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Stationary Internal Combustion (IC) Engines. This proposed rule would control air pollution from Stationary Internal Combustion (IC) Engines used as both primary and backup engines to generate electricity and power pumps and compressors. The District proposes adoption of amendments to Rule 9-8 to fulfill a commitment proposed in its Senate Bill (SB) 656 Particulate Matter Implementation Schedule.

Stationary IC engines are currently regulated under Rule 9-8. IC engines are fueled by diesel, natural gas and liquid petroleum gas (LPG), refinery fuel gas, digester gas and landfill gas. Staff has identified nearly 5500 stationary IC engines located within the District. Rule 9-8 was designed to regulate emissions of NOx and CO from stationary IC engines of 250 brake horsepower (bhp) or greater powered by gaseous fuels. Currently the rule does not include emissions limits for liquid-fueled engines such as diesel engines or engines below 250 bhp. (Over 80 percent of the engines identified are powered using diesel fuel.) Rule 9-8 currently affects about 200 of the more than 5,000 stationary IC engines within the District.

The District is proposing amendments to Rule 9-8 to expand the scope of the rule to regulate NOx emissions from smaller stationary IC engines of 50 brake horse power (bhp) or larger; regulate NOx emissions from liquid-fueled engines such as diesel engines, and reduce the emissions limits for NOx for all affected stationary IC engines.

IC engines generate power through explosive combustion of an air/fuel mixture in an enclosed chamber. IC engines range in size from relatively small engines (less than 50 bhp) to extremely large engines (thousands of horsepower) and are used primarily to generate electricity, operate pumps and compressors, and power water pumps for irrigation. There are two primary types of IC engines: compression-ignited (CI) and spark-ignited (SI) engines. All IC engines operate under one of three modes: rich burn (excess fuel), stoichiometric (a chemical balance between fuel and oxygen), or lean burn (excess air). Generally, uncontrolled engines that run rich emit higher levels of hydrocarbons (HC) and CO, and lower levels of NOx and particulate matter (PM); while uncontrolled engines that run lean emit less HC and CO, and emit higher NOx and PM.

CI engines run lean (excess air) using diesel fuel or other longer-chained hydrocarbons, including fuel oil, distillate oil, or jet fuel. CI engines operate by compressing air, which increases the temperature of the air. When a gas is compressed, both its pressure and temperature increase. A diesel engine uses this property to ignite the air fuel mixture and



power the engine. The larger fraction of stationary IC engines in the District are CI engines, of which, diesel-fueled engines are the vast majority.

SI engines refer to internal combustion engines where the fuel-air mixture is ignited with a spark. The term contrasts with CI engines, where the heat from compression alone ignites the mixture. Most SI engines burn gaseous fuels such as natural gas, LPG, propane or waste gas from landfills or digesters. Natural gas fired spark-ignited engines are the second largest category of stationary IC engines in the Bay Area. These engines are operated as either rich-burn (excess fuel) or lean-burn.

Stationary IC engines can be used as emergency standby engines or prime engines. Emergency standby engines are typically used for emergency back-up electric power generation or the emergency pumping of water. In the District, there are over 4,700 emergency standby engines ranging in size from less than 10 bhp to almost 4,000 bhp. Currently, Rule 9-8 exempts these engines from emission standards, provided the annual hours of operation for reliability testing and maintenance do not exceed 100 hours. Emergency standby engines are fueled by both liquid and gaseous fuels.

Prime engines are stationary engines that are not used in an emergency back-up or standby mode. There are approximately 700 prime engines within the District. These engines are used primarily to generate electricity, or to power compressors, pumps, cranes, generators, and grinders. As with emergency and standby engines, prime engines are fueled by both liquid and gaseous fossil fuels. Prime engines may also be powered by waste, digester and landfill gases, which may require natural gas as a supplemental fuel.

Collectively, the total current inventory of NO<sub>x</sub> emissions from stationary engines in the Bay Area is estimated to be 14.8 tons per day (tpd). The NO<sub>x</sub> emitted from stationary diesel engines is estimated to be 6.8 tpd, about 46 percent of the 14.8 tpd total. The total PM inventory for stationary IC engines is estimated to be 2.6 tpd; 1.6 tpd of which is attributable to stationary diesel engines. CO emissions total about 5.1 tpd.

Stationary IC engines directly emit NO<sub>x</sub> and PM emissions. (Diesel engines are a large source of primary PM emissions.) The NO<sub>x</sub> emitted contributes to ozone formation and is also responsible for the secondary PM formation. These engines also emit hydrocarbons (HC) and carbon monoxide (CO). Ozone is formed from the reaction of NO<sub>x</sub> and HC. The formation of particulate matter from NO<sub>x</sub> through chemical reactions is termed “secondary PM formation.”<sup>1</sup> Reducing NO<sub>x</sub> emissions would help to reduce secondary PM formation and also would help reduce ozone formation. Ozone, CO and PM are criteria pollutants that are subject to District and State regulation. The Bay Area, like most of the State, is classified as non-attainment for the State PM<sub>10</sub> and PM<sub>2.5</sub> standards. The Bay Area also is a non-attainment area for the State ozone standards. The

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<sup>1</sup> The term “NO<sub>x</sub>” is used to collectively refer to nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). Most NO, once emitted, reacts rapidly in the atmosphere to form NO<sub>2</sub>. NO<sub>2</sub>, in addition to reacting with HC to form ozone, reacts in the atmosphere to form PM – both PM<sub>10</sub> (ten microns (µm) or less in size) and PM<sub>2.5</sub> (2.5 µm or less).

Bay Area has not yet been classified for the new federal PM<sub>2.5</sub> standard. State law requires that the region make progress in reducing ambient ozone and PM levels.

Both NO<sub>x</sub> and PM present public health risks. Ozone produced from chemical reactions involving NO<sub>x</sub> and volatile organic compounds may damage lung tissues and the respiratory tract. Once inhaled, PM may become lodged in the respiratory tract and lead to wheezing, nose and throat irritation, bronchitis, and lung damage.

### **Objectives**

The objective of amended Rule 9-8 is to reduce PM and NO<sub>x</sub> emissions from IC engines in order to reduce particulate matter and ozone levels in the Bay Area. The Bay Area is not in attainment with the State particulate matter and ozone standards, so further reductions in emissions of PM and ozone precursors are needed.

The Bay Area is not in attainment of the California annual PM<sub>10</sub> (particulate matter of 10 microns or less in diameter) or PM<sub>2.5</sub> standards or the California 24-hour PM<sub>10</sub> standard. The Bay Area is unclassified for the federal 24-hour PM<sub>10</sub> and new PM<sub>2.5</sub> standard.

The BAAQMD is not required to produce an attainment plan for particulate matter. However, under the requirements of Senate Bill 656 (SB 656, Sher), adopted in 2003, the District is required to develop a Particulate Matter Implementation Schedule in order to make progress toward attaining state and federal PM standards. The proposed amendments Rule 9-8 are included in the District's PM Implementation Schedule as one of the measures that the BAAQMD could adopt to reduce particulate matter.

The U.S. Environmental Protection Agency (U.S. EPA) has set primary national ambient air quality standards for ozone and other air pollutants to define the levels considered safe for human health. The California Air Resources Board (CARB) has also set California air quality standards. The Bay Area is a non-attainment area for the state one-hour standard and new federal eight-hour standard, and is unclassified for the new California eight-hour ozone standard. Under State law, non-attainment areas must prepare plans showing how they will attain the state standard. The 2005 Ozone Strategy is the most recent planning document for the State one-hour ozone standard. Because the Bay Area is a marginal non-attainment area for the national eight-hour standard, the least severe non-attainment classification, the BAAQMD is not required to prepare an attainment plan for the national standard.

The 2005 Ozone Strategy includes measures to reduce emissions of the pollutants that form ozone, i.e., NO<sub>x</sub> and volatile organic compounds (VOCs). These measures may be proposals to adopt new regulations or amendments to existing regulations. The 2005 Ozone Strategy also includes further study measures. Further study measures require additional analysis before the District can determine whether to proceed with rulemaking or implementation. Further study measures proposed examining potential control of emissions from internal combustion engines by expanding the scope of the rule.

Reduction of NO<sub>x</sub> emissions from stationary internal combustion engines is a further study measure (FS-15) in the 2005 Ozone Strategy.

### **Proposed Rule**

The District is proposing amendments to Regulation 9, Rule 8 (Rule 9-8) to provide the maximum feasible NO<sub>x</sub> reduction and to reduce PM levels and ground level ozone in the Bay Area and neighboring air basins. These standards reflect best technology advancements since this rule was last amended. The District is proposing amendments that would change the current rule in three primary ways.

- 1) Rule 9-8 would be expanded to apply to IC engines in the range of 50 to 250 bhp. Currently, emission limits of the rule apply only to engines of 250 bhp or more.
- 2) The amendments propose to include liquid-fueled engines, such as diesel-fired engines. The emission limits of the rule currently only apply to gaseous-fueled engines, which are primarily natural gas- and LPG-fueled engines.
- 3) NO<sub>x</sub> emissions limits would be reduced to reflect the most stringent existing limits in the State.

The proposed amendments reflect emission limits achievable with the most stringent demonstrated retrofit control technology available for spark-ignited engine sizes of greater than 50 bhp. The proposed amendments would also incorporate the more stringent future-effective U.S. EPA standards for diesel engines for NO<sub>x</sub> and CO. Existing spark ignited engines and compression ignited engines would have to be in compliance with the more stringent standards by 2012. Separate standards are provided for SI and CI engines powered by waste-derived fuels such as landfill and digester gas.

Operators of existing CI engines or SI engines of model year 1996 or later and small (50 – 250 bhp) SI engines could elect to comply with more stringent standards in 2016. The 2016 standards would reflect EPA Tier 4 standards of 22 ppm NO<sub>x</sub> and 310 ppm CO or Best Available Control Technology (BACT) at that time for CI engines. BACT would apply for SI engines.

Requiring standards consistent with compliance with the U.S. EPA Tier 3 or Interim Tier 4 standards for NO<sub>x</sub> and CO would ensure that operators replacing or retrofitting engines to comply with the CI Engine ATCM would also meet the federal NO<sub>x</sub> and CO emissions standards for new engines. The U.S. EPA standards only affect new diesel engines and only 50 percent of new engines offered for sale nationwide in each model year are required to meet those standards. Further, because compression-ignited engines generally have long operating lives (10 to 20 years), there is the possibility that facilities could operate diesel engines for many years to come that emit higher levels of NO<sub>x</sub> than is specified in the U.S. EPA Tiered Standards.

The proposed amendments would allow the operators of those engines no older than model year 1996 until 2016 to comply with the emissions limits of the rule. The final tiered standards for NO<sub>x</sub> and CO begin to take effect starting in 2013. This extra time

would provide an opportunity for the operators of more recently purchased engines to recoup most of the useful operating life of their diesel engines. The proposed amendments are summarized in Table 2-1.

**TABLE 2-1  
Summary of Proposed NOx Emission Limits for  
Existing Prime IC Engines**

| Engine Type and Fuel   | Existing Engines  |                  |
|--|---|------------------|
|  | Emission Limits<br>(ppmv, dry @ 15%<br>O <sub>2</sub> ) | Compliance Dates |
| Compression-Ignited<br>(All Engines 51 to 175 bhp)                             | 180   | January 2012     |
| Compression-Ignited<br>(All Engines greater than 175 bhp)                      | 110   | January 2012     |
| Compression-Ignited<br>(Alt. limits for 1996 or later)                         | 22 or BACT at time of<br>compliance                     | January 2016     |
| Spark-Ignited: Gaseous & Liquid  | 25 (rich <sup>a</sup> )<br>65 (lean <sup>b</sup> )      | January 2012     |
| Spark-Ignited<br>Waste Gas   | 70  | January 2012     |
| Spark-Ignited<br>(Alt. limits for 1996 or later or sized<br>less than 250 bhp) | BACT at time of<br>compliance                           | January 2016     |

- a. Rich burn engines operate using an air to fuel ratio that is close to the stoichiometric balance (excess fuel); this combustion ratio results in a small fraction of the fuel remaining uncombusted and exiting in the exhaust stream.
- b. Lean burn engines operate with excess air and can result in increased formation of NOx.

The proposed NOx emission reductions for stationary IC engines greater than 50 bhp are summarized in Table 2-2. The proposed PM emission reductions are shown in Table 2-3.

**TABLE 2-2  
NOx Emissions by Fuel Used and Engine Type for the Current and Proposed  
Amendments to Rule 9-8**

| Fuel Type                  | Engine Type             |                     |                   |                     |                   |                     |                   |                     |
|----------------------------|-------------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|
|                            | Emergency Standby (tpd) |                     | Low Usage (tpd)   |                     | Prime (tpd)       |                     | All Engines (tpd) |                     |
|                            | Current Emissions       | Emission Reductions | Current Emissions | Emission Reductions | Current Emissions | Emission Reductions | Current Emissions | Emission Reductions |
| Diesel, Fuel Oil, Jet Fuel | 3.1                     | 1.4                 | 0.07              | 0                   | 3.6               | 2.8                 | 6.8               | 4.2                 |
| Spark-Ignited Fossil Fuels | 0.04                    | 0.01                | 0                 | 0                   | 2.4               | 1.6                 | 2.4               | 1.6                 |
| Spark-Ignited Waste Fuels  | 0                       | 0                   | 0                 | 0                   | 5.6               | 3.8                 | 5.6               | 3.8                 |
| <b>Emissions Totals</b>    | <b>3.1</b>              | <b>1.4</b>          | <b>0.07</b>       | <b>0</b>            | <b>11.6</b>       | <b>8.2</b>          | <b>14.8</b>       | <b>9.6</b>          |
| <b>Percent Reductions</b>  | <b>45%</b>              |                     | <b>0%</b>         |                     | <b>71%</b>        |                     | <b>65%</b>        |                     |

**TABLE 2-3  
PM Emissions by Fuel Used and Engine Type for the Current and Proposed  
Amendments to Rule 9-8**

| Fuel Type                  | Engine Type             |                     |                   |                     |                   |                     |                   |                     |
|----------------------------|-------------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|
|                            | Emergency Standby (tpd) |                     | Low Usage (tpd)   |                     | Prime (tpd)       |                     | All Engines (tpd) |                     |
|                            | Current Emissions       | Emission Reductions | Current Emissions | Emission Reductions | Current Emissions | Emission Reductions | Current Emissions | Emission Reductions |
| Diesel, Fuel Oil, Jet Fuel | 0.39                    | 0.11                | 0.01              | 0                   | 0.45              | 0.39                | 0.85              | 0.53                |
| Spark-Ignited Fossil Fuels | 0                       | 0                   | 0                 | 0                   | 0.30              | 0.20                | 0.30              | 0.20                |
| Spark-Ignited Waste Fuels  | 0                       | 0                   | 0                 | 0                   | 0.69              | 0.48                | 0.69              | 0.48                |
| <b>Emissions Totals</b>    | <b>0.39</b>             | <b>0.11</b>         | <b>0.01</b>       | <b>0</b>            | <b>1.44</b>       | <b>1.07</b>         | <b>1.84</b>       | <b>1.21</b>         |
| <b>Percent Reductions</b>  | <b>27%</b>              |                     | <b>0%</b>         |                     | <b>74%</b>        |                     | <b>66%</b>        |                     |

There are three primary approaches for emissions reduction control for stationary IC engines: 1) Combustion Modification; 2) Fuel Switching; and 3) Post Combustion (Exhaust) Controls. Combustion modifications affect the way fuel is combusted or “burned.” Some of these techniques include changing the air to fuel ratio, reducing the peak combustion temperature, shortening the residence time at high temperatures, or adjusting the ignition or injection timing. Fuel switching involves using another fuel that produces less NOx or PM, such as clean diesel fuel or methanol.

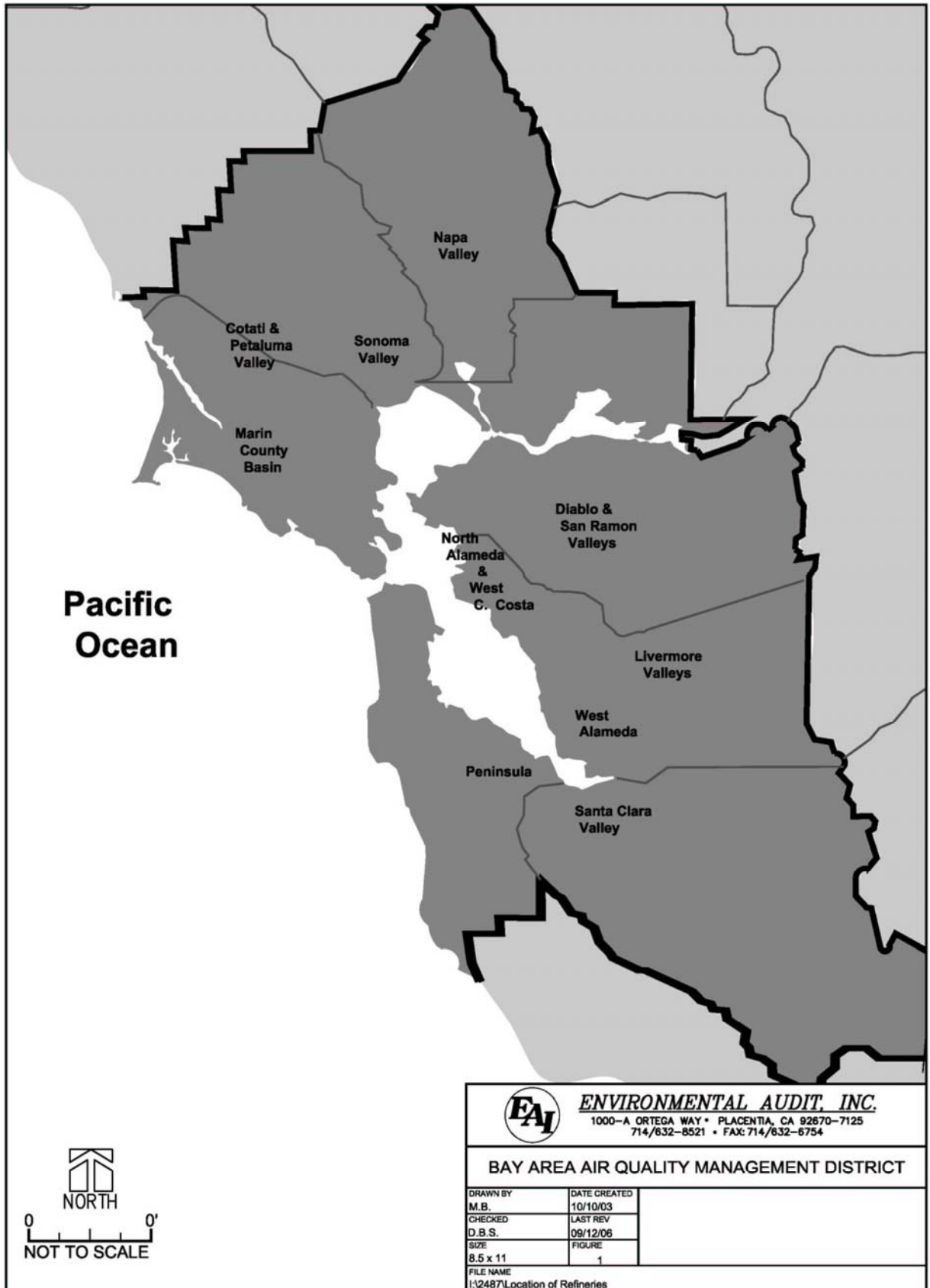
The primary means to treat NO<sub>x</sub> emissions after they are created (post combustion control) is either by chemically reacting the NO<sub>x</sub> with ammonia or urea in the presence of a catalyst to convert the NO<sub>x</sub> back into nitrogen or by the use of a noble metal that reduces NO<sub>x</sub>, CO and hydrocarbons. The first process is referred to as Selective Catalytic Reduction (SCR) and has been shown to be over 90 percent effective at reducing NO<sub>x</sub>. The second process is referred to as Non-Selective Catalytic Reduction (NSCR) and has demonstrated a control effectiveness of greater than 95 percent for NO<sub>x</sub>. These control technologies have varying degrees of effectiveness for NO<sub>x</sub> control and some, while reducing NO<sub>x</sub>, may result in the increase of other criteria pollutants.

### **Affected Area**

The proposed rule amendments would apply to facilities with IC engines within the BAAQMD jurisdiction. The BAAQMD jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays.

The facilities affected by the proposed rule amendments are located within the jurisdiction of the Bay Area Air Quality Management District (see Figure 1).

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## Chapter 3

**Environmental Checklist****ENVIRONMENTAL CHECKLIST FORM**

- 1. Project Title:** Bay Area Air Quality Management District  
(BAAQMD) Proposed Amendments to Regulation  
9, Rule 8.
- 2. Lead Agency Name and Address:** Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, California 94109
- 3. Contact Person and Phone Number:** Victor Douglas  
Planning, Rules and Research Division  
415/749-4752 or [vdouglas@baaqmd.gov](mailto:vdouglas@baaqmd.gov)
- 4. Project Location:** The proposed rule amendments apply to the area  
within the jurisdiction of the Bay Area Air Quality  
Management District, which encompasses all of  
Alameda, Contra Costa, Marin, San Francisco, San  
Mateo, Santa Clara, and Napa Counties and  
portions of southwestern Solano and southern  
Sonoma Counties.
- 5. Project Sponsor's Name and Address:** Bay Area Air Quality Management District  
939 Ellis Street  
San Francisco, California 94109
- 6. General Plan Designation:** The rule amendments apply to facilities with  
stationary IC engines that are usually located in or  
industrial or commercial areas.
- 7. Zoning** The rule amendments apply to facilities with  
stationary IC engines that are usually located in  
industrial or commercial areas.
- 8. Description of Project** See "Background" in Chapter 2.
- 9. Surrounding Land Uses and Setting** See "Affected Area" in Chapter 2.
- 10. Other Public Agencies Whose Approval  
Is Required** None



**Environmental Factors Potentially Affected:**

The environmental factors checked below would potentially be affected by this Project (i.e., the project would involve one impact that is a “Potentially Significant Impact”), as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                    | <input type="checkbox"/> Agriculture Resources              | <input type="checkbox"/> Air Quality            |
| <input type="checkbox"/> Biological Resources          | <input type="checkbox"/> Cultural Resources                 | <input type="checkbox"/> Geology/Soils          |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality            | <input type="checkbox"/> Land Use/Planning      |
| <input type="checkbox"/> Mineral Resources             | <input type="checkbox"/> Noise                              | <input type="checkbox"/> Population/Housing     |
| <input type="checkbox"/> Public Services               | <input type="checkbox"/> Recreation                         | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems     | <input type="checkbox"/> Mandatory Findings of Significance |   |

**Determination:**

On the basis of this initial evaluation:

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
For

|   | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less-than-Significant Impact | No Impact                           |
|---|--------------------------------|---|------------------------------|-------------------------------------|
| <b>I. AESTHETICS.</b>   |                                |   |                              |                                     |
| Would the project:  |                                |   |                              |                                     |
| a) Have a substantial adverse effect on a scenic vista?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway? | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?                          | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses

Many of the facilities with stationary IC engines affected by the proposed rule amendments are located in industrial and commercial and areas throughout the Bay Area.

## Regulatory Background

Visual resources are generally protected by the City and/or County General Plans through land use and zoning requirements.

## Discussion of Impacts

I a-b. The proposed amendments to Regulation 9, Rule 8 (Rule 9-8) would further reduce NOx and PM emissions from stationary IC engines in order to improve air quality in the Bay Area and reduce transport of air pollutants to neighboring air basins.

Implementation of the proposed project is expected to involve construction activities related to the installation or modification of air pollution control equipment at industrial, commercial, and

institutional facilities. However, the construction activities are not expected to adversely impact views and aesthetics since most of the heavy equipment and activities are expected to occur within each facility and are not expected to be visible to areas outside each facility. The majority of the construction equipment is expected to be low in height and not visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facilities that would buffer the views of the construction activities. Further, the construction activities are expected to be temporary in nature and will cease following completion of the equipment installation or modifications.

Depending on the control equipment, the proposed project could potentially introduce minor visual changes at some facilities. The affected new and/or modified units, depending upon their locations within each facility, could potentially be visible to areas outside of each facility. However, the affected new and/or modified units are expected to be about the same size profile as existing equipment present at each affected facility. The general appearance of the affected new and/or modified units is not expected to differ significantly from other equipment units such that no significant adverse impacts to aesthetics are expected. Further, scenic highways or corridors are not generally located in the vicinities of the affected facilities such that the proposed project is not expected to obstruct scenic resources or degrade the existing visual character of a site, including but not limited to, trees, rock outcroppings, or historic buildings.

I. c-d. During the course of construction activities, new sources of substantial light or glare which would adversely affect day or nighttime views of an area are not expected as the installation of add-on air pollution control equipment or modification to the engines are expected to occur during business hours. If additional lighting is deemed necessary, it is expected to be provided in accordance with applicable safety standards as a result of the proposed project and the lights are not expected to create light and glare impacts to areas adjacent to the facilities. In all likelihood, the lighting is expected to be consistent with existing lighting at the affected facilities. Further, any installation of new or replacement of existing add-on control equipment at the existing facilities, either inside or outside the existing structures, would not appreciably change the visual profile of the entire facility.

Therefore, no significant adverse aesthetic impacts are expected due to the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

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**II. AGRICULTURE RESOURCES.**

In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:

- |    |   |                          |                          |                          |                                     |
|----|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) | Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) | Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) | Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. Some of these agricultural lands are under Williamson Act contracts.

The facilities with stationary IC engines affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area. Agricultural resources are generally not located in the vicinity of heavy industrial or commercially developed areas.

## Regulatory Background

Agricultural resources are generally protected by the City and/or County General Plans, Community Plans through land use and zoning requirements, as well as any applicable specific plans, ordinances, local coastal plans, and redevelopment plans.

## Discussion of Impacts

II a-c. The proposed amendments to Rule 9-8 would further reduce NO<sub>x</sub> and PM emissions from stationary IC engines and improve air quality in the Bay Area and reduce transport of air pollutants to neighboring air basins. Facilities are expected to comply by replacing or retrofitting engines with RACT / BARCT technologies. Installation of emission control devices on stationary IC engines would not result in increasing the size of industrial or commercial facilities, or result in additional construction activities outside of the confines of the current facilities. Further, affected facilities are generally located in industrial and commercially zoned areas, so no impact on agricultural resources is expected. Therefore, no adverse significant impacts to agricultural resources are expected due to the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

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### III. AIR QUALITY

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

|   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Violate any air quality standard or contribute to an existing or projected air quality violation?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

## Setting

### Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent high pressure area centered over the northeastern Pacific Ocean. Because this high pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is very low. During winter periods when the Pacific high becomes dominant, inversions become strong and often are surface based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include fog.

### Topography

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. Elevations of 1,500 feet are common in the higher terrain of this area. Normal wind flow over the area becomes distorted in the lower elevations, especially when the wind velocity is not strong. This distortion is reduced when stronger winds and unstable air masses move over the areas. The distortion is greatest when low level inversions are present with the surface air, beneath the inversion, flowing independently of the air above the inversion.

### Winds

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream producing southwest winds at Berkeley and northwest winds at San Jose; a branch curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or San Bruno Gap.

In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, weak onshore flows in the afternoon and otherwise light and variable winds.

### Temperature

In summer, the distribution of temperature near the surface over the Bay Area is determined in large part by the effect of the differential heating between land and water surfaces. This process produces a large-scale gradient between the coast and the Central Valley as well as small-scale local gradients along the shorelines of the ocean and bays. The winter mean temperature high and lows reverse the summer relationship; daytime variations are small while mean minimum nighttime temperatures show large differences and strong gradients. The moderating effect of the ocean influences warmer minimums along the coast and penetrating the Bay. The coldest temperatures are in the sheltered valleys, implying strong radiation inversions and very limited vertical diffusion.

### Inversions

A primary factor in air quality is the mixing depth, i.e., the vertical dimension available for dilution of contaminant sources near the ground. Over the Bay Area the frequent occurrence of temperature inversions limits this mixing depth and consequently limits the availability of air for dilution. A temperature inversion may be described as a layer or layers of warmer air over cooler air.

### Precipitation

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for about 75 percent of the average annual rainfall; about 90 percent of the annual total rainfall is received in November to April period; and between June and September, normal rainfall is typically less than 0.10 inches. Annual precipitation amounts show greater differences in short distances. Annual totals exceed 40 inches in the mountains and are less than 15 inches in the sheltered valleys.

### Pollution Potential

The Bay Area is subject to a combination of physiographic and climatic factors which result in a low potential for pollutant buildups near the coast and a high potential in sheltered inland valleys. In summer, areas with high average maximum temperatures tend to be sheltered inland valleys with abundant sunshine and light winds. Areas with low average maximum temperatures are exposed to the prevailing ocean breeze and experience frequent fog or stratus. Locations with warm summer days have a higher pollution potential than the cooler locations along the coast and bays.

In winter, pollution potential is related to the nighttime minimum temperature. Low minimum temperatures are associated with strong radiation inversions in inland valleys that are protected from the moderating influences of the ocean and bays. Conversely, coastal locations experience higher average nighttime temperatures, weaker inversions, stronger breezes and consequently less air pollution potential.

## **Air Quality**

### Criteria Pollutants

It is the responsibility of the BAAQMD to ensure that State and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), particulate matter less than 10 microns in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.



The State and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitors levels of various criteria pollutants at 26 monitoring stations. The 2005 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

Air quality conditions in the San Francisco Bay Area have improved since the Air District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3-3). The Air District is in attainment of the State and federal ambient air quality standards for CO, nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>). The Air District is not considered to be in attainment with the State PM<sub>10</sub> and PM<sub>2.5</sub> standards, and is unclassified for the new federal 24-hour PM<sub>2.5</sub> standard. The Bay Area is designated as a non-attainment area for the California one-hour ozone standard.

The 2005 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the State and federal ambient air quality standards for CO, NO<sub>2</sub>, and SO<sub>2</sub>. The federal eight-hour standard was exceeded on two days in the District in 2005. The State one-hour ozone standard was exceeded in the District on nine days in 2005; most frequently in the Eastern District (Livermore) (see Table 3-2).

All monitoring stations were in compliance with the federal PM<sub>10</sub> standards. The California PM<sub>10</sub> standards were exceeded on 12 days in 2005, most frequently in San Jose. The Air District did not exceed the federal PM<sub>2.5</sub> standard in 2005 (see Table 3-2).

**TABLE 3-1  
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

| AIR POLLUTANT                        | STATE STANDARD<br>CONCENTRATION/<br>AVERAGING TIME   | FEDERAL PRIMARY STANDARD<br>CONCENTRATION/<br>AVERAGING TIME                              | MOST RELEVANT EFFECTS   |
|--------------------------------------|--|---|---|
| Ozone                                | 0.09 ppm, 1-hr. avg. ><br>0.070 ppm, 8-hr  | 0.08 ppm, 8-hr avg. >   | (a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage |
| Carbon Monoxide                      | 9.0 ppm, 8-hr avg. ><br>20 ppm, 1-hr avg. >  | 9 ppm, 8-hr avg.><br>35 ppm, 1-hr avg.>   | (a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses   |
| Nitrogen Dioxide                     | 0.25 ppm, 1-hr avg. >  | 0.053 ppm, ann. avg.>   | (a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration  |
| Sulfur Dioxide                       | 0.04 ppm, 24-hr avg.><br>0.25 ppm, 1-hr. avg. >  | 0.03 ppm, ann. avg.><br>0.14 ppm, 24-hr avg.>   | (a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma  |
| Suspended Particulate Matter (PM10)  | 20 µg/m <sup>3</sup> , annarithmic mean ><br>50 µg/m <sup>3</sup> , 24-hr average>   | 50 µg/m <sup>3</sup> , annual arithmetic mean ><br>150 µg/m <sup>3</sup> , 24-hr avg.>    | (a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children   |
| Suspended Particulate Matter (PM2.5) | 12 µg/m <sup>3</sup> , annual arithmetic mean>   | 15 µg/m <sup>3</sup> , annual arithmetic mean><br>35 µg/m <sup>3</sup> , 24-hour average> | Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.  |
| Sulfates                             | 25 µg/m <sup>3</sup> , 24-hr avg. >=   |   | (a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage   |
| Lead                                 | 1.5 µg/m <sup>3</sup> , 30-day avg. >=   | 1.5 µg/m <sup>3</sup> , calendar quarter>   | (a) Increased body burden; (b) Impairment of blood formation and nerve conduction   |
| Visibility-Reducing Particles        | In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST) |   | Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent   |

**TABLE 3-2  
BAY AREA AIR POLLUTION SUMMARY 2005**

| MONITORING STATIONS                      | Ozone    |          |          |          |          |          | CARBON MONOXIDE |          |          | NITROGEN DIOXIDE |          |         | SULFUR DIOXIDE |           |         | PM10                       |         |           |           | PM2.5                      |           |          |          |         |          |    |
|--|----------|----------|----------|----------|----------|----------|-----------------|----------|----------|------------------|----------|---------|----------------|-----------|---------|----------------------------|---------|-----------|-----------|----------------------------|-----------|----------|----------|---------|----------|----|
|  | Max 1-Hr | Nat Days | Cal Days | 3-Yr Avg | Max 8-Hr | Nat Days | 3-Yr Avg        | Max 1-Hr | Max 8-Hr | Nat/Cal Days     | Max 1-Hr | Ann Avg | Nat/Cal Days   | Max 24-Hr | Ann Avg | Nat/Cal Days               | Ann Avg | Max 24-Hr | Nat Day   | Cal Days                   | Max 24-Hr | Nat Days | 3-Yr Avg | Ann Avg | 3-Yr Avg |    |
|  | (ppb)    |          |          |          |          |          | (ppm)           |          |          | (ppb)            |          |         | (ppb)          |           |         | $(\mu\text{g}/\text{m}^3)$ |         |           |           | $(\mu\text{g}/\text{m}^3)$ |           |          |          |         |          |    |
| <b>NORTH COUNTIES</b>                    |          |          |          |          |          |          |                 |          |          |                  |          |         |                |           |         |                            |         |           |           |                            |           |          |          |         |          |    |
| Napa                                     | 91       | 0        | 0        | 0        | 67       | 0        | 61              | 3.2      | 2.0      | 0                | 60       | 10      | 0              | --        | --      | --                         | 18.0    | 40        | 0         | 0                          | --        | --       | --       | --      | --       | -- |
| San Rafael                               | 81       | 0        | 0        | 0        | 59       | 0        | 51              | 3.0      | 1.7      | 0                | 54       | 13      | 0              | --        | --      | --                         | 16.5    | 39        | 0         | 0                          | --        | --       | --       | --      | --       | -- |
| Santa Rosa                               | 72       | 0        | 0        | 0        | 51       | 0        | 49              | 2.5      | 2.0      | 0                | 47       | 11      | 0              | --        | --      | --                         | 15.9    | 39        | 0         | 0                          | 33.6      | 0        | 28.2     | 7.6     | 8.2      |    |
| Vallejo                                  | 90       | 0        | 0        | 0        | 70       | 0        | 60              | 3.9      | 3.1      | 0                | 70       | 11      | 0              | 5         | 1.2     | 0                          | 17.3    | 52        | 0         | 1                          | 43.8      | 0        | 32.5     | 9.7     | 10       |    |
| <b>COAST &amp; CENTRAL BAY</b>           |          |          |          |          |          |          |                 |          |          |                  |          |         |                |           |         |                            |         |           |           |                            |           |          |          |         |          |    |
| Oakland                                  | 68       | 0        | 0        | 0.0      | 45       | 0        | 39              | 3.4      | 2.4      | 0                | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       | -- |
| Richmond                                 | --       | --       | --       | --       | --       | --       | --              | --       | --       | --               | --       | --      | --             | 6         | 1.1     | 0                          | --      | --        | --        | --                         | --        | --       | --       | --      | --       | -- |
| San Francisco                            | 58       | 0        | 0        | 0.0      | 54       | 0        | 48              | 2.5      | 2.1      | 0                | 66       | 16      | 0              | 7         | 1.4     | 0                          | 20.1    | 46        | 0         | 0                          | 43.6      | 0        | 32.6     | 9.5     | 9.9      |    |
| San Pablo                                | 66       | 0        | 0        | 0.0      | 57       | 0        | 52              | 2.8      | 1.3      | 0                | 54       | 12      | 0              | 6         | 1.7     | 0                          | 19.0    | 42        | 0         | 0                          | --        | --       | --       | --      | --       |    |
| <b>EASTERN DISTRICT</b>                  |          |          |          |          |          |          |                 |          |          |                  |          |         |                |           |         |                            |         |           |           |                            |           |          |          |         |          |    |
| Bethel Island                            | 89       | 0        | 0        | 0.0      | 77       | 0        | 72              | 1.1      | 0.9      | 0                | 38       | 7       | 0              | 6         | 2.0     | 0                          | 18.5    | 64        | 0         | 1                          | --        | --       | --       | --      | --       |    |
| Concord                                  | 98       | 0        | 1        | 0.0      | 80       | 0        | 73              | 2.2      | 1.5      | 0                | 55       | 12      | 0              | 7         | 1.0     | 0                          | 16.4    | 42        | 0         | 0                          | 48.9      | 0        | 35.1     | 9       | 9.8      |    |
| Crockett                                 | --       | --       | --       | --       | --       | --       | --              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       | -- |
| Fairfield                                | 90       | 0        | 0        | 0.0      | 73       | 0        | 68              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| Livermore                                | 120      | 0        | 6        | 0        | 90       | 1        | 78              | 3.4      | 1.8      | 0                | 72       | 14      | 0              | --        | --      | --                         | 18.8    | 49        | 0         | 0                          | 32.1      | 0        | 29.4     | 9       | 9.4      |    |
| Martinez                                 | --       | --       | --       | --       | --       | --       | --              | --       | --       | --               | --       | --      | --             | 7         | 1.7     | 0                          | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| Pittsburg                                | 94       | 0        | 0        | 0.0      | 78       | 0        | 69              | 3.3      | 1.7      | 0                | 58       | 11      | 0              | 9         | 2.4     | 0                          | 20.1    | 57        | 0         | 1                          | --        | --       | --       | --      | --       |    |
| <b>SOUTH CENTRAL BAY</b>                 |          |          |          |          |          |          |                 |          |          |                  |          |         |                |           |         |                            |         |           |           |                            |           |          |          |         |          |    |
| Fremont                                  | 105      | 0        | 1        | 0.0      | 78       | 0        | 60              | 3.2      | 2.0      | 0                | 69       | 15      | 0              | --        | --      | --                         | 17.8    | 54        | 0         | 1                          | 33.4      | 0        | 27.6     | 9       | 9        |    |
| Hayward                                  | --       | --       | --       | --       | --       | --       | --              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| Redwood City                             | 84       | 0        | 0        | 0.0      | 61       | 0        | 57              | 4.5      | 2.3      | 0                | 62       | 15      | 0              | --        | --      | --                         | 20.9    | 81        | 0         | 2                          | 30.9      | 0        | 27.8     | 8.8     | 9        |    |
| San Leandro                              | 99       | 0        | 1        | 0.0      | 61       | 0        | 52              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| <b>SANTA CLARA VALLEY</b>                |          |          |          |          |          |          |                 |          |          |                  |          |         |                |           |         |                            |         |           |           |                            |           |          |          |         |          |    |
| Gilroy                                   | 87       | 0        | 0        | 0.0      | 67       | 0        | 71              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| Los Gatos                                | 110      | 0        | 3        | 0.0      | 87       | 1        | 72              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| San Jose Central*                        | 113      | 0        | 1        | *        | 80       | 0        | 61              | 4.3      | 3.1      | 0                | 74       | 19      | 0              | --        | --      | --                         | 22.3    | 54        | 0         | 2                          | 54.6      | 0        | 39       | 11.8    | 11.7     |    |
| San Jose East                            | 110      | 0        | 1        | 0.0      | 83       | 0        | 59              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| San Jose, Tully Road                     | --       | --       | --       | --       | --       | --       | --              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | 24.2    | 71        | 0         | 4                          | 50.6      | 0        | 35.9     | 10.5    | 10.3     |    |
| San Martin                               | 108      | 0        | 2        | 0.0      | 77       | 0        | 75              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| Sunnyvale                                | 97       | 0        | 1        | 0.0      | 73       | 0        | 64              | --       | --       | --               | --       | --      | --             | --        | --      | --                         | --      | --        | --        | --                         | --        | --       | --       | --      | --       |    |
| <b>Total Bay Area Days over Standard</b> | <b>0</b> | <b>9</b> |          |          | <b>2</b> |          |                 |          |          | <b>0</b>         |          |         | <b>0</b>       |           |         | <b>0</b>                   |         | <b>0</b>  | <b>12</b> |                            | <b>0</b>  |          |          |         |          |    |

(ppm) = parts per million,  $(\mu\text{g}/\text{m}^3)$  = micrograms per cubic meter, (ppb) = parts per billion

**TABLE 3-3  
TEN-YEAR BAY AREA AIR QUALITY SUMMARY  
Days over standards**

| YEAR | OZONE |     | CARBON MONOXIDE |     |      |     | NO <sub>x</sub> | SULFUR DIOXIDE |      | PM10  |     | PM2.5  |         |
|------|-------|-----|-----------------|-----|------|-----|-----------------|----------------|------|-------|-----|--------|---------|
|      | 1-Hr  |     | 8-Hr            |     | 1-Hr |     | 8-Hr            |                | 1-Hr | 24-Hr |     | 24-Hr* | 24-Hr** |
|      | Nat   | Cal | Nat             | Cal | Nat  | Cal | Nat             | Cal            | Cal  | Nat   | Cal | Nat    | Cal     |
| 1996 | 8     | 34  | -               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 3      | -       |
| 1997 | 0     | 8   | -               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 4      | -       |
| 1998 | 8     | 29  | 16              | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 5      | -       |
| 1999 | 3     | 2   | 9               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 12     | -       |
| 2000 | 3     | 12  | 4               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 7      | 1       |
| 2001 | 1     | 15  | 7               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 10     | 5       |
| 2002 | 2     | 16  | 7               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 6      | 5       |
| 2003 | 1     | 19  | 7               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 6      | 0       |
| 2004 | 0     | 7   | 0               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 7      | 1       |
| 2005 | 0     | 9   | 1               | 0   | 0    | 0   | 0               | 0              | 0    | 0     | 0   | 6      | 0       |

\* PM10 is sampled every sixth day – actual days over standard can be estimated to be six times the numbers listed.

\*\* 2000 is the first full year for which the Air District measured PM2.5 levels.

Toxic Air Pollutants

The BAAQMD maintains a network of monitoring stations to monitor certain toxic air contaminants (TACs) in ambient air. In addition, the California Air Resources Board (CARB) maintains several monitoring stations in the Bay Area as part of a statewide toxics monitoring effort. Table 3-4 shows the maximum, minimum and mean concentration of toxic air contaminants at 22 of the 23 separate sites at which samples were collected. Data from the Fort Cronkhite “clean-air” background site were not included.

**TABLE 3-4**  
**SUMMARY OF BAY AREA AMBIENT AIR TOXIC AIR CONTAMINANT MONITORING DATA - 2002<sup>1</sup>**

| COMPOUND                       | Level of Detection (ppb) | % of Samples < LOD | Maximum Conc. (ppb) | Minimum Conc. (ppb) | Mean Conc. (ppb) |
|--------------------------------|--------------------------|--------------------|---------------------|---------------------|------------------|
| Benzene                        | 0.10                     | 0                  | 2.20                | <0.10               | 0.47             |
| Carbon Tetrachloride (CCl4)    | 0.01                     | 0                  | 0.36                | <0.01               | 0.11             |
| Chloroform (CHCl3)             | 0.02                     | 65                 | 0.12                | <0.02               | 0.02             |
| Methylene Chloride (DCM)       | 0.50                     | 85                 | 8.70                | <0.50               | 0.38             |
| Ethylene Dibromide             | 0.02                     | 100                | <0.02               | <0.02               | 0.01             |
| Ethylene Dichloride            | 0.10                     | 100                | <0.10               | <0.10               | 0.05             |
| Methyl Tert-Butyl Ether (MTBE) | 0.50                     | 44                 | 4.60                | <0.50               | 0.75             |
| Perchloroethylene              | 0.01                     | 24                 | 0.30                | <0.01               | 0.05             |
| 1,1,1-Trichloroethane (TCA)    | 0.05                     | 47                 | 2.69                | <0.05               | 0.11             |
| Trichloroethylene              | 0.08                     | 96                 | 0.84                | <0.08               | 0.04             |
| Toluene                        | 0.10                     | 0                  | 24.9                | 0.10                | 1.48             |
| Vinyl Chloride                 | 0.30                     | 100                | <0.30               | <0.30               | 0.15             |

(1) BAAQMD, Toxic Air Contaminant, 2002 Annual Report, June 2004.

## Regulatory Background

### Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 give the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and particulate matter in non-attainment areas. The amendments set attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a local level, California’s air districts, including the BAAQMD, are responsible for overseeing stationary source emissions, approving permits, maintaining emission inventories, maintaining air quality stations,

overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

The BAAQMD is governed by a 22-member Board of Directors composed of publicly-elected officials apportioned according to the population of the represented counties. The Board has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing air quality planning documents required by both federal and state laws.

### Toxic Air Contaminants

TACs are regulated in the District through federal, state, and local programs. At the federal level, TACs are regulated primarily under the authority of the CAA. Prior to the amendment of the CAA in 1990, source-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) were promulgated under Section 112 of the CAA for certain sources of radionuclides and Hazardous Air Pollutants (HAPs).

Title III of the 1990 CAA amendments requires U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for major sources must require the maximum achievable control technology (MACT). MACT is defined as the maximum degree of emission reduction achievable considering cost and non-air quality health and environmental impacts and energy requirements. All NESHAPs were to be promulgated by the year 2000. Specific incremental progress in establishing standards must be made by the years 1992 (at least 40 source categories), 1994 (25 percent of the listed categories), 1997 (50 percent of remaining listed categories), and 2000 (remaining balance). The 1992 requirement was met; however, many of the four-year standards were not promulgated as scheduled. Promulgation of those standards has been rescheduled based on court ordered deadlines, or the aim to satisfy all Section 112 requirements in a timely manner.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed three regulatory programs for the control of TACs. Each of the programs is discussed in the following subsections.

**Control of TACs Under the TAC Identification and Control Program:** California's TAC identification and control program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), is a two-step program in which substances are identified as TACs, and airborne toxic control measures (ATCMs) are adopted to control emissions from specific sources. Since adoption of the program, CARB has identified 18 TACs, and CARB adopted a regulation designating all 189 federal HAPs as TACs.

**Control of TACs Under the Air Toxics "Hot Spots" Act:** The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. Inventory reports must be updated every four years under current state law. The BAAQMD uses a maximum individual cancer risk of 10 in one million, or an ambient concentration above a non-cancer reference exposure level, as the threshold for notification.

Senate Bill (SB) 1731, enacted in 1992 (California Health and Safety Code §44390 et seq.), amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction

plan which will reduce the risk below a defined significant risk level within specified time limits. At a minimum, such facilities must, as quickly as feasible, reduce cancer risk levels that exceed 100 per one million. The BAAQMD adopted risk reduction requirements for perchloroethylene dry cleaners to fulfill the requirements of SB 1731.

**Targeted Control of TACs Under the Community Air Risk Evaluation Program:** In 2004, BAAQMD established the Community Air Risk Evaluation (CARE) program to identify locations with high emissions of toxic air contaminants (TACs) and high exposures of sensitive populations to TACs and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TACs emission reductions. For example, BAAQMD will use information derived from the CARE program to develop and implement targeted risk reduction programs, including grant and incentive programs, community outreach efforts, collaboration with other governmental agencies, model ordinances, new regulations for stationary sources and indirect sources, and advocacy for additional legislation.

## Discussion of Impacts

III a. The objective of the proposed amendments to Rule 9-8 is to reduce PM and NO<sub>x</sub> emissions from stationary IC engines in order to reduce particulate matter and ozone levels in the Bay Area. The District is proposing amendments to Rule 9-8, in accordance with the District's SB 656 Particulate Matter Implementation Schedule as a means to reduce stationary IC engines emissions of PM and NO<sub>x</sub> in the Bay Area. Therefore, the proposed regulation is in compliance with and will implement a portion of local air quality strategies. No significant adverse impacts to air quality plans are expected.

III b, c, d and f. The District is proposing amendments to Rule 9-8, in accordance with the District's SB 656 Particulate Matter Implementation Schedule as a means to reduce stationary IC engines emissions of PM and NO<sub>x</sub> in the Bay Area. NO<sub>x</sub> is an ozone precursor, and also contributes to indirect or secondary PM. SB 656 requires that all air districts in California adopt an implementation schedule that prioritizes appropriate measures for reducing PM emissions. The District's Particulate Matter Implementation Schedule proposes to adopt amendments to Rule 9-8 as a measure to reduce direct and indirect PM emissions in the Bay Area.

Since the adoption of Rule 9-8 in 1993, several rules and regulations have been implemented that affect stationary IC engines in California. In 1998 and 2004, the U.S. EPA promulgated the Off-Road Compression-Ignition (Diesel) Engine Tiered Standards (Federal Off-Road Tiered Standards) which formed the New Source Performance Standards for Off-Road Compression-Ignited Engine. These tiered standards apply to new diesel engines and become progressively more stringent as model years advance. In 2001, CARB published best available retrofit control technology determinations (BARCT) for spark-ignited stationary IC engines. The BARCT determinations set recommended NO<sub>x</sub> limits for the retrofit of stationary spark-ignited engines.

In addition, in 2004, CARB adopted the CI Engine ATCM that sets emissions limits for PM and other criteria pollutants for diesel fueled engines and requires the use of cleaner-burning fuels for all diesel engines. The CI Engine ATCM will significantly affect stationary diesel engines in California. It will result in either the retrofit or the replacement of virtually all existing prime engines and the reduction of hours of operation for emergency standby engines by 2011. Several air districts in the State have also adopted regulations that reflect emission limits for NO<sub>x</sub> contained in the CARB BARCT determinations and the U.S. EPA Off-Road Tiered Standards, including NO<sub>x</sub> limits for liquid-fueled engines. Secondary PM in the form

of ammonium nitrate is formed from the photochemical reaction of NO<sub>x</sub> with ammonia. The physical changes involved with the type of emission control strategies that could be implemented focus on the installation of control equipment at existing stationary combustion sources to reduce NO<sub>x</sub> emissions such as low-NO<sub>x</sub> burners, selective catalytic reduction, and other burner and flue gas configurations that would be considered to improve the efficiency of the combustion process. Alternative fuels could also be used.

The installation and operation of add-on air pollution control equipment can potentially create secondary or indirect air quality impacts (e.g., emissions), which can adversely affect local and regional air quality. A project generates emissions both during the period of its construction and through ongoing daily operations. During installation of add-on air pollution control devices, emissions may be generated by onsite construction equipment and by offsite vehicles used for worker commuting.

**Construction Impacts:** Compliance with the proposed rule amendments could entail changing engine operation parameters such as changing the air-fuel ratio, the use of alternative fuels or the addition of electronic controllers; require modification of engines or engine parts such as cylinder heads, addition of pre-combustion chambers, turbochargers or fuel injectors; or addition of post-combustion controls, including non-selective catalytic reduction (NSCR), selective catalytic reduction (SCR). Only minor construction would be involved to change electronic controllers or change other aspects of the engine parameters to comply. Modifications to engines or the replacement of engines if new IC engines are purchased to replace existing IC engines would result in minor construction activities. These activities would not require a significant amount of workers or construction-related equipment.

Retrofitting IC engines with post-combustion NO<sub>x</sub> controls may involve more substantial construction activities and operational maintenance requirements depending on the control equipment being installed (e.g., SCR). Additional storage tanks to store ammonia may also be required if new SCR units are installed. Construction activities associated with the installation of add-on controls may require minor grading, installation of foundations, and installation of equipment, requiring additional construction workers and construction equipment (e.g., graders, pavers, cranes, etc.). Construction activities and the related air emissions are temporary and will cease following completion of construction activities. Therefore, construction emissions are not expected to be significant.

**Operation Impacts:** After construction activities are completed, emissions may be generated by the operation of the add-on air pollution control devices and offsite vehicles used for delivering fresh materials needed for operations (fresh catalyst and aqueous ammonia) and hauling away spent catalyst. These impacts are expected to be limited to one to two truck trips per month for facilities that use ammonia, for example, and therefore result in less than significant air quality impacts.

Based on the air quality analysis, proposed Rule 9-8 is expected to result in reductions in PM and NO<sub>x</sub> emissions and, thus, provide air quality benefits. As shown in Tables 2-2 and 2-3, implementation of Rule 9-8 is expected to result in a reduction in NO<sub>x</sub> emissions of about 9.6 tons per day and a reduction in PM emissions of about 1.2 tons per day. Based on the above, no significant adverse impacts to air quality are expected. In fact, the proposed project is expected to provide an air quality benefit by reducing emissions of NO<sub>x</sub> and PM.

Emission reductions from the control of emissions could result in secondary emissions. Options for further NO<sub>x</sub> emission reductions could include addition of control equipment, including SCR. Installation of new



SCR equipment or increasing the control efficiency of existing equipment would be expected to increase the amount of ammonia used for NO<sub>x</sub> control. As a result ammonia slip emissions could increase, thus, potentially contributing to PM concentrations. Ammonia can also be released in liquid form from storage tanks or during transport and transfer, thus, directly generating PM emissions. Ammonia can also be released in gaseous form where it is a precursor to PM emissions. Ammonia, although not considered to be a toxic air contaminant, is a hazardous compound and has been identified by the California Air Resources Board as a candidate toxic air contaminant pending further testing. Ammonia emissions from an SCR unit can be generated by ammonia slip. To ensure maximum NO<sub>x</sub> reduction efficiency, SCR operators typically injected excess ammonia, that is, a higher ammonia to NO<sub>x</sub> molar ratio, into the flue gas to ensure achieving the appropriate NO<sub>x</sub> reduction reaction. The excess ammonia that does not react with the NO<sub>x</sub> passes or “slips” through the reactor vessel and is released into the atmosphere. Ammonia slip can worsen as the catalyst ages and becomes less effective. Ammonia slip from SCR equipment is continuously monitored and controlled. A limit on ammonia slip is normally included in permits to operate for stationary sources, which should minimize potential air quality impacts associated with ammonia slip from these sources.

The proposed modifications to Rule 9-8 are expected to control emissions of PM and NO<sub>x</sub> from affected sources, without affecting the maximum capacity and/or permitted firing rates of those sources. Therefore, the proposed project is not expected to have an adverse affect on or increase emissions of greenhouse gases (e.g., carbon dioxide).

III e. Proposed modifications to Rule 9-8 will result in a reduction in PM and NO<sub>x</sub> emissions from some stationary IC engines. Facilities are expected to comply with the modified rule by installing control devices, modifying burners or using alternative fuels. The proposed project is not expected to create significant objectionable odors, either during construction or during operations. Specific to the installation of SCR equipment for various affected facilities, ammonia will be employed and it can have a strong odor. Nonetheless, the proposed project is not expected to generate substantial ammonia odors, since ammonia is usually stored in enclosed pressurized tanks.

Injection of ammonia into the flue gas often requires more ammonia than is necessary to achieve the desired NO<sub>x</sub> reduction. Under normal operating and permitted conditions, ammonia slip is approximately five to 10 ppm. Because exhaust gases are hot, any ammonia slip emissions would be quite buoyant and would rapidly rise to higher altitudes without any possibility of lingering at ground level. The odor threshold of ammonia is one to five ppm, but because of the buoyancy of ammonia emissions and prevailing winds, it is unlikely that ammonia slip emissions would exceed the odor threshold. The maximum ground level concentration would be less than one ppm at the point of maximum impact (annual one-hour maximum). Permits for installing SCR equipment will be subject to conditions that would specifically limit the amount of ammonia slip.

Affected facilities employing the SCR equipment may also consider maintaining regular surveillance efforts to minimize the frequency and magnitude of odor events. For the installation of control equipment other than SCR, the use of BARCT also reduces the emissions of compounds that could otherwise generate odors. Therefore, no significant odor impacts are expected from the proposed project.

|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|--|--------------------------------|---|------------------------------|-------------------------------------|
| <b>IV. BIOLOGICAL RESOURCES. Would the project:</b>  |                                |   |                              |                                     |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?                                    | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. A wide variety of biological resources are located within the Bay Area.

The facilities affected by the proposed rule amendments are located in the Bay Area-Delta Bioregion (as defined by the State's Natural Communities Conservation Program). This Bioregion is comprised of a variety of natural communities, which range from salt marshes to chaparral to oak woodland. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area. The affected facilities have been graded to develop the various industrial and commercial structures and are typically, surrounded by other industrial and commercial facilities. Native vegetation, other than landscape vegetation, has generally been removed from operating portions of industrial and commercial facilities to minimize safety and fire hazards.

## Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service and National Marine Fisheries Service oversee the federal Endangered Species Act. Development permits may be required from one or both of these agencies if development would impact rare or endangered species. The California Department of Fish and Game administers the California Endangered Species Act which prohibits impacting endangered and threatened species. The U.S. Army Corps of Engineers and the U.S. EPA regulate the discharge of dredge or fill material into waters of the United States, including wetlands.

## Discussion of Impacts

IV a – f. No impacts on biological resources are anticipated from the proposed rule amendments which would apply to existing and new facilities with IC engines. The engines are located within the confines of industrial and commercial facilities. The net effect of implementing proposed amendments to Rule 9-8 will be improved air quality resulting from reduction of IC engine emissions which is expected to be beneficial for both plant and animal life. Installation of control devices is not expected to result in any physical changes outside of the confines of the affected facilities and is not expected to affect any biological resources in the area. Therefore, no adverse significant impacts to biological resources are expected due to the proposed project.

|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|--|--------------------------------|---|------------------------------|-------------------------------------|
| <b>V. CULTURAL RESOURCES.</b> Would the project:   |                                |   |                              |                                     |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?    | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?              | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| d) Disturb any human remains, including those interred outside formal cemeteries?                                    | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural and open space uses. Cultural resources are defined as buildings, sites, structures, or objects which might have historical architectural, archaeological, cultural, or scientific importance.

The Carquinez Strait represents the entry point for the Sacramento and San Joaquin Rivers into the San Francisco Bay. This locality lies within the San Francisco Bay and the west end of the Central Valley archaeological regions, both of which contain a rich array of prehistoric and historical cultural resources. The areas surrounding the Carquinez Strait and Suisun Bay have been occupied for millennia given their abundant combination of littoral and oak woodland resources.

The facilities with IC engines affected by the proposed rule amendments generally are located in industrial and commercial areas throughout the Bay Area. The sites have been graded to develop the various industrial and commercial structures and are typically surrounded by other commercial and industrial facilities. Cultural resources are generally not located within the operating portions of industrial or commercial facilities.

## Regulatory Background

The State CEQA Guidelines define a significant cultural resource as a “resource listed or eligible for listing on the California Register of Historical Resources” (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5(b)). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the California Register of Historical Resources or a local register or survey that meets the requirements of Public Resources Code Sections 50020.1(k) and 5024.1(g).

## Discussion of Impacts

V a – d. No impacts on cultural resources are anticipated from the proposed rule amendments that would apply to existing facilities with stationary IC engines. The engines already exist and are located within the confines of existing facilities. Facilities are expected to comply by replacing or retrofitting engines with RACT / BARCT technologies or using alternative fuels. Construction activities would involve replacing, making minor changes to, or installing pollution control equipment on existing stationary IC engines. Completion of the proposed project is not expected to result in any significant physical changes to the facilities that would require the acquisition of additional land and potentially impact cultural resources. Therefore, no adverse significant impacts to cultural resources are expected due to the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

**VI. GEOLOGY AND SOILS.**

Would the project:

|  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to California Geologic Survey Special Publication 42.</li> </ul> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Strong seismic ground shaking?</li> </ul>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Seismic-related ground failure, including liquefaction?</li> </ul>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Landslides?</li> </ul>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Setting**

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential,

agricultural, and open space uses. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area.

The affected facilities with stationary IC engines are located in the natural region of California known as the Coast Ranges geomorphic province. The province is characterized by a series of northwest trending ridges and valleys controlled by tectonic folding and faulting, examples of which include the Suisun Bay, East Bay Hills, Briones Hills, Vaca Mountains, Napa Valley, and Diablo Ranges.

Regional basement rocks consist of the highly deformed Great Valley Sequence, which include massive beds of sandstone inter-fingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Geologic Survey along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

## Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The Uniform Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California

Geologic Survey (CGS) develop maps that identify the areas of the state that require site specific investigation for earthquake-triggered landslides and/or potential liquefaction prior to permitting most urban developments. The act directs cities, counties and state agencies to use the maps in their land use planning and permitting processes.

Local governments are responsible for implementing the requirements of the Seismic Hazards Mapping Act. The maps and guidelines are tools for local governments to use in establishing their land use management policies and in developing ordinances and review procedures that will reduce losses from ground failure during future earthquakes.

## Discussion of Impacts

VI a. No significant adverse impacts on geology and soils are anticipated from the proposed rule amendments that would apply to existing operations at affected facilities. Facilities are expected to comply by replacing or retrofitting engines with RACT / BARCT technologies. Construction activities would involve replacing, making minor changes to, or adding on pollution control technology to existing stationary IC engines. New control equipment may require building permits from the local jurisdiction and compliance with the Uniform Building Codes. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulae used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

The issuance of building permits from the local agency may be required for new equipment to assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the equipment associated with the proposed project will be required to comply with the Uniform Building Codes, thus reducing the risk of loss, injury, or death due to rupture of a known earthquake fault, strong seismic ground shaking or seismic-related ground failure, including liquefaction landslides. Therefore, no adverse significant impacts related to seismic activity are expected due to the proposed rule amendments.

VI b – e. No impacts on geology and soils are anticipated from the proposed rule amendments that would apply to existing operations at affected facilities. Facilities are expected to comply by replacing or retrofitting engines with RACT / BARCT technologies. Construction activities would involve replacing, making minor changes to, or installing air pollution control equipment on existing stationary IC engines. Therefore, construction activities associated with the proposed rule amendments are not expected to result in substantial soil erosion or the loss of topsoil. The facilities already exist and no construction activities outside the confines of the existing facilities are expected. Likewise, no new structure is expected to be constructed on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Construction would not affect soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for



the disposal of wastewater. Therefore, no adverse significant impacts to geology and soils are expected due to the proposed rule.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

**VII. HAZARDS AND HAZARDOUS MATERIALS.** Would the project:

- |    |   |                          |                          |                                     |                                     |
|----|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) | Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) | Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) | Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d) | Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?              | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) | Be located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) | Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| g) | Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| h) | Expose people or structures to a significant risk of loss, injury or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands?                    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

## Setting

Many of the affected facilities handle and process large quantities of flammable, hazardous, and acutely hazardous materials. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including the following events.

- **Toxic gas clouds:** Toxic gas clouds are releases of volatile chemicals (e.g., , chlorine and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. “Worst-case” conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate rather than disperse.
- **Torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases):** The rupture of a storage tank containing a flammable gaseous material (like propane), without immediate ignition, can result in a vapor cloud explosion. The “worst-case” upset would be a release that produces a large aerosol cloud with flammable properties. If the flammable cloud does not ignite after dispersion, the cloud would simply dissipate. If the flammable cloud were to ignite during the release, a flash fire or vapor cloud explosion could occur. If the flammable cloud were to ignite immediately upon release, a torch fire would ensue.
- **Thermal Radiation:** Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.
- **Explosion/Overpressure:** Process vessels containing flammable explosive vapors and potential ignition sources are present at many types of industrial facilities. Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

For all affected facilities, risks to the public are reduced if there is a buffer zone between industrial processes and residences or other sensitive land uses, or the prevailing wind blows away from residential areas and other sensitive land uses. The risks posed by operations at each facility are unique and determined by a variety of factors. The facilities affected by the proposed amendments tend to be located in industrial areas which help minimize public exposure in the event of a release.

## Regulatory Background

There are many federal and state rules and regulations that affected facilities must comply with which serve to minimize the potential impacts associated with hazards at these facilities.

Under the Occupational Safety and Health Administration (OSHA) regulations [29 Code of Federal Regulations (CFR) Part 1910], facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan. In addition, 29 CFR Part 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, and Title 8 of the California Code of Regulations, General Industry Safety Order §5189, specify required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive, or explosive materials. Prevention program elements are aimed at preventing or minimizing the consequences of catastrophic releases of the chemicals and include process hazard analyses, formal training programs for employees and contractors, investigation of equipment mechanical integrity, and an emergency response plan.

Section 112 (r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances, U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor's Office of Emergency Services (OES). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program. Refineries are also required to comply with the U.S. EPA's Emergency Planning and Community Right-to-Know Act (EPCRA).

Affected facilities that store materials are required to have a Spill Prevention Control and Countermeasures (SPCC) Plan per the requirements of 40 Code of Federal Regulations, Section 112. The SPCC is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, and so forth.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

California Assembly Bill 2185 requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The business plans must provide a description of the types of hazardous materials/waste on-site and the location of these materials. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

Contra Costa County has adopted an industrial safety ordinance that addresses the human factors that lead to accidents. The ordinance requires stationary sources to develop a written human factors program that includes the following:

- Consideration of human factors in the process hazards analysis process;

- Consideration of human systems as causal factors in the incident investigation process for major accidents or releases or for incidents that could have led to a major accident or release;
- Training of employees in the human factors program;
- Operating procedures;
- Management of changes in staffing, staffing levels, or organization in operations or emergency response;
- Participation of employees and their representatives in the development of the written human factors program;
- Development of a program that includes issues such as staffing, shift work, and overtime; and
- Incorporation of the human factors program description in the facility safety plan.

## Discussion of Impacts

VII a - c. The proposed rule amendments are expected to reduce emissions from existing stationary IC engines at affected facilities thus reducing PM and NO<sub>x</sub> emissions. Up to 175 facilities could choose to comply by installing SCR technology to reduce NO<sub>x</sub> emissions. SCRs use ammonia or urea to react with NO<sub>x</sub>, in the presence of a catalyst, to form nitrogen gas and water. In some SCR installations, anhydrous ammonia is used. Safety hazards related to the transport, storage and handling of ammonia exist. Ammonia is considered to be a hazardous chemical. Ammonia has acute and chronic non-cancer health effects and also contributes to ambient PM<sub>10</sub> emissions under some circumstances. Facilities can use either aqueous ammonia or anhydrous ammonia.

**On-Site Release Scenario:** The use of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric pressure and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and gas is only produced when a liquid pool from a spill evaporates. Under current OES regulations implementing the CalARP requirements, aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

The proposed amendments may require the increased use and storage of ammonia, primarily in industrial/commercial zones. The use and storage of anhydrous ammonia would be expected to result in significant hazard impacts as there is the potential for anhydrous ammonia to migrate off-site and expose individuals to concentrations of ammonia that could lead to adverse health impacts. Anhydrous ammonia would be expected to form a vapor cloud (since anhydrous ammonia is a gas at standard temperature and pressures) and migrate from the point of release. The number of people exposed and the distance that the cloud would travel would depend on the meteorological conditions present. Depending on the location of the spill, a number of individuals could be exposed to high concentrations of ammonia resulting in potentially significant impacts.

In the event of an aqueous ammonia release, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a release from on-site vessels or storage tanks, spills would be released into a containment area, which would limit the surface area of the spill and the subsequent toxic emissions. The containment area would limit the potential pool size, minimizing the amount of spilled material that would evaporate, form a vapor cloud, and impact residences or other sensitive receptors (including schools) in the area of the spill. Significant hazard impacts associated with a release of aqueous ammonia would not be expected.

**Transportation Release Scenario:** Use and transport of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form, which is its normal state at atmospheric temperature and pressure, and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and pressure, and gas is only produced when a liquid pool from a spill evaporates. Deliveries of ammonia would be made to each facility by tanker truck via public roads. The maximum capacity of a tanker truck is 150 barrels. Regulations for the transport of hazardous materials by public highway are described in 49 CFR 173 and 177. Nineteen percent aqueous ammonia is considered a hazardous material under 49 CFR 172.

Although trucking of ammonia and other hazardous materials is regulated for safety by the U.S. DOT, there is a possibility that a tanker truck could be involved in an accident spilling its contents. The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition, and driver training. A common reference frequently used in measuring risk of an accident is the number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality.

The actual occurrence of an accidental release of a hazardous material cannot be predicted. The location of an accident or whether sensitive populations would be present in the immediate vicinity also cannot be identified. In general, the shortest and most direct route that takes the least amount of time would have the least risk of an accident. Hazardous material transporters do not routinely avoid populated areas along their routes, although they generally use approved truck routes that take population densities and sensitive populations into account.

The hazards associated with the transport of regulated (CCR Title 19, Division 2, Chapter 4.5 or the CalARP requirements) hazardous materials, including ammonia, would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. Factors such as amount transported, wind speed, ambient temperatures, route traveled, distance to sensitive receptors are considered when determining the consequence of a hazardous material spill.

In the unlikely event that the tanker truck would rupture and release the entire 150 barrels of aqueous ammonia, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a road accident, the roads are usually graded and channeled to prevent water accumulation and a spill would be channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent toxic emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. Without this pooling effect on an impervious surface, the spilled ammonia would not evaporate into a toxic cloud and impact residences or

other sensitive receptors in the area of the spill. An accidental aqueous ammonia spill occurring during transport is, therefore, not expected to have significant impacts.

In the unlikely event that a tanker truck would rupture and release the entire contents of anhydrous ammonia, the ammonia would be expected to form a vapor cloud (since anhydrous ammonia is a gas at standard temperature and pressures) and migrate from the point of release. There are federal, State and local agencies with jurisdiction over hazardous materials and waste are responsible for ensuring that hazardous materials and waste handling activities are conducted in accordance with applicable laws and regulations. While compliance with these laws and regulations will minimize the chance of an accidental release of anhydrous ammonia, the potential will still exist that an unplanned release could occur. The number of people exposed and the distance that the cloud would travel would depend on the meteorological conditions present. Depending on the location of the spill, a number of individuals could be exposed to high concentrations of ammonia resulting in potentially significant impacts.

**Conclusion:** Based on the above evaluation and significance criteria, the hazard impacts associated with the use and transport of aqueous ammonia are less than significant. The hazard impacts associated with the use and transport of anhydrous ammonia are potentially significant, but can be mitigated by using aqueous ammonia. Therefore, the proposed amendments to Rule 9-8 are not expected to generate significant adverse hazard impacts because the increase in ammonia use within the Bay Area is relatively small and limited, and the numerous regulations that exist minimize the potential hazard impacts. Therefore, the impacts of the proposed project on hazards are expected to be less than significant.

VII d. No impacts on hazardous material sites are anticipated from the proposed rule amendments that would apply to existing operations. Some of the affected facilities may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. However, the proposed rule amendments would have no effect on contaminated sites nor would the amendments create a significant hazard to the public or environment. The stationary IC engines already exist and are located within the confines of existing industrial and commercial facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would affect existing site contamination.

VII e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments, which would apply to operations at existing facilities. The stationary IC engines already exist and are located within the confines of existing facilities. Installation of emission control devices on stationary IC engines is not expected to result in any physical changes that would require additional land or impact airport land use plans. Therefore, no significant adverse impacts on hazards at airports are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed rule amendments that would apply to existing facility operations. Installation of emission control devices on stationary IC engines is not expected to result in any changes to emergency response plans. Therefore, no significant adverse impacts on emergency response plans are expected.

VII h. The proposed project will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. Additional natural gas may be used during the construction phase of the proposed project. Natural gas is currently used at most of the affected facilities. The hazards associated with natural gas would result in a torch fire in the event that a release occurred and caught fire. Because of the locations of each facility that would be affected by the proposed project, a torch fire would be expected to remain on-site so

that there would be no public exposure to the fire hazards. No substantial or native vegetation typically exists on or near the affected facilities (specifically because they could be a fire hazard) so the proposed project is not expected to expose people or structures to wild fires. Therefore, no significant increase in fire hazards are expected any of the affected facilities associated with the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
|--|--------------------------------|---|------------------------------|-----------|

**VIII. HYDROLOGY AND WATER QUALITY.**

Would the project:

|   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Violate any water quality standards or waste discharge requirements?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Otherwise substantially degrade water quality?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

flooding as a result of the failure of a levee or dam?

- j) Inundation by seiche, tsunami, or mudflow?

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and affected environment vary substantially throughout the area and include commercial, industrial, residential, agricultural, and open space uses.

The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area. Affected facilities are generally surrounded by other industrial and commercial facilities. Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

The affected facilities are located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs.

## Regulatory Background

The Federal Clean Water Act of 1972 primarily establishes regulations for pollutant discharges into surface waters in order to protect and maintain the quality and integrity of the nation’s waters. This Act requires industries that discharge wastewater to municipal sewer systems to meet pretreatment standards. The regulations authorize the U.S. EPA to set the pretreatment standards. The regulations also allow the local treatment plants to set more stringent wastewater discharge requirements, if necessary, to meet local conditions.

The 1987 amendments to the Clean Water Act enabled the U.S. EPA to regulate, under the National Pollutant Discharge Elimination System (NPDES) program, discharges from industries and large municipal sewer systems. The U.S. EPA set initial permit application requirements in 1990. The State of California, through the State Water Resources Control Board, has authority to issue NPDES permits, which meet U.S. EPA requirements, to specified industries.

The Porter-Cologne Water Quality Act is California's primary water quality control law. It implements the state's responsibilities under the Federal Clean Water Act but also establishes state wastewater discharge requirements. The RWQCB administers the state requirements as specified under the Porter-Cologne Water Quality Act, which include storm water discharge permits. The water quality in the Bay Area is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board.

In response to the Federal Act, the State Water Resources Control Board prepared two state-wide plans in 1991 and 1995 that address storm water runoff: the California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan. Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay, and its constituent's parts, including Carquinez Strait and Suisun Bay, falls under this category.

The San Francisco Bay Basin Plan identifies the: (1) beneficial water uses that need to be protected; (2) the water quality objectives needed to protect the designated beneficial water uses; and (3) strategies and time schedules for achieving the water quality objectives. The beneficial uses of the Carquinez Strait that must be protected which include water contact and non-contact recreation, navigation, ocean commercial and sport fishing, wildlife habitat, estuarine habitat, fish spawning and migration, industrial process and service supply, and preservation of rare and endangered species. The Carquinez Strait and Suisun Bay are included on the 1998 California list as impaired water bodies due to the presence of chlordane, copper, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, PCBs, and selenium.

## Discussion of Impacts

VIII a - b. No significant adverse impacts on hydrology/water quality resources are anticipated from the proposed rule amendments, which would apply to existing industrial and commercial facilities. Owners/operators of facilities affected by the proposed rule amendments may install emission control devices to reduce PM and NO<sub>x</sub> emissions to comply. The facilities affected by the proposed rule amendments are required to treat and monitor wastewater discharges, as applicable, from their facilities. The potential add on air pollution control devices that may be used to comply with the proposed amendments to Rule 9-8 are not expected to require an increase in water use or generate additional wastewater discharge. Therefore, no violation of any water quality standards or waste discharge requirements is expected. The proposed amendments are not expected to deplete groundwater supplies or interfere with groundwater recharge. Therefore, no significant impacts on groundwater supplies are expected due to the proposed Rule 9-8 amendments.

VIII c - f. The facilities affected by the proposed rule amendments are required to treat and monitor wastewater discharges, as applicable, from their facilities. The decrease of NO<sub>x</sub> and PM emissions from stationary IC engines would have little impact on water use, and little to no impact on wastewater discharges or drainage patterns. Facilities are expected to comply by replacing engines, retrofitting engines, or using alternative fuels. Therefore, the proposed amendments are not expected to alter the existing drainage or drainage patterns of the site, result in erosion or siltation, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. Nor are the proposed amendments expected to create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. The proposed amendments are not expected to degrade water quality. Therefore, no significant adverse impacts on drainage patterns, or water runoff are expected.

VIII g – i. The proposed amendments may require modifications to existing facilities. The modifications are expected to be relatively minor so that additional land outside of the confines of existing facilities is not expected to be required. Existing industrial and commercial facilities are not usually located with 100-year flood hazard areas. Therefore, the proposed amendments are not expected to place any additional structures

within 100-year flood zones or other areas subject to flooding. Therefore, no significant adverse impacts due to flooding are expected.

VIII j. The proposed amendments may require modifications to existing facilities. The modifications are expected to be relatively minor (e.g., installation of pollution control equipment) so that additional land outside of the confines of existing facilities is not expected to be required. The proposed rule amendments are not expected to place any additional structures within areas subject to inundation by seiche, tsunami or mudflow. Therefore, no significant adverse impacts on hydrology/water due to seiche, tsunami or mudflow are expected.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact                           |
|--|--------------------------------|---|------------------------------|-------------------------------------|
| <b>IX. LAND USE AND PLANNING.</b> Would the project:   |                                |   |                              |                                     |
| a) Physically divide an established community?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to a general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan?  | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>     | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area.

## Regulatory Background

Land uses are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

## Discussion of Impacts

IX a-c. Owners/operators of facilities affected by the proposed rule amendments would be required to replace, retrofit stationary IC engines, install pollution control devices, or use alternative fuels. The affected facilities are generally located in industrial and commercial areas. Installation of the additional equipment is not expected to result in any physical changes that would require construction outside of the confines of the existing facilities or alter existing land use.

There are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or

planning requirements will be altered by the proposed project. Further, the proposed project is expected to be consistent with the typical industrial and commercial zoning of the affected facilities. Typically, all proposed modifications are expected to occur within the confines of the existing facilities. The proposed project would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Further, no new development or alterations to existing land designations will occur as a result of the implementation of the proposed project. Therefore, present or planned land uses in the region will not be affected as a result of the proposed project. Based upon the above considerations, significant land use planning impacts are not expected from the implementation of the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
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**X. MINERAL RESOURCES.** Would the project:

- |    |   |                          |                          |                          |                                     |
|----|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) | Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) | Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
- 

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area.

## Regulatory Background

Mineral resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

## Discussion of Impacts

X a-b. Owners/operators of facilities affected by the proposed rule amendments would be required to replace, retrofit stationary IC engines, install pollution control devices, or use alternative fuels. Installation of additional equipment is not expected to result in any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, no significant impacts on mineral resources are expected.

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|   | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact        | No Impact                           |
|---|--------------------------------|---|-------------------------------------|-------------------------------------|
| <b>XI. NOISE. Would the project:</b>  |                                |   |                                     |                                     |
| a) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?   | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b) Expose persons to or generate of excessive ground borne vibration or ground borne noise levels?  | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?  | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| f) Be located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?  | <input type="checkbox"/>       | <input type="checkbox"/>                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area. Most affected facilities are surrounded by other industrial and commercial facilities.



## Regulatory Background

Noise issues related to construction and operation activities are addressed in local General Plan policies and local noise ordinance standards. The General Plan and noise ordinances generally establish allowable noise limits within different land uses including residential areas, other sensitive use areas (e.g., schools, churches, hospitals, and libraries), commercial areas, and industrial areas.

## Discussion of Impacts

XI a-c. Owners/operators of facilities affected by the proposed rule amendments would be required to replace, retrofit stationary IC engines, install pollution control devices, or use alternative fuels. Existing facilities affected by the proposed rule amendments are typically located in industrial and commercial settings, and noise is dominated by existing equipment. Internal combustion engines generate noise, are typically fitted with mufflers to reduce noise, and are often located in isolated structures to further reduce noise. Engine modification or the addition of control equipment such as SCR or NSCR is not expected to add to the existing noise level of an engine. Each facility affected will comply with all existing noise control laws or ordinances. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA (Cal/OSHA) have established noise standards to protect worker health. There is not expected to be any additional noise increase on a permanent basis from the project.

XI d. Modifications or changes associated with the implementation of the proposed project will take place at existing facilities that are located in industrial and commercial settings. The existing noise environment at each of the affected facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Construction activities for the proposed project may generate some noise associated with the use of construction equipment and construction-related traffic in the event that grading for the installation of new ammonia tanks, for example, is necessary. However, upon completion of any construction, noise from the proposed project is not expected to produce noise in excess of current operations at each of the existing facilities. These temporary potential noise increases are expected to be small and less than significant.

XI e-f. Though some of the facilities affected by the proposed project are located at sites within an airport land use plan, or within two miles of a public airport, the addition of new or modification of existing equipment would not expose people residing or working in the project area to the same degree of excessive noise levels associated with airplanes. All noise producing equipment must comply with local noise ordinances and applicable OSHA or Cal/OSHA workplace noise reduction requirements. Based upon the above considerations, significant noise impacts are not expected from the implementation of the proposed project.

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|  | Potentially<br>Significant<br>Impact | Less Than<br>Significant<br>Impact with<br>Mitigation<br>Incorporated | Less Than<br>Significant<br>Impact | No Impact |
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**XII. POPULATION AND HOUSING.** Would the project:

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Induce substantial population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area.

## Regulatory Background

Population and housing growth and resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

## Discussion of Impacts

XII. a. Minor construction activities associated with the proposed project at each affected facility are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. The reason for this conclusion is that operators of affected facilities who need to perform any construction activities to comply with the proposed project can draw from the existing labor pool in the local Bay Area. Further, it is not expected that replacing existing equipment with new equipment or installing air pollution control equipment will require new employees during operation of the equipment. In the event that new employees are hired, it is expected that the number of new employees at any one facility would be small. Human population within the jurisdiction of the BAAQMD is anticipated to grow regardless of implementing the proposed project. As a result, the proposed project is not anticipated to

generate any significant adverse effects, either direct or indirect, on population growth in the district or population distribution.

XII. b – c. Because the proposed project includes modifications and/or changes at existing facilities located in industrial and commercial settings, the proposed project is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in the Bay Area. Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed project.

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|  | Potentially<br>Significant<br>Impact | Less Than<br>Significant<br>Impact With<br>Mitigation<br>Incorporated | Less Than<br>Significant<br>Impact | No Impact |
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**XIII. PUBLIC SERVICES.** Would the project:

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

|                          |                          |                          |                                     |                                     |
|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| Fire protection?         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Police protection?       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Schools?                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Parks?                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

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## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area.

Given the large area covered by the BAAQMD, public services are provided by a wide variety of local agencies. Fire protection and police protection/law enforcement services within the BAAQMD are provided by various districts, organizations, and agencies. There are several school districts, private schools, and park departments within the BAAQMD. Public facilities within the BAAQMD are managed by different county, city, and special-use districts.

## Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate public services are maintained within the local jurisdiction.

## Discussion of Impacts

XIII a. Implementation of the proposed project by installing new or modifying existing add-on controls is anticipated to continue current operations at existing affected facilities. The proposed project may result in greater demand for ammonia, which will need to be transported to the affected facilities that install SCR and stored onsite prior to use. In the event of an accidental release fire departments are typically first responders for control and clean-up and police may be need to be available to maintain perimeter boundaries. The proposed project is not expected to significantly affect fire or police departments because of the low probability of accidents during transport. Therefore, the proposed project is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, schools, parks, government, et cetera) above current levels.

As noted in the “Population and Housing” discussion above, the proposed project is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any construction activities that may be necessary at affected facilities and operation of new or modified equipment is not expected to require additional employees. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
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**XIV. RECREATION.** Would the project:

- |    |   |                          |                          |                          |                                     |
|----|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) | Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) | Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that there are numerous areas for recreational activities. The facilities affected by the proposed rule amendments are located in industrial and commercial areas throughout the Bay Area. Public recreational land uses are generally not located within the confines of industrial or commercial facilities.

## Regulatory Background

Recreational areas are generally protected and regulated by the City and/or County General Plans at the local level through land use and zoning requirements. Some parks and recreation areas are designated and protected by state and federal regulations.

## Discussion of Impacts

XIV a-b. As discussed under “Land Use” above, there are no provisions of the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments; no land use or planning requirements will be altered by the proposed project. Further, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed project is not expected to induce population growth. Based upon these considerations, no impacts on recreation are expected from the implementation of the proposed project.



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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
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**XV. TRANSPORTATION/TRAFFIC.** Would the project:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards because of a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Result in inadequate parking capacity?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The Port of Oakland and three international airports in the area serve as hubs for commerce and transportation. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area contains over 19,600 miles of local streets and roads, and over 1,400 miles of state highways. In addition, there are over 9,040



transit route miles of services including rapid rail, light rail, commuter, diesel and electric buses, cable cars, and ferries. The Bay Area also has an extensive local system of bicycle routes and pedestrian paths and sidewalks. At a regional level, the share of workers driving alone was about 68 percent in 2000. The portion of commuters that carpool was about 12.9 percent in 2000. About 3.2 percent of commuters walked to work in 2000. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 2.2 percent of commuters in 2000 (MTC, 2004).

Cars, buses, and commercial vehicles travel about 143 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.7 million riders on the average weekday (MTC, 2004).

The region is served by numerous interstate and U.S. freeways. On the west side of San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstates 880 and 660 run north-south on the east side of the Bay. Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. State Routes 29 and 84, both highways that allow at-grade crossings in certain parts of the region, become freeways that run east-west and across the Bay. Interstate 580 starts in San Rafael, crosses the Richmond-San Rafael Bridge, joins with Interstate 80, runs through Oakland, and then runs eastward toward Livermore. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Caltrans constructed a second freeway bridge adjacent and east of the existing Benicia-Martinez Bridge. The new bridge consists of five northbound traffic lanes. The existing bridge was re-striped to accommodate four lanes for southbound traffic. Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

## **Regulatory Background**

Transportation planning is usually conducted at the county level. Each Bay Area County has a Congestion Management Agency. The Congestion Management Agency is responsible for transportation planning and administration of improvement projects in each county and in some cases, shares these responsibilities with the county departments. County development agencies conduct and oversee the transportation and planning for new development projects while the Congestion Management Agency implements the transportation programs and projects.

## **Discussion of Impacts**

XV a-b. Construction activities resulting from implementing the proposed project may generate a slight, although temporary, increase in traffic in the areas of each affected facility associated with construction workers, construction equipment, and the delivery of construction materials. However, the proposed project is not expected to cause a significant increase in traffic relative to the existing traffic load and capacity of the street systems surrounding the affected facilities. Also, the proposed project is not expected to exceed, either individually or cumulatively, the current level of service of the areas surrounding the affected facilities. The work force at each affected facility is not expected to significantly increase as a result of the proposed project and operation-related traffic is expected to be minimal. Thus, the traffic impacts associated with the proposed rule amendments are expected to be less than significant.

XV c. Though some of the facilities that will be affected by the proposed project may be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, actions that would be taken to comply with the proposed project, such as installing new air pollution control equipment, are not expected to significantly influence or affect air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space. Thus, the proposed project would not result in a change in air traffic patterns including an increase in traffic levels or a change in location that results in substantial safety risks.

XV d - e. The siting of each affected facility is expected to be consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Aside from the temporary effects due to a slight increase in truck traffic for those facilities that will undergo construction activities during installation or modification of air pollution control equipment, the proposed project is not expected to alter the existing long-term circulation patterns. The proposed project is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. The proposed project does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by the proposed project. Further, each affected facility is expected to continue to maintain their existing emergency access gates.

XV f. Each affected facility will be required to provide parking for the construction workers, as applicable, either on or within close proximity to each facility. No additional parking will be needed after completion of the construction phase because the work force at each facility is not expected to significantly increase as a result of the proposed project. Therefore, the proposed rule amendments will not result in significant adverse impacts on parking.

XV g. Construction and operation activities resulting from the proposed project are not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g. bicycles or buses) because the construction and operation activities related to the proposed project will occur solely in existing industrial, commercial, and institutional areas.

Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of the proposed project.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less-than-Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
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**XVI. UTILITIES AND SERVICE SYSTEMS.**

Would the project:

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements needed?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Setting**

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and the affected environment vary greatly throughout the area.

Given the large area covered by the BAAQMD, public utilities are provided by a wide variety of local agencies. The affected facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of NPDES permits.

Water is supplied to affected facilities by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities and at disposal sites.

There are no hazardous waste disposal sites within the jurisdiction of the BAAQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Hazardous waste can also be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

## Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate utilities and service systems are maintain within the local jurisdiction.

## Discussion of Impacts

XVI a, b, d, e. The stationary IC engines affected by the proposed rule amendments already exist and are located within the confines of existing facilities within industrial and commercial areas. As discussed under Hydrology and Water Quality, owners/operators of facilities affected by the proposed rule amendments may install emission control devices to reduce PM and NO<sub>x</sub> emissions to comply. The facilities affected by the proposed rule amendments are required to treat and monitor wastewater discharges, as applicable, from their facilities. The potential add on air pollution control devices that may be used to comply with the proposed amendments to Rule 9-8 are not expected to require an increase in water use or wastewater discharge. Therefore, no significant adverse impacts on wastewater or water demand are expected.

XVI c. The facilities affected by the proposed rule amendments are by replacing engines, retrofitting engines, or using alternative fuels. Construction activities would involve replacing existing stationary IC engines or installing air pollution control equipment within the confines of existing facilities. Therefore, the proposed amendments are not expected to alter the existing drainage or require the construction of new storm water drainage facilities. Nor are the proposed amendments expected to create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Therefore, no significant adverse impacts on storm drainage facilities are expected.

XVI f and g. The proposed rule amendments would not affected the ability of facilities to comply with federal, state, and local statutes and regulations related to solid waste. No significant impacts on waste generation are expected from the proposed rule amendments.

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|  | Potentially Significant Impact | Less Than Significant Impact With Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|---|------------------------------|-----------|
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**XVII. MANDATORY FINDINGS OF SIGNIFICANCE.**

- |    |  |                          |                          |                          |                                     |
|----|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) | Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) | Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) | Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Discussion of Impacts**

XVII a. The proposed rule amendments do not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, as discussed in the previous sections of the CEQA checklist. The proposed rule amendments are expected to result in emission reductions from facilities with stationary IC engines thus providing a beneficial air quality impact and improvement in air quality. No significant adverse impacts are expected.

XVII b. Proposed Rule 9-8 is expected to result in emission reductions of NOx and PM from affected facilities with stationary IC engines, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone and reduce emissions of particulate matter. The proposed rule amendments do not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects. The

proposed rule amendments are not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse impacts are expected.

XVII c. The proposed rule amendments are expected to result in emission reductions from affected facilities, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone and reduce emissions of particulate matter, thus reducing the potential health impacts due to these pollutants. The proposed rule amendments are not expected to have significant adverse effects (either directly or indirectly) to human beings.

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**Chapter 4****References**

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