

**Initial Study/Negative Declaration
for the
Amendments to
Bay Area Air Quality Management District
Regulation 9, Rule 10:
Nitrogen Oxides and Carbon Monoxide from
Boilers, Steam Generators and Process Heaters in Petroleum Refineries**

Prepared for:

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Chapter 1

Introduction

Purpose of this Document

This Negative Declaration assesses the environmental impacts of the proposed adoption of amendments to Regulation 9, Rule 10 – Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries (Regulation 9-10) - 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 §15000 et seq.). A Negative Declaration 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 Negative Declaration because no significant adverse impacts are expected to 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,
- agriculture and forestry resources,
- air quality,
- biological resources,
- cultural resources,
- geology / soils,
- greenhouse gas emissions,
- hazards & hazardous materials,
- hydrology / water quality,
- land use / planning,

- mineral resources,
- noise,
- population / housing,
- public services,
- recreation,
- transportation / traffic, and
- utilities / service systems.

Impact Terminology

The following terminology is used in this Initial Study/Negative Declaration 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 10, 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 BAAQMD regulates nitrogen oxides (NO_x) emissions from boilers, steam generators, and process heaters that are used in petroleum refineries under Regulation 9, Rule 10, (Regulation 9-10). Regulation 9-10 currently imposes a 0.033 lb NO_x per million British Thermal Units (BTU) heat input (daily average) for each refinery operating within the District's jurisdiction. Regulation 9-10 was adopted on January 5, 1994 and amended on July 17, 2002. The regulation imposes a refinery-wide average NO_x emissions limit on refinery boilers, steam generators, and process heaters (excluding carbon monoxide (CO) boilers) that were permitted prior to the adoption of the rule (pre-1994 heaters). The NO_x limits were not applied to boilers, steam generators and process heaters that would be permitted after the rule was adopted (post-1994 heaters) because these devices would be subject to stringent NO_x limits as a result of the District's "best available control technology" (BACT) requirements. The rule also imposes a specific (not average) NO_x emission limit on all CO boilers.

The NO_x limits in Regulation 9-10 for pre-1994 heaters, combined with BACT requirements for post-1994 heaters, resulted in significant reductions in NO_x emissions from Bay Area refinery operations beginning in 2002. Currently, 81 percent of the total rated capacity of refinery boilers, steam generators, and process heaters in the Bay Area is equipped with NO_x controls of some kind.

In the Bay Area 2005 Ozone Strategy, Further Study Measure 14 (FS-14), and subsequently, Control Measure SSM 10 of the Bay Area 2010 Clean Air Plan (SSM 10), the District committed to study ways that the existing Regulation 9-10 emissions limits might be tightened to achieve further NO_x emissions reductions. As explained in the Ozone Strategy, however, the District did not commit to continue evaluation of any measure if it was determined to be technically infeasible, not cost-effective or inappropriate for any other reason, nor did the District commit to move forward with a measure that was deemed feasible as a result of its further study, unless and until the District conducted a rulemaking process.

OBJECTIVES

In FS-14, the District suggested review of NO_x emission requirements for boilers, steam generators, and process heaters in petroleum refineries. The objective of the proposed amendments for Regulation 9-10 is to further reduce NO_x emissions from CO boilers in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The Bay Area and neighboring regions are not yet in attainment with the State one-hour ozone standard, so further reductions in ozone precursors, NO_x

and reactive organic gases (ROG), are needed. Additional NOx reductions can be achieved by flame modification techniques, low and ultra-low NOx burners, resulting in a lower and more uniform flame temperature, which reduces formation of NOx, or by add-on controls such as selective catalytic or non-catalytic reduction, which react NOx emissions with ammonia to produce nitrogen gas (N₂) and water (H₂O) vapor.

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 a California ozone standard. The Bay Area is a non-attainment area for the state one-hour ozone standard and federal eight-hour ozone standard. Under State law, ozone non-attainment areas must prepare plans showing how they will attain the state standard. The Bay Area 2010 Clean Air Plan 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 one-hour standard, the least severe non-attainment classification, the BAAQMD is not required to prepare an attainment plan for the national standard. In addition, NOx emissions react in the atmosphere to form secondary particulate matter. The Bay Area is not in attainment of California ambient air standards for particulate matter of 10 microns or less (PM10) and is also not in attainment with California or federal ambient air standards for particulate matter of 2.5 microns or less (PM2.5).

RULE AMENDMENTS UNDER CONSIDERED

District staff is currently recommending amending Regulation 9-10 in three ways: (1) by making NOx limits for CO boilers more stringent; (2) by expanding the applicability of the rule to smaller natural gas and LPG-fired devices; and (3) by simplifying and clarifying compliance calculation procedures.

TABLE 2-1

Current and Proposed CO Boiler NOx Limits

Current NOx Limit (ppmv @ 3% oxygen)	Proposed NOx Limits (Effective 1/1/2015) (ppmv @ 3% oxygen)	
Any CO boiler	CO boiler (except Partial-Burn)	Partial-Burn CO boiler
Operating-day average: 150	Op/day avg: 150	Op day avg: 125
Calendar year average: none	Calendar yr avg: 45	Calendar yr avg: 85

First, since 1994, some CO boilers have demonstrated the ability to operate at significantly lower NOx levels than the current Regulation 9-10 limit of 150 parts per million by volume (ppmv). As a result, the District staff recommends amending Regulation 9-10 to impose more stringent NOx limits on CO boilers. Under the proposed rule, the current daily limit of 150 ppmv would still apply to CO boilers, except for partial-burn CO boilers which would have a daily limit of 125 ppmv. A new calendar-

year average emission limit is proposed for CO boiler of 45 ppmv, except for partial-burn CO boilers which would have a limit of 85 ppmv, as illustrated in Table 2-1.

The proposed operating day and calendar year average limits are intended to come as close as possible to limits imposed as best available control technology (BACT) for two new CO boilers at the Valero Benicia refinery, while remaining cost-effective.

Second, the District proposes narrowing the exemption in Regulation 9-10-110.1 so that pre-1994 heaters fired with natural gas or LPG fuel with a rated heat input between 2 and 10 MMBTU/hr would be subject to the rule. District staff does not anticipate that the change will require any refinery to add NO_x controls since emissions from these small heaters are negligible; however, the change would make refinery heaters regulated in the same size range as non-refinery heaters in Regulation 9-7.

Third, the District proposes changes to the emission compliance calculations that are applied to heaters that are in start-up or shutdown mode, that are temporarily out of service, or that are in a curtailed operating mode. These changes retain the principle that heaters in these non-standard operating modes may use different data than would be used under normal operating conditions to calculate the emission contribution from the heater.

District staff is not currently proposing further NO_x emissions controls on pre-1994 heaters.

PROPOSED METHOD OF CONTROL

Controlling Emissions

A refinery heater combustion process involves the combustion of a hydrocarbon fuel in the presence of oxygen (in the combustion air stream). The carbon in the fuel is oxidized to carbon dioxide (CO₂) and the hydrogen in the fuel becomes water vapor (H₂O). By-products of the process include: CO, NO_x, sulfur oxides (SO_x), volatile organic compounds (VOCs), and particulate matter (PM). NO_x and VOC compounds react in the lower atmosphere to form ozone. NO_x, SO_x, VOCs, and ammonia may react to form fine particulate matter. NO_x emissions that contribute to ozone formation are the focus of Regulation 9-10, FS-14 and SSM 10.

NO_x Emissions

The nitrogen contained in the NO_x emissions from a refinery heater combustion process comes from one of two sources: (1) elemental nitrogen (N) that is chemically bound to the fuel molecules, and (2) nitrogen gas (N₂) that is part of the combustion air (air contains about 79 percent N₂ by volume). NO_x formed from elemental, fuel-bound nitrogen is called “fuel NO_x”. Because natural gas and most other gaseous fuels have negligible levels of fuel-bound nitrogen, and because these are the primary fuels used in refinery heaters, fuel NO_x is not a significant contributor to NO_x emissions from refinery heaters. NO_x formed from gaseous nitrogen that is introduced into the combustion

process with the combustion air stream is the source of “thermal NOx” and “prompt NOx”. Thermal NOx is created by a set of reactions that are affected primarily by heater temperature and excess oxygen concentration, with higher temperatures (especially greater than 2800 degrees F) and higher oxygen concentrations causing higher NOx generation rates. Prompt NOx is created by a set of reactions that are affected primarily by the air-fuel ratio in the combustion zone, with fuel-rich conditions promoting NOx formation. Thermal NOx is the primary component of NOx emissions from refinery heaters, although prompt NOx must be controlled to achieve overall NOx emission rates of 20 to 30 ppmv or less.

NOx Controls

Uncontrolled heaters use conventional burners that are not designed to achieve any particular level of NOx emissions. Conventional burners are designed to produce a small, hot flame by quickly and completely mixing fuel and combustion air. Such a flame allows the heater firebox to be as small as possible, and to be stable under a wide firing range and during fast changes in load.

The first level of control for a refinery heater is the use of low-NOx burners (LNB) which use staged-combustion techniques to suppress the formation of thermal NOx. Instead of mixing fuel and combustion air as quickly as possible, LNBs perform combustion in at least two stages, with the fuel-air ratio carefully controlled and the fuel and combustion air mixed thoroughly. Thorough mixing prevents combustion hot spots where NOx formation is high, while staged combustion produces a larger flame with a lower average temperature. Since the thermal NOx formation rate is highly dependent on combustion temperature, eliminating hot-spots and performing combustion at lower average temperatures reduces thermal NOx formation. Some refinery heaters continue to use conventional burners rather than LNBs because the firebox will not accommodate a larger flame. LNBs typically provide a 50 percent reduction of NOx formation compared to conventional burners. Implementation of the Phase 1 requirements of Regulation 9-10 in 1994 resulted in an average refinery heater emission rate (excluding CO boilers) that was no higher than if all refinery heaters used this first level of NOx control.

Ultra-low-NOx burners (ULNB), in addition to suppressing thermal NOx formation, also suppress prompt NOx formation by avoiding fuel-rich conditions and reducing combustion temperatures. ULNBs use internal exhaust gas recirculation, where a portion of the combustion gases that are leaving the combustion zone are injected back into the combustion zone to cool the combustion temperature. ULNBs typically provide a 75 percent reduction of NOx formation compared to conventional burners.

Flue gas recirculation (FGR) reduces flame temperature by diverting some of the combustion exhaust gas back to the burner inlet, where it is mixed with the fuel and combustion air. Unlike the internal gas recirculation that occurs in ULNBs, FGR diverts exhaust gas outside of the firebox. The exhaust gas, while hot, is cooler than the combustion temperature, so FGR reduces the average flame temperature. The exhaust gas also has a reduced oxygen content compared to ambient combustion air, so the

amount of excess oxygen available to form NO_x is reduced. FGR may be used by itself or in combination with LNBs or ULNBs and typically will achieve an additional 10 percent reduction of NO_x formation compared to LNBs or ULNBs by themselves. However, FGR imposes an efficiency penalty because it requires the use of an additional blower to re-circulate exhaust gases.

A technique similar to FGR is the injection of water or steam into the combustion zone to lower combustion temperature. This technique is rarely used because it causes a large efficiency loss.

NO_x emissions can also be reduced with add-on controls that convert previously-formed NO_x to N₂ by reacting NO_x with ammonia (NH₃), with or without the use of a catalyst. These post combustion controls are known as SCR and SNCR systems, respectively. NO_x catalysts operate well in a narrow temperature band, so SCR systems are less suitable in applications where a heater operates over a wide load range, which results in a wide temperature variation at the exhaust catalyst.

Compliance with the current NO_x standards in Regulation 9-10 has been achieved through the use of LNBs, ULNBs, and SCR at selected heaters. No new NO_x control technologies have become available since the Phase 1 NO_x controls in Regulation 9-10 were completely implemented in 2002. Although the performance of LNBs, ULNBs, and SCR has improved somewhat since 2002, much of this improvement has been limited to natural gas-fired boilers.

A total of six refinery heaters (at three refineries, referred to herein as Refinery #1, #2, and #3) are classified as “CO boilers”. CO boilers are not regulated under the refinery-wide NO_x limit (0.033 lb NO_x per million BTU heat input for each refinery as a daily average). Instead, CO boilers have individual NO_x limits of 150 ppmv, expressed as a daily average. Although some CO boilers may have emissions that approach 150 ppmv on a short-term basis, all of them can operate at a lower NO_x level, when considered on a long-term basis. For that reason, the BAAQMD is proposing to add a lower, 365-day average limit to the current daily average limit (and to reduce the daily limit for some CO boilers). See Table 2-1 for proposed NO_x emissions limits.

Starting in 2011, Refinery #3 will operate new CO boilers and take their existing CO boilers out of service. The new CO boilers will not be subject to Regulation 9-10. Therefore, 2 refineries (#1 and #2) will be affected by the proposed changes in CO boiler NO_x limits.

CO Emissions and Controls

Carbon monoxide is produced by the incomplete oxidation of carbon in a fossil fuel to CO rather than to CO₂. Because the District is in attainment status with all state ambient air quality standards for CO and is a “maintenance area” with respect to federal CO standards, Regulation 9-10 limits the concentration of CO in the exhaust stream of

refinery heaters to 400 ppmv, but does not attempt to achieve further CO emission reductions. All other California air districts that address CO emissions from combustion sources impose the same 400 ppmv standard.

Burner-based NO_x control strategies, which limit NO_x formation by limiting combustion temperature, tend to also limit complete oxidation of carbon to CO₂, thereby increasing the CO formation rate. All refinery heaters, including CO boilers, may be operated at CO emission levels below 400 ppmv through good operating practice.

POTENTIAL EMISSION REDUCTIONS

When Regulation 9-10 was adopted in 1994, the typical refinery heater operated at a NO_x emission rate of 100 ppmv to 140 ppmv, with higher emissions at CO boilers. Most of these existing heaters were old enough that they had not triggered the District's BACT requirements, which apply to devices installed or modified after 1982. In fact, almost all of these heaters operated without NO_x controls of any kind. In 1994, total NO_x emissions from these heaters were estimated to be about 31 tons/day, and adoption of the Regulation 9-10 limits in 1994 ("Phase 1" limits) was expected to result in a 21 tons/day reduction in NO_x. However, it appears that emissions from these heaters may have been underestimated in 1994. The current emissions and emission rates for these heaters, as well as 1994 emission rate data, suggest that total 1994 NO_x emissions were in fact about 40 tons/day and that implementation of Phase 1 NO_x controls achieved a NO_x reduction of about 26 ton/day, which represents about a 65 percent emission reduction.

Table 2-2 shows current refinery emissions at each of the five Bay Area refineries, based on permit data for 2008. The current total NO_x emissions for heaters subject to Regulation 9-10 (i.e., pre-1994 heaters and CO boilers) equaled 10.9 tons/day. Post-1994 heaters that are not subject to the rule contributed another 0.1 ton/day of NO_x emissions.

TABLE 2-2**2008 Refinery NO_x Emissions – Boilers, Steam Generators
and Process Heaters (tons/year)**

Refinery	Pre-1994 Heaters Subject to Reg 9-10	CO Boilers Subject to Reg 9-10	Post-1994 Heaters NOT Subject to Reg 9-10
#1	535	NA	7
#2	460	516	NA
#3	169	NA	18
#4	858	600	11
#5	491	346	1
Total (tons/yr)	2513	1462	37
Total (tons/day)	6.9	4.0	0.1

As shown in Table 2-2, total NO_x emissions from CO boiler emissions in 2008 were 4.0 tons/day. The Air District estimates that the NO_x emission reduction from the adoption of the proposed CO boiler NO_x limits will be 1.6 ton/day.

AFFECTED AREA

The proposed rule amendments would apply to facilities under 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.

See Figure 1 depicting the area covered by the Bay Area Air Quality Management District. The refineries that fall within the District are located in Contra Costa and Solano County adjacent to the San Francisco Bay.

The Chevron refinery is located in the City of Richmond in Contra Costa County. The refinery lies to the west of Castro Street and mostly to the north of Interstate 580 and some storage tanks and the wharf lie south of Interstate 580. The refinery occupies most of the Point San Pablo Peninsula and covers approximately 2,900 acres. It is generally bordered on the north and south by the residential communities of North Richmond and Point Richmond, respectively. East of the refinery, across Castro Street and Garrard Boulevard, are the Iron Triangle and Santa Fe communities and central and downtown Richmond. San Francisco and San Pablo Bays form the western border of the refinery.

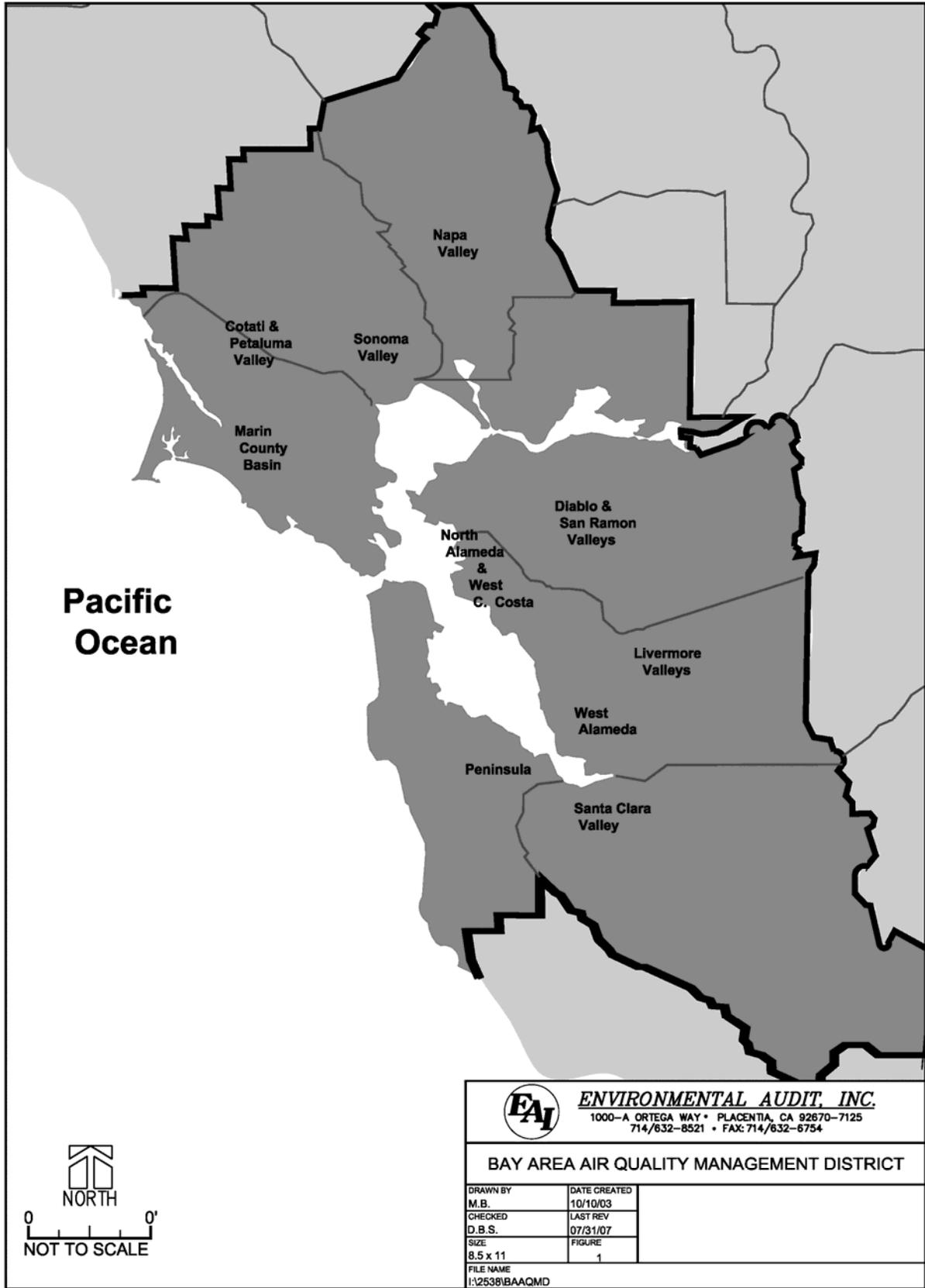
The Valero refinery is located on about 800 acres of land within the City of Benicia. The refinery is located about 0.5 mile north of Interstate 780 and immediately west of Interstate 680. Valero is bisected in a north-south direction by East Second Street. The refinery is bounded on the north by residential development and open space, on the east by an industrial park and Interstate 680, on the south by industrial development, and on the west by residential development.

The ConocoPhillips refinery is located on approximately 1,100 acres of land in the unincorporated area northeast of the community of Rodeo. The refinery property is bounded on the north by San Pablo Bay and a marine terminal, on the east by agricultural lands, on the south and southwest by a residential area and on the west by San Pablo Bay. Interstate 80 runs north-south through the refinery dividing the eastern portion of the refinery.

The Shell Oil refinery is located on about 880 acres in Contra Costa County, partially within the City of Martinez. The main portion of the refinery is bordered by Marina Vista Boulevard to the north, Interstate 680 to the east, Pacheco Boulevard to the South, Merrithew Avenue to the west, and the Shell marine terminal to the northwest. Land use north of the refinery is a combination of industrial and open space; northeast of the refinery is an environmental conservation district; east is residential land use with some light industrial areas; land use south and southwest of the refinery is residential. The Martinez reservoir is also located to the south of the refinery.

The Tesoro refinery is located in Contra Costa County, within the community of Avon. The refinery is located south of Suisun Bay and is bordered by Waterfront road to the north and Solano Way to the west. Land use south and east of the refinery is a combination of industrial and open space. The Tesoro refinery is located east of the Shell Martinez refinery. The Mallard reservoir is also located southeast of the refinery.

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Chapter 3**Environmental Checklist****INTRODUCTION**

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed Amendments to Regulation 9, Rule 10.
Lead Agency Name:	Bay Area Air Quality Management District 939 Ellis Street
Lead Agency Address:	San Francisco, California 94109
Contact Person:	Julian Elliot
Contact Phone Number:	415-749-4705
Project Location:	This rule amendment applies 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.
Project Sponsor's Name:	Bay Area Air Quality Management District 939 Ellis Street
Project Sponsor's Address:	San Francisco, California 94109
General Plan Designation:	Rule 9-10 applies to boilers, steam generators, and process heaters that are used in petroleum refineries throughout the District, which are primarily located in industrial areas.
Zoning:	Rule 9-10 applies to boilers, steam generators, and process heaters at petroleum refineries throughout the District, which are primarily located in industrial areas.
Description of Project:	See "Background" in Chapter 2.
Surrounding Land Uses and Setting:	See "Affected Area" in Chapter 2.
Other Public Agencies Whose Approval is Required:	None

Environmental Factors Potentially Affected:

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with a "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

- | | | |
|---|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology / Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <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 in 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 a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, 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 EIR or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:

Date:

Printed Name:

Date:

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This checklist is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL CHECKLIST AND DISCUSSION

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
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I. AESTHETICS.

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 to 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.

The proposed rule amendments focus on NOx emissions from boilers, steam generators, and process heaters in petroleum refineries. Rule amendments for these boilers and heaters will affect five refineries currently operating within the Bay Area. Scenic highways or corridors are generally not located in the vicinity of these refineries.

Regulatory Background

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

Impacts

I a-d. The proposed amendments to Regulation 9-10 would further reduce NO_x emissions from boilers, steam generators, and process heaters in petroleum refineries in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The proposed amendments are not expected to require the construction of any major new structures that would be visible to areas outside of existing refinery boundaries, and are not expected to result in any adverse aesthetic impacts. Once completed, most of the modifications are not expected to be visible as they would involve new burners, emission control equipment, or replacement of existing equipment with new equipment, which would not be visible to surrounding areas. The boilers and heaters affected by the proposed rule amendments are located within existing refineries within the Bay Area, which are not typically located in areas with scenic vistas. The proposed amendments to Regulation 9-10 are not expected to require substantial construction of any major new structures that would be visible to areas outside of the refineries, and are not expected to result in adverse aesthetic impacts. The refineries may require new air pollution control equipment such as SCR or SNCR which could be visible to surrounding areas. However, the refinery facilities are all industrial facilities located within industrial areas. Once completed, most of the modifications are not expected to be visible. Therefore, the installation of new equipment within an industrial area is not expected to generate significant adverse impacts on aesthetics. The proposed amendments to Regulation 9-10 would also not require any new sources of light or glare, since new equipment would largely replace existing equipment.

Based upon these considerations, no significant adverse aesthetic impacts are expected from the implementation of the amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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II. AGRICULTURE and FOREST 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 as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.--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) Conflict with existing zoning for, or cause rezoning of, forest land as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | | | | |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | | | | |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | <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. Some of these agricultural lands are under Williamson Act contracts.

The proposed amendments will affect boilers, steam generators, and process heaters at existing refineries within the Bay Area. Agricultural or forest resources are currently not located within the confines of the refineries located within the Bay Area.

Regulatory Background

Agricultural and forest 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-e. The proposed amendments to Regulation 9-10 would further reduce NO_x emissions from boilers, steam generators, and process heaters in petroleum refineries in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The refineries are located in industrial areas where no agricultural or forest resources are located. The five refineries operating within the Bay Area may comply with Regulation 9-10 by using either LNB, ULNB, SCR, SNCR, or a combination of these technologies, thus reducing the production of NO_x. These changes would be made within the confines of the existing refinery facilities. No development outside of existing refinery facilities would be required by the proposed amendments to Regulation 9-10. Further, it is doubtful that any major modifications at the refineries would be required, rather fewer emission offsets will be produced.

Based upon these considerations, no significant adverse impacts to agricultural and forest resources are expected from the implementation of the proposed rule amendments.

	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 checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment 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 checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent high 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 tule 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, CO, nitrogen dioxide (NO₂), PM₁₀, PM_{2.5}, sulfur dioxide (SO₂) 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 24 monitoring stations. The 2008 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 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 District is in attainment of the State and federal ambient air quality standards for CO, NO_x, and SO₂. The District is not considered to be in attainment with the State PM₁₀ and PM_{2.5} standards.

The 2008 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the state standard and federal ambient air quality standards for CO, NO₂, and SO₂. The federal 8-hour ozone standard was exceeded 12 days in the District in 2008, while the state standard was exceeded on 20 days. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard. The State 1-hour ozone standard was exceeded on 9 days in 2008 in the District. The ozone standards are most frequently exceeded in the Eastern District (Livermore, Concord, and Bethel Island) (see Table 3-2).

All monitoring stations were in compliance with the federal PM₁₀ standards. The California PM₁₀ standards were exceeded on 5 days in 2008, most frequently in Bethel Island. The Air District exceeded the federal PM_{2.5} standard on 12 days, most frequently in Vallejo, in 2008 (see Table 3-2).

TABLE 3-1

Federal and State Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD CONCENTRATION/ AVERAGING TIME	FEDERAL PRIMARY STANDARD CONCENTRATION/ AVERAGING TIME	MOST RELEVANT EFFECTS
Ozone	0.09 ppm, 1-hr. avg. > 0.070 ppm, 8-hr	0.075 ppm, 8-hour 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. > 20 ppm, 1-hr avg. >	9 ppm, 8-hour avg.> 35 ppm, 1-hour 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.> 0.100 ppm, 1-hour 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.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hour avg.> 0.075 ppm, 1-hour 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 ³ , annarithmic mean > 50 µg/m ³ , 24-hr average>	50 µg/m ³ , annual arithmetic mean > 150 µg/m ³ , 24-hour 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 ³ , annual arithmetic mean>	15 µg/m ³ , annual arithmetic mean> 35 µg/m ³ , 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 µg/m ³ , 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 ³ , 30-day avg. >=	1.5 µg/m ³ , calendar quarter> 0.15 ug/m ³ , rolling 3-month avg.>	(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 - 2008**

MONITORING STATIONS	OZONE						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM ₁₀				PM _{2.5}				
	Max 1-hr	Cal 1-hr Days	Max 8-hr	Nat Days	Cal 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 Days	Cal Days	Max 24-hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(ppb)						(ppm)			(ppb)			(µm ³)				(µm ³)							
Napa	107	1	77	2	2	61	3.2	1.8	0	64	10	0	-	-	-	21.6	50	0	0	-	-	-	-	-
San Rafael	85	0	69	0	0	50	1.8	1.1	0	56	13	0	-	-	-	18.6	41	0	0	-	-	-	-	-
Santa Rosa*	76	0	64	0	0	51	3.5	1.5	0	49	11	0	-	-	-	*	*	*	*	30.8	0	30.4	8.6	8.4
Vallejo*	109	1	75	0	3	60	2.7	2.3	0	67	10	0	4	1.2	0	*	*	*	*	50.0	7	36.4	9.9	9.8
Coast/Central Bay																								
Berkeley*	53	0	49	0	0	*	2.8	1.7	0	55	14	0	4	1.3	0	22.5	44	0	0	-	-	-	-	-
Oakland*	86	0	64	0	0	*	3.0	1.6	0	70	15	0	-	-	-	-	-	-	-	30.1	0	*	9.5	*
Richmond	-	-	-	-	-	-	-	-	-	-	-	-	8	1.5	0	-	-	-	-	-	-	-	-	-
San Francisco	82	0	66	0	0	46	5.7	2.3	0	62	16	0	5	1.5	0	22.0	41	0	0	29.4	0	26.3	9.8	9.4
San Pablo	84	0	63	0	0	50	2.5	1.3	0	67	12	0	4	1.4	0	20.9	44	0	0	-	-	-	-	-
Eastern District																								
Benicia*	123	2	86	3	7	*	1.0	0.8	0	38	7	0	5	1.6	0	18.1	52	0	1	-	-	-	-	-
Bethel Island	109	4	90	4	10	76	1.5	1.1	0	41	7	0	4	1.4	0	24.1	77	0	3	-	-	-	-	-
Concord	119	3	88	6	8	78	1.6	1.1	0	50	10	0	4	1.2	0	17.5	51	0	1	60.3	3	34.6	9.3	9.0
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	13	2.1	0	-	-	-	-	-	-	-	-	-
Fairfield	116	2	90	1	2	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore*	141	5	110	6	8	81	2.4	1.4	0	58	13	0	-	-	-	*	*	*	*	38.6	2	36.2	10.1	9.6
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	6	1.7	0	-	-	-	-	-	-	-	-	-
Pittsburg*	106	1	83	1	2	71	2.8	1.4	0	56	10	0	6	1.8	0	*	*	*	*	-	-	-	-	-
South Central Bay																								
Fremont*	112	1	78	1	3	61	1.9	1.4	0	62	14	0	-	-	-	*	*	*	*	28.6	0	28.8	9.4	9.5
Hayward	114	1	86	1	3	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City*	82	0	69	0	0	53	4.3	1.9	0	69	14	0	-	-	-	*	*	*	*	27.9	0	29.3	9.1	9.0
San Leandro	96	1	68	0	0	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santa Clara Valley																								
Gilroy*	103	1	79	1	4	73	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5	0	*	8.7	*
Los Gatos	122	2	97	2	6	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose Central	118	1	80	2	3	65	3.3	2.5	0	80	17	0	-	-	-	23.4	57	0	1	41.9	5	35.8	11.5	11.0
San Martin	123	2	77	2	5	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunnyvale	93	0	76	1	2	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Days over Standard		9		12	20				0			0			0			0	5		12			

*PM_{2.5} monitoring at Gilroy began Mar. 1, 2007; Benicia and Berkeley sites opened in 2007, Apr. 1 and Dec. 13 respectively; and Oakland site opened Nov. 1, 2007, no 3-year ozone or PM_{2.5} statistics available. PM₁₀ monitoring was discontinued on June 30, 2008 at Fremont, Livermore, Pittsburg, Redwood City, Santa Rosa, and Vallejo. SO₂ monitoring was discontinued at San Francisco Dec. 31, 2008.

(ppb) = parts per billion (ppm) = parts per million, (µg/m³) = micrograms per cubic meter.

TABLE 3-3
Bay Area Air Quality Summary
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO _x	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr	8-Hr	8-Hr*	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Cal	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
1999	20	-	9	0	0	0	0	0	0	0	0	12	-
2000	12	-	4	0	0	0	0	0	0	0	0	7	1
2001	15	-	7	0	0	0	0	0	0	0	0	10	5
2002	16	-	7	0	0	0	0	0	0	0	0	6	7
2003	19	-	7	0	0	0	0	0	0	0	0	6	0
2004	7	-	0	0	0	0	0	0	0	0	0	7	1
2005	9	9	1	0	0	0	0	0	0	0	0	6	0
2006	18	22	12	0	0	0	0	0	0	0	0	15	10
2007	4	9	1	0	0	0	0	0	0	0	0	4	14
2008	9	20	12	0	0	0	0	0	0	0	0	5	12

* Ozone exceedance days for 2008 reflect new U.S.EPA standard of 0.075 ppm.
 ** PM2.5 exceedance days beginning in 2006 reflect new U.S.EPA standard of 35 µg/m³.

Toxic Air Pollutants

The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. This inventory, and a similar inventory for mobile and area sources compiled by CARB, is used to plan strategies to reduce public exposure to TACs. The detailed concentrations of various TACs are reported in the BAAQMD, Toxic Air Contaminant Control Program, 2003 Annual Report (BAAQMD, 2007) and summarized in Table 3-4. The 2003 TAC data show decreasing concentrations of many TACs in the Bay Area. The most dramatic emission reductions in recent years have been for certain chlorinated compounds that are used as solvents including 1,1,1-trichloroethane, methylene chloride, and perchloroethylene. Table 3-4 contains a summary of ambient air toxics listed by compound.

TABLE 3-4

Summary of 2003 BAAQMD Ambient Air Toxics Monitoring Data

Compound	LOD (ppb) ⁽¹⁾	% of Samples < LOD ⁽²⁾	Max. Conc. (ppb) ⁽³⁾	Min. Conc. (ppb) ⁽⁴⁾	Mean Conc. (ppb) ⁽⁵⁾
Acetone	0.30	0	121.4	0.6	6.80
Benzene	0.10	1.78	2.4	0.5	0.401
1,3-butadiene	0.15	75.7	0.89	0.075	0.12
Carbon tetrachloride	0.01	0	0.16	0.09	0.108
Chloroform	0.02	62.5	1.47	0.01	0.024
Ethylbenzene	0.10	44.2	0.90	0.05	0.135
Ethylene dibromide	0.02	100	0.01	0.01	0.01
Ethylene dichloride	0.10	100	0.05	0.05	0.05
Methylene chloride	0.50	82.9	3.40	0.25	0.356
Methyl ethyl ketone	0.20	7.7	5.80	0.1	0.496
Metyl tert-butyl ether	0.30	32.9	4.80	0.15	0.532
Perchloroethylene	0.01	42.4	0.28	0.005	0.026
Toluene	0.10	0.2	6.0	0.05	1.062
1,1,1-Trichloroethane	0.05	72.3	2.47	0.025	0.084
Trichloroethylene	0.05	93.8	0.33	0.025	0.029
Trichlorofluoromethane	0.01	0	.046	0.18	0.266
1,1,2-trichlorotrifluoroethane	0.01	0	1.16	0.06	0.077
Vinyl chloride	0.30	100	0.15	0.15	0.15
m/p-xylene	0.10	2.8	3.40	0.05	0.535
o-xylene	0.10	27.9	1.30	0.05	0.186

NOTES: Table 3-4 summarizes the results of the BAAQMD gaseous toxic air contaminant monitoring network for the year 2003. These data represent monitoring results at 19 of the 20 separate sites at which samples were collected. Data from the Fort Cronkhite "clean-air" background site was not included. Data from the Oakland-Davie Stadium site was available from January through March.

- (1) "LOD" is the limit of detection of the analytical method used.
- (2) "% of samples < LOD" is the percent of the total number of air samples collected in 2003 that had pollutant concentrations less than the LOD.
- (3) "Maximum Conc." is the highest daily concentration measured at any of the 19 monitoring sites.
- (4) "Minimum Conc." is the lowest daily concentration measured at any of the 19 monitoring sites.
- (5) "Mean Conc." is the arithmetic average of the air samples collected in 2003 at the 19 monitoring sites. In calculating the mean, samples with concentrations less than the LOD were assumed to be equal to one half the LOD concentration.

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 were to 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 (TAC) and high exposures of sensitive populations to TAC and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TAC 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. Regulation 9-10 was adopted on January 5, 1994, and amended on July 17, 2002. The objectives of the proposed rule amendments are to implement Control Measure SSM 10 of the Bay Area 2010 Clean Air Plan (SSM 10) in order to help reduce NO_x emissions from refinery boilers, steam generators, and process heaters, thus, tightening NO_x emission limits existing in Regulation 9-10 to further reduce ozone concentrations in the Bay Area. Because the proposed amendments would directly implement a further study measure in the 2005 Ozone Strategy, the proposed amendments are in compliance with the local air quality plan and are expected to provide beneficial impacts associated with reduced ozone concentrations in the Bay Area.

III b. FS-14 in the Bay Area 2005 Ozone Strategy committed the BAAQMD to study ways that the existing Regulation 9-10 emissions limits might be tightened to achieve further NO_x emissions reductions from refinery boilers, steam generators, and process heaters. Compliance with the current NO_x standards in Regulation 9-10 has been achieved through the use of LNBS, ULNBS, and SCR at selected heaters. Control Measure SSM 10 incorporated the findings of FS-14.

To implement SSM 10, District staff is currently proposing to amend Regulation 9-10 in three ways: (1) by making NO_x limits for CO boilers more stringent; (2) by expanding the applicability of the rule to smaller natural gas and LPG-fired devices; and (3) by simplifying and clarifying compliance calculation procedures.

First, under the proposed rule, CO boilers, depending on their design, would retain a daily-average NOx limit, either the current limit of 150 ppmv or a lower limit of 125 ppmv. CO boilers, again depending on their design, would also have a calendar-year NOx limit of either 85 ppmv or 45 ppmv.

Second, the BAAQMD is proposing to narrow the exemption in Regulation 9-10-110.1 so that pre-1994 heaters with a rated heat input between 2 and 10 MMBTU/hr would be subject to the refinery-wide average NOx limit. This amendment is not expected to require any refinery to add NOx controls since emissions from these heaters is negligible; however, the change would make this exemption in Regulation 9-10-110.1 consistent with a similar exemption in Regulation 9-7-110.1.

Table 2-2 shows current refinery emissions at each of the five Bay Area refineries, based on permit data for 2008.

Total NOx emissions from CO boiler emissions in 2008 were 4.0 tons/day (see Table 2-2). The Air District estimates that the NOx emission reduction from the adoption of the proposed CO boiler NOx limits will be 1.6 ton/day. The overall impact of the proposed amendments to Regulation 9-10 is a decrease in NOx emissions. Therefore, no air quality standard is expected to be violated, and no contribution is expected to be made to an existing or projected air quality violation.

Secondary Particulate Emissions: Although most facilities are expected to comply with the proposed amendments to Regulation 9-10 in other ways, the use of SCR control equipment is also a feasible way to reduce NOx emissions and has become a widespread method of complying with NOx control rules. SCR technology uses ammonia as a catalyst, which could result in ammonia slip and secondary particulate formation.

Ammonia slip depends on a variety of factors including flow velocity through the SCR catalyst, ammonia to NOx molar ratio, temperature, and NOx inlet concentration. Better technology has allowed operators to control ammonia slip: (1) by ensuring adequate mixing of ammonia in the flue gas to maintain uniform ammonia injection; (2) maintaining the proper ammonia to NOx molar ratio; (3) decreasing the exhaust gas flow rate; (4) maintaining consistent exhaust flow velocity, and maintaining an optimal temperature regime (SCAQMD, 1990). The potential for secondary particulate emissions can be alleviated by limiting ammonia slip, which will minimize the potential for secondary particulate formation to less than significant. In addition, NOx reductions may also reduce ambient levels of fine particulate matter (PM_{2.5}) pollution, because a fraction of NOx emissions is ultimately converted to nitrate particles in the atmosphere. Secondary PM reductions resulting from the proposed amendments have been estimated at up to 0.2 ton/day. SCR is not expected to be used to comply with the proposed amendments to Regulation 9-10, so limiting the ammonia slip by air permit conditions in any potential SCR application is expected to reduce the potential for secondary particulate emission formation to less than significant.

III c. CEQA Guidelines indicate that cumulative impacts of a project shall be discussed when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines §15065(c). The overall impact of the proposed amendments to Rule 9-10 is a decrease in NOx emissions and an associated decrease in ozone concentrations. Therefore, there will be no adverse incremental effect on air quality.

III d. Although most facilities are expected to comply with the proposed amendments to Regulation 9-10 with minor facility modifications, facilities could comply through the installation of LNBS, ULNBs, FGR, or SCR control equipment to reduce NOx emissions. SCR technology uses ammonia (a toxic air contaminant) as a catalyst and can potentially generate ammonia emissions through ammonia “slip.” Ammonia slip is limited to 10 ppm on air permits, which is expected to minimize the potential exposure to sensitive receptors so that no significant impacts associated with ammonia use are expected.

III e. The proposed project is not expected to result in an increase in odors. The proposed amendments to Regulation 9-10 propose to minimize NOx emissions from refinery boilers, steam generators and process heaters. Affected facilities are expected to comply by replacing or retrofitting boilers, steam generators and process heaters with BACT technologies. While the modifications to boilers, steam generators and process heaters will produce less NOx, they will continue to be fueled with refinery fuel gas and/or natural gas, which will not change the fuel source or result in odors produced during operation.

Odors associated with ammonia use in new SCR systems are expected to be minimal. Ammonia can have a strong odor; however, the proposed project is not expected to generate substantial ammonia emissions. Ammonia is generally stored in an enclosed pressurized tank, which prevents fugitive ammonia emissions. Ammonia emissions from the SCR unit stack (also referred to as ammonia slip) can be minimized through permit conditions. Since exhaust emissions are buoyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than five ppm. Five ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). Potential odor impacts associated with the proposed amendments to Regulation 9-10 are not expected to be significant. Therefore, no significantly adverse incremental odor impacts are expected due to the proposed amendments to Regulation 9-10.

Based upon these considerations, no significant adverse air quality impacts are expected from the implementation of the proposed rule amendments. In fact, the proposed rule amendments are expected to provide beneficial air quality impacts by reducing NOx emissions and subsequent formation of ozone.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:				
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 areas 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 areas affected by the proposed rule amendments are located within the boundaries of the five existing refineries within the Bay Area. The affected areas have been graded to develop various petroleum refining structures. Native vegetation, other than landscape vegetation, has generally been removed from areas to minimize safety and fire hazards. Any new development would fall under compliance with the City or County General Plans.

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 refinery facilities. Existing boilers and heaters affected by the proposed amendment are located within the operating portions of refineries, which do not typically include sensitive biological species. The refineries areas have been graded and developed, and biological resources, with the exception of landscape species, have been removed. Any construction activities associated with the proposed amendments to Regulation 9-10 will be limited to within the boundaries of existing refineries and no development outside of existing facilities is expected.

Based upon these considerations, no significant adverse impacts to biological resources are expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 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 § 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 of 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 boilers, steam generators, and process heaters affected by the proposed rule amendments are within the five refineries located in the Bay Area. These facilities have already been graded to develop petroleum refining facilities and are typically surrounded by other industrial uses. Cultural resources are generally not located within these areas.

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 boilers, steam generators, and process heaters. The boilers, steam generators, and heaters affected by the proposed rule amendments already exist and are located within the confines of existing refinery facilities. Any modifications to existing equipment and any new equipment would be installed or modified within the boundaries of existing refineries. The existing areas have been graded and developed. No new construction would be required outside of the existing facility boundaries due to the adoption of the proposed amendments to Regulation 9-10. Therefore, no significant adverse impacts to cultural resources are expected due to the proposed amendments to Regulation 9-10.

Based upon these considerations, no significant adverse impacts to cultural resources are expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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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:
 - i) 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 know fault? Refer to Division of Mines and Geology Special Publication 42.
 - ii) Strong seismic ground shaking?
 - iii) Seismic-related ground failure, including liquefaction?
 - iv) Landslides?
- b) Result in substantial soil erosion or the loss of topsoil?
- 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?
- 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?
- 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?

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 primarily in industrial areas within the Bay Area.

The affected refineries with CO boilers and natural gas-fired heaters 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 Strait 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 Division of Mines and Geology 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 Division of Mines and Geology (DMG) 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. The boilers and heaters affected by the proposed rule amendments already exist and are located within the confines of the five existing refinery facilities in the Bay Area. No new construction activities are expected to be required as a result of adopting the proposed amendments to Regulation 9-10, rather, old equipment would be required to be upgraded or existing heaters or boilers would need to be replaced. All new refinery structures must be designed to comply with the Uniform Building Code Zone 4 requirements. The local cities and counties are responsible for assuring that new construction complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. 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 formulas 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.

Any new refinery development would be required to obtain building permits, as applicable, for new structures at any site. The issuance of building permits from the local agency will 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 no new development is required due to implementation of the proposed amendments to Regulation 9-10.

VI b. No new significant construction activities would be required due to the adoption of Regulation 9-10. Boilers and heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. Any new boilers or heaters or any upgrades to

existing equipment would be installed within the confines of the existing boundaries in similar locations. Therefore, the proposed amendments are not expected to result in soil erosion or the loss of topsoil as no major construction activities would be required.

VI c – e. The boilers and heaters affected by the proposed rule amendments already exist and are located within the confines of existing refinery facilities so no major construction activities are expected. New structures are expected to be limited to new control equipment or heaters/boilers. Since the petroleum refining facilities already exist, no construction activities are expected to occur on a geologic unit or soil that is unstable or that would become unstable, or potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Likewise, no structure would 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. Compliance with the Uniform Building Code would minimize the impacts associated with existing geological hazards. 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, as the proposed rule amendments have no impact on wastewater treatment/disposal systems. Therefore, no adverse significant impacts to geology and soils are expected due to the proposed amendments to Regulation 9-10.

Based upon these considerations, no significant geology and soils impacts are expected from the implementation of the proposed rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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VII. GREENHOUSE GAS EMISSIONS.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Setting

Global climate change refers to changes in average climatic conditions on the earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in the average temperature of the earth’s surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. The six major GHGs identified by the Kyoto Protocol are CO₂, methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), haloalkanes (HFCs), and perfluorocarbons (PFCs). The GHGs absorb longwave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate longwave radiation both upward to space and back down toward the surface of the earth. The downward part of this longwave radiation absorbed by the atmosphere is known as the "greenhouse effect." Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years.

Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. The GHG inventory for California is presented in Table 3-5 (CARB, 2007 and CARB, 2009). Approximately 80 percent of GHG emissions in California are from fossil fuel combustion and over 70 percent of GHG emissions are carbon dioxide emissions (see Table 3-5).

TABLE 3-5
California GHG Emissions and Sinks Summary
(Million Metric Tons CO₂ Equivalent)

Categories Included in the Inventory	1990 ⁽¹⁾	2006 ⁽²⁾
ENERGY	386.41	419.32
Fuel Combustion Activities	381.16	414.03
Energy Industries	157.33	160.82
Manufacturing Industries & Construction	24.24	19.03
Transport	150.02	184.78
Other Sectors	48.19	49.41
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	5.25	5.28
Oil and Natural Gas	2.94	3.25
Other Emissions from Energy Production	2.31	2.03
INDUSTRIAL PROCESSES & PRODUCT USE	18.34	30.22
Mineral Industry	4.85	5.92
Chemical Industry	2.34	0.37
Non-Energy Products from Fuels & Solvent Use	2.29	1.85
Electronics Industry	0.59	0.77
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.38
Other Product Manufacture & Use Other	3.18	1.67
Other	5.05	6.25
AGRICULTURE, FORESTRY, & OTHER LAND USE	19.11	25.10
Livestock	11.67	15.68
Land	0.19	0.19
Aggregate Sources & Non-CO ₂ Emissions Sources on Land	7.26	9.24
WASTE	9.42	9.23
Solid Waste Disposal	6.26	6.31
Wastewater Treatment & Discharge	3.17	2.92
EMISSION SUMMARY		
Gross California Emissions	433.29	483.87
Sinks and Sequestrations	-6.69	-4.07
Net California Emissions	426.60	479.80

Source: (1) CARB, 2007.
 (2) CARB, 2009.

Regulatory Background

In response to growing scientific and political concern regarding global climate change, California has adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the state. In September 2002, Governor Gray Davis signed Assembly Bill (AB) 1493, requiring the development and adoption of regulations to achieve “the maximum feasible reduction of greenhouse gases” emitted by non-commercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. Setting emission standards on automobiles is normally the responsibility of the U.S. EPA. The Federal Clean Air Act, however, allows California to set a state-specific emission standard on automobiles if it first obtains a waiver from the U.S. EPA. On March 6, 2008 the U.S. EPA denied California’s request

for a waiver. In response, California sued the U.S. EPA claiming that the denial was not based on the scientific data. Subsequently, U.S. EPA has granted the request by California for a waiver of Clean Air Act preemption for California's greenhouse gas emission standards for 2009 and later model years of new motor vehicles, which was adopted the CARB on September 24, 2004.

In June 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established GHG emissions reduction targets for the state, as well as a process to ensure that the targets are met. As a result of this executive order, the California Climate Action Team (CAT), led by the Secretary of the California State Environmental Protection Agency (CalEPA), was formed. The CAT published its report in March 2006, in which it laid out several recommendations and strategies for reducing GHG emissions and reaching the targets established in the Executive Order.

The greenhouse gas targets are:

- By 2010, reduce to 2000 emission levels;
- By 2020, reduce to 1990 emission levels; and,
- By 2050, reduce to 80 percent below 1990 levels.

In September 2006, Governor Schwarzenegger signed California's Global Warming Solutions Act of 2006 (AB32). AB32 will require CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and,
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011.

SB1368, a companion bill to AB32, requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity, whether generated inside the State, or generated outside, and then imported into California. SB1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard (EPS), which is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO₂ per megawatt-hour (MW-hr). Further, on May 23, 2007, the CEC adopted regulations that establish and implement an EPS of 1,100 pounds of CO₂ per MW-hr (see CEC order No. 07-523-7).

SB97, passed in August 2007, is designed to work in conjunction with CEQA and AB32. SB97 required the California Office of Planning and Research (OPR) to prepare and develop guidelines for the mitigation of GHG emissions or the effects thereof, including but not limited to, effects associated with transportation and energy consumption. These guidelines were required to be transmitted to the Resources Agency by July 1, 2009, and certified and adopted by January 1, 2010. The guidelines became effective March 18, 2010. The OPR and the Resources Agency shall periodically update these guidelines to incorporate new information or criteria established by CARB pursuant to AB32.

There has also been activity at the Federal level on the regulation of GHGs. In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the U.S. EPA have authority to regulate greenhouse gases, but that the U.S. EPA's reasons for not regulating greenhouse gases did not fit the statutory requirements. The U.S. Supreme Court ruled that CO₂ and other greenhouse gases are pollutants under the Clean Air Act, which U.S. EPA must regulate if it determines they pose an endangerment to public health or welfare. On October 30, 2009, the U.S. EPA issued 40 CFR Part 98, which requires reporting of greenhouse gas (GHG) emissions from large sources and suppliers in the United States. Under Part 98, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA, with an abbreviated report required in 2011 (for 2010 emissions), and full reporting in 2012 (for 2011 emissions). Part 98 became effective December 29, 2009.

Discussion of Impacts

Combustion of conventional hydrocarbon fuel results in the release of energy as bonds between carbon and hydrogen are broken and reformed with oxygen to create water vapor and CO₂. CO₂ is not a pollutant that occurs in relatively low concentrations as a by-product of the combustion process; CO₂ is a necessary combustion product of any fuel containing carbon. Therefore, attempts to reduce emissions of greenhouse gases from combustion focus on increasing energy efficiency – consuming less fuel to provide the same useful energy output. Boilers generally operate at no more than 85 percent overall efficiency (i.e. only up to 85 percent of the heat value of the fuel that is consumed is transferred to the material that is being heated and the other 15 percent is released to the atmosphere as waste heat). Waste heat is released in three ways:

- as heat in the combustion exhaust which is released from the boiler stack;
- as radiant heat from the outside of the boiler because the boiler is not perfectly insulated; or
- as heat in the liquid “blowdown” stream that is constantly drained from the boiler to prevent solids from concentrating inside the boiler and ultimately fouling the heat exchange surfaces.

The most significant of these factors is heat loss through the boiler stack. Stack losses may be minimized by minimizing the amount of excess air and, therefore, the amount of oxygen and nitrogen that is heated and released from the stack. Reducing excess air to the minimum level necessary for complete fuel combustion, with a reasonable safety margin, is a very effective way to control NO_x emissions. In addition, boiler efficiency may be improved by limiting liquid blowdown to the lowest necessary level, by improving boiler shell insulation, and by maintaining clean boiler internals to

maximize heat transfer to the medium being heated rather than to the atmosphere through the boiler stack.

Installation of ultra low-NO_x burners or FGR may require that the maximum firing capacity of the heater or boiler be reduced or may result in an overall loss of efficiency that would require the heater to be replaced. The amendments to Regulation 9-10 are not expected to require a substantial increase in the use of NO_x control equipment. The rule could also lead refineries to replace old heaters with new ones which tend to be more energy efficient. The energy efficiency requirements and the phasing in of the requirements are expected to offset the potential energy losses associated with the potential increase in use of FGR.

Finally, the proposed amendments to Regulation 9-10 could result in the addition of SCR. The energy requirements for the use of SCR units are limited to new air blowers, pumps, and a vaporization unit which have relatively small motors (about 100 horsepower) (SCAQMD, 2008 and SCAQMD, 2004). SCR units are not expected to be required to comply with the rule amendments. However, the use of SCR equipment, if a facility chose to install it, would occur at an existing refinery that already uses electricity and any resultant increase in energy use at these facilities and related greenhouse gas emissions is expected to be negligible.

Therefore, the proposed amendments to Regulation 9-10 are not expected to result in a significant increase in greenhouse gas emissions because the energy use associated with any additional add-on control equipment is minimal.

Based on the above discussion, implementation of the proposed amendments to Regulation 9-10 is not expected to result in a significant increase in GHG emissions. Based on the above, no significant adverse air quality impacts are expected due to implementation of the proposed rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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VIII. 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 type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project 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) For a project 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 wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Setting

The affected petroleum refining 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 handling such materials are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facilities where they exist. 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., anhydrous ammonia, 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 or vessel 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 areas affected by the proposed amendments are typically located in industrial areas.

Regulatory Background

There are many federal and state rules and regulations that facilities handling hazardous materials 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.

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.

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 business 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 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 considers human factors as part of process hazards analyses, incident investigations, training, operating procedures, among others.

Discussion of Impacts

VII a - c. It is expected that the proposed amendments to Regulation 9-10 will lead to a reduction in NO_x emissions from existing boilers, steam generators, and process heaters at affected refineries thus reducing PM₁₀ and NO_x emissions. Major modifications are not expected to be required and the impact of the proposed amendments is likely to be a reduction in emission reduction credits generated. However, petroleum refining facilities could choose to comply by installing low NO_x burners, FGR, or SCR technology to reduce NO_x emissions. SCRs use ammonia or urea to react with NO_x, 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 PM₁₀ emissions under some circumstances. Facilities can use either aqueous ammonia or anhydrous ammonia. The EIR prepared for the 2005 Ozone Strategy evaluated the potential impacts of ammonia use. The main hazard associated with ammonia is associated with a release that generates a toxic cloud and those hazards are summarized below. It should be noted that all refineries currently operate SCR units and use ammonia so the proposed amendments would not introduce any new hazards but may result in an increase in ammonia use and transport.

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, anhydrous ammonia and aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

Any new SCR would require the increased use and storage of ammonia at existing petroleum refineries primarily located in industrial zones. Existing refineries operate SCR systems and have ammonia storage onsite, so the increase in ammonia storage is expected to be minimal as existing ammonia storage systems may be used. If new ammonia storage systems are required, the use and storage of anhydrous ammonia would be expected to result in potentially 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 and the distance from the release. 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.

In addition, the following safety design and process standards generally apply to facilities that use and store ammonia:

- The California Code of Regulations, Title 8 – contains minimum requirements for equipment design.
- Industry Standards and Practices – codes for design of various equipment, including the American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), and National Fire Protection Association (NFPA).
- OSHA passed the Process Safety Management of Highly Hazardous Chemicals rule in 1992 (29 CFR 910.119). This rule was designed to address the prevention of catastrophic accidents at facilities handling hazardous substances, in excess of specific threshold amounts, through implementation of Process Safety Management (PSM) systems for protection of workers. A major PSM requirement is the performance of process hazard analyses to identify potential process deviations and improved safeguards to prevent accidents.
- A federal EPA Risk Management Program (RMP) and more stringent state RMP program have been developed. The RMP's contain hazard assessments of both worst-case and more credible accidental release scenarios, a five year accident history, an accident prevention program, and an emergency response program.

The standards noted above and other applicable design standards govern the design of mechanical equipment such as pressure vessels, tanks, pumps, piping, and compressors. Adherence to codes minimizes the potential for an ammonia release.

Transportation Release Scenario: If new SCR systems are installed, there would be an increase in ammonia transport to existing refineries. Most refineries already transport ammonia, so only an incremental increase in ammonia transport would be required. 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 about 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. Further, the number of facilities expected to add SCR equipment as a result of the proposed amendments is limited, so no significant increase in the transport of ammonia is expected (about one truck per day). Therefore, the proposed amendments to Rule 9-10 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 typically apply to existing petroleum refining operations. Some of the affected areas 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 hazardous materials nor would the amendment create a significant hazard to the public or environment. Boilers, steam generators, and process heaters already exist and are located within the confines of petroleum refining facilities. The proposed rule amendments neither require, nor are likely to result in, activities that would affect hazardous materials or existing site contamination. Therefore, no significant adverse impacts on hazards are expected.

VII e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments, which would apply to boilers, steam generators, and process heaters. The boilers, steam generators, and process heaters already exist and are located within the confines petroleum refining facilities. Once the proposed amendments are implemented, facilities would be expected to comply in the form of replacement of low-NOx burners, upgraded or new SNCR, SCR or hybrid SNCR/SCR systems, associated upgrades of heater controls and ducting to accommodate these controls, and possible complete heater replacement. These changes are expected to be made within the confines of the existing refineries. No development outside of existing facilities is expected to be required by the proposed amendments to Regulation 9-10. Therefore, no significant adverse impacts on an airport land use plan or on a private air strip are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed rule amendments that would apply to existing petroleum refining facilities. The boilers, steam generators, and process heaters already exist and are located within the confines of existing refineries. The proposed rule amendments neither require, nor are likely to result in, activities that would impact the emergency response plan, and any new development would consider emergency response as part of the City/County General Plans prior to approval. The refineries already store and transport ammonia, so emergency response plans already include hazards associated with an ammonia release. New ammonia storage may require that emergency response plans be updated. However, no significant adverse impacts on emergency response plans are expected.

VII h. No increase in hazards related to wildfires are anticipated from the proposed rule amendments. The boilers, steam generators, and process heaters affected by the proposed amendments already exist and are located within the confines of existing petroleum refineries. Native vegetation has been removed from the operating portions of the refineries to minimize fire hazards. Any modifications will occur within the confines of the existing refineries. Therefore, no increase in exposure to wildfires will occur due to the proposed amendments to Regulation 9-10.

Based upon these considerations, no significant adverse hazards and hazardous materials impacts are expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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IX. 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 stormwater 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 petroleum refining facilities affected by the proposed rule amendments are located throughout the Bay Area. Affected areas are generally surrounded by other industrial or 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 areas 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, which have been updated in 2005 as the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. 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 parts, including Carquinez Strait and Suisun Bay, fall 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, f. No significant adverse impacts on hydrology and water quality resources are anticipated from the proposed rule amendments, which would apply to existing petroleum refining facilities. The proposed rule amendments are not expected to require additional water use and no increase in wastewater discharge is expected. Therefore, no violation of any water quality standards or waste discharge requirements, and no decrease in water quality is expected from the proposed amendments to Regulation 9-10.

VIII b. The boilers, steam generators, and process heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. The 2005 Ozone Strategy addressed the impacts of control measures on water demand. The proposed amendments to Regulation 9-10 are not expected to require additional water use. The NO_x control technologies (i.e., LNB, FGR, SCR, and SNCR equipment) do not require additional use of water. Therefore, 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 amendments to Regulation 9-10.

VIII c - f. Petroleum refining facilities are expected to comply with the proposed amendments to Regulation 9-10 in the form of replacement of low-NO_x burners, upgraded or new SNCR, SCR or hybrid SNCR/SCR systems, associated upgrades of heater controls and ducting to accommodate these controls, and possible complete heater replacement. All affected equipment is located in industrial areas, where storm water drainage has been controlled and no construction activities outside of the existing refineries is expected to be required. Therefore the proposed amendments are not expected to substantially alter the existing drainage or drainage patterns, 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 stormwater drainage systems or

provide substantial additional sources of polluted runoff. The proposed amendments are not expected to substantially degrade water quality. Therefore, no significant adverse impacts to storm water runoff are expected.

VIII g – i. The boilers, steam generators, and process heaters affected by the proposed rule amendments are located within industrial areas. No major construction activities outside the boundaries of existing facilities are expected due to the adoption of the proposed amendments to Regulation 9-10. Petroleum refining facilities are generally located to avoid flood zone areas and other areas subject to flooding. Further, storm water is controlled and collected onsite for analysis and subsequent discharge. The proposed amendments are not expected to require any substantial construction activities, 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 petroleum refining facilities affected by the proposed rule amendments are located within industrial areas. No major construction activities are expected outside of the boundaries of the existing refinery facilities due to the adoption of the proposed amendments to Regulation 9-10. The proposed 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.

Based upon these considerations, no significant adverse hydrology and water quality impacts are expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING. 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 primarily located in industrial 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. The boilers, steam generators, and process heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. The refineries are expected to comply with Regulation 9-10 by upgrading or installing NOx control equipment or replacing existing equipment with more efficient new equipment. These changes are expected to be made within the confines of existing facilities as it applies to existing equipment. Any modifications required for compliance is expected to be constructed within the confines of the existing facilities. No new construction outside of the confines of the existing facilities is expected to be required due to the adoption of the proposed amendments to Regulation 9-10.

Based upon these considerations, no significant adverse land use impacts are expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. 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 primarily located in industrial areas within 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. The boilers, steam generators, and process heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. Any new boilers or heaters and control equipment are expected to be installed within the confines of existing facilities. The proposed rule amendments are not associated with 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 impacts on mineral resources are expected.

Based upon these considerations, significant mineral resource impacts are not expected from the implementation of the proposed rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE. Would the project:				
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 checked="" type="checkbox"/>	<input type="checkbox"/>
b) Expose persons to or generate of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
d) 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) For a project 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) For a project 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 areas of the Bay Area, which are surrounded by other industrial or 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 Plans 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-d. The boilers, steam generators and process heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. The rule amendments impose limitations on the NO_x emissions from this equipment. Compliance will be achieved in the form of replacement of low-NO_x burners, upgraded or new control equipment, or equipment replacement.

The existing noise environment at each of the affected refinery facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Noise from the proposed project is not expected to produce noise in excess of current operations at each of the existing facilities. Any construction activities required due to the proposed amendments to Regulation 9-10 would occur within the confines of the existing refinery boundaries. No major construction activities are expected to be required, although minor construction activities would be associated with modifications to existing heaters/boilers, construction of air pollution control equipment, or replacement of existing equipment. Noise impacts during the construction period are expected to be minimal and occur during daylight hours. Noise related to construction activities would cease following completion of the construction phase.

It is not expected that any modifications to install air pollution control equipment would substantially increase ambient operational noise levels in the area, either permanently or intermittently, or expose people to excessive noise levels that would be noticeable above and beyond existing ambient levels. Depending on the air pollution control technology installed, replaced, or modified, the operations phase may add new sources of noise to the affected facility. As an example, noise increases associated with SCR units are expected to be limited to small motors for air blowers and or pumps. Burner modifications and replacement equipment is not expected to result in any noise increase. It is expected that each facility affected will comply with all existing noise control laws or ordinances. Further, OSHA and California-OSHA (Cal/OSHA) have established noise standards to protect worker health. These potential noise increases are expected to be small, if at all, and thus less than significant. Therefore, no adverse significant impacts to noise are expected due to the proposed project.

It is also not anticipated that air pollution control devices or other new equipment will cause an increase in groundborne vibration levels because air pollution control equipment is not typically vibration intensive equipment. Consequently, the proposed rule amendments will not directly or indirectly cause substantial noise or excessive groundborne vibration impacts.

The proposed rule amendments would not substantially increase ambient noise levels from stationary sources, either intermittently or permanently. Therefore, noise impacts associated with stationary source control measures are expected to be less than significant.

XI. e-f. If applicable, the refineries would still be expected to comply, and not interfere, with any applicable airport land use plans. All noise producing equipment must comply with local noise ordinances and applicable OSHA or Cal/OSHA workplace noise reduction requirements. In addition to

noise generated by current operations, noise sources in each area may include nearby freeways, truck traffic to adjacent businesses, and operational noise from adjacent businesses.

Based upon these considerations, significant noise impacts are not expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. 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 areas affected by the proposed rule amendments are located in industrial areas of Solano and Contra Costa counties.

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. Any 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 rule amendments can draw from the existing labor pool in the local Bay Area, as no major construction activities would be required. Further, it is not expected that replacing existing equipment with new equipment or installing air pollution control equipment will require new employees to operate the new/modified equipment. Human population within the jurisdiction of the BAAQMD is anticipated to grow regardless of implementing the proposed project. As a result, the proposed rule amendments are 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 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.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant 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 type="checkbox"/>	<input checked="" 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"/>

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 areas affected by the proposed rule amendments are primarily located in industrial 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 refineries. 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 and the limited number of facilities that are expected to use SCR. Therefore, the proposed project is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, 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 rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XV. 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 areas throughout the Bay Area. Public recreational land can be located adjacent to, or in reasonable proximity to these areas.

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. Any required modifications would occur within the confines of the existing refineries so no changes in land use would be required. 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. Therefore, no significant adverse impacts on recreation are expected.

Based upon these considerations, significant recreation impacts are not expected from the implementation of the proposed rule amendments.

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

- | | | | | | |
|----|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) | Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) | Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input 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) | Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <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). 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 2007. The portion of commuters that carpool was about 10 percent in 2007. About 4 percent of commuters walked to work in 2007. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 3 percent of commuters in 2007 (MTC, 2008). Cars, buses, and commercial vehicles travel about 145 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.6 million riders on the average weekday (MTC, 2008).

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 cross 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. 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 state and county level. Planning for interstate highways is generally done by the California Department of Transportation.

Most local counties maintain a transportation agency that has the duties of transportation planning and administration of improvement projects within the county and implements the Transportation Improvement and Growth Management Program, and the congestion management plans (CMPs). The CMP identifies a system of state highways and regionally significant principal arterials and specifies level of service standards for those roadways.

Discussion of Impacts

XV a-b. Construction activities resulting from implementing the proposed amendments to Regulation 9-10 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. Construction activities would be minor and not involve a significant increase in workers or require any substantial equipment. The proposed project is not expected to cause a significant increase in traffic at any refinery or require any additional employees. An increase of a maximum of one truck per day maybe required to deliver ammonia if SCR equipment is installed. 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 no increase in operation-related traffic is expected. 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 proposed amendments will not alter traffic patterns or existing roadway. The proposed rule amendments are not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. All construction activities, if necessary, will occur within the confines of the existing refineries. Aside from the temporary effects due to a slight increase in truck traffic for those facilities that will undergo construction activities, 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 and will not be impacted by the proposed rule amendments.

XV f. Construction and operation activities resulting from the proposed rule amendments 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 rule amendments.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. UTILITIES/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 checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 maintained within the local jurisdiction.

Discussion of Impacts

XVI a, b, d and e. The boilers, steam generators, and process heaters affected by the proposed rule amendments already exist and are located within the confines of existing petroleum refining facilities. Any modifications would occur within the confines of the existing refineries. The proposed rule amendments would not result in the use of any additional water or an increase in any wastewater generated at the refineries. No increase in water consumption would be associated with NO_x emission control equipment or with new boilers, steam generators or process heaters that replace older equipment of the same size. Therefore, no impacts on wastewater treatment requirements or wastewater treatment facilities are expected.

XVI c. Petroleum refining facilities are expected to comply with the proposed rule amendments by the use of low-NO_x burners, upgraded or new SNCR, SCR or hybrid SNCR/SCR systems, burner modifications, or possible replacement of equipment. 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 affect the ability of petroleum refining 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, since the proposed

amendments would retrofit or replace equipment over a period of years. Waste is expected to be limited to metal, in the event that old equipment is replaced with new equipment. Metals are usually recycled so no significant impact to land disposal facilities would be expected.

The proposed project modifications may generate hazardous waste from spent catalyst in SCR units. The catalyst has a life expectancy ranging from about five to ten years, depending on the catalyst reaction rate. Spent catalysts are expected to be recycled offsite for their heavy metal content. Therefore, no significant impacts to hazardous waste disposal facilities are expected due to the proposed rule amendments. Facilities are expected to continue to comply with all applicable federal, state, and local statutes and regulations related to solid and hazardous wastes.

Based upon these considerations, significant impacts to utilities and service systems are not expected from the implementation of the proposed amendments to Regulation 9-10.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

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|----|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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"/> |

18. MANDATORY FINDINGS OF SIGNIFICANCE

Discussion of Impacts

XVII a. The proposed amendments to Regulation 9-10 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 petroleum refining facilities, thus providing a beneficial air quality impact and improvement in air quality. Further, any modifications would occur within the confines of an existing refinery which has already been graded and disturbed. As discussed in Section IV, Biological Resources and Section V, Cultural Resources, no significant adverse impacts are expected to biological or cultural resources.

XVII b-c. The proposed amendments are expected to result in emission reductions of NO_x from affected petroleum refining facilities, thus providing a beneficial air quality impact through the reduce in NO_x and ambient ozone concentrations. 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, thus reducing the potential health impacts due to ozone exposure. 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 amendments to Regulation 9-10 are not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse environmental impacts are expected.

Chapter 4

References

BAAQMD, 2006. Bay Area 2005 Ozone Strategy, January 4, 2006

CARB, 2007. Staff Report; California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit, Appendix A-1, November 16, 2007.

CARB, 2009. "California Greenhouse Gas Inventory for 2000-2006 — Summary by IPCC Category." March 13, 2009.

http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_ipcc_00-06_sum_2009-03-13.pdf (August 24, 2009).

California Energy Commission (CEC), 2004. "California 2004 Electric Utility Retail Deliveries." http://www.energy.ca.gov/2007_energypolicy/documents/2007-05-15_workshop/presentations/Electric%20Utility%20Service%20Areas%205-10-07.pdf (August 26, 2009).

Metropolitan Transportation Commission (MTC), 2008. Draft Environmental Impact Report, Transportation 2035 Plan for the San Francisco Bay Area, State Clearinghouse (No. 2008022101).

OSHA, 2005. Safety and Health Topics, Ammonia Refrigeration. <http://www.osha.gov/SLTC/ammoniarefrigeration/>.

SCAQMD, 2004. Paramount Refinery, Clean Fuels Project, Final Environmental Impact Report, April 2004, SCH No. 2003031044.

SCAQMD, 2004. Final Negative Declaration for: ConocoPhillips Los Angeles Refinery Carson Plant SCR Unit Project, SCH. No. 2004011066, SCAQMD 2004.

SCAQMD, 2008. Subsequent Draft Negative Declaration for the Paramount Petroleum Refinery, Clean Fuels Project, SCH No. 2003031044, June 2008.

SCAQMD, 2008. Chevron Products Company, El Segundo Refinery, Product Reliability and Optimization Project Final EIR, SCH No. 2007081057, May 2008.