Draft Environmental Impact Report for the Bay Area Air Quality Management District

Refinery Rules - Draft Rule Amendments Projects

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INTRODUCTION AND EXECUTIVE SUMMARY

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Bay Area Air Quality Management District (District or Air District) was established in 1955 by the California Legislature to control air pollution in the counties around San Francisco Bay and to attain federal air quality standards by the dates specified in federal law. There have been significant improvements in air quality in the Bay Area over the last several decades. The Air District is also required to meet state standards by the earliest date achievable.

The Air District is preparing the Refinery Rules - Draft Rule Amendments Projects (projects or proposed projects). The projects involve developing draft amendments to previously adopted rules: Regulation 6, Rule 5 - Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs); Regulation 11, Rule 10 - Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; and Regulation 12, Rule 15 - Petroleum Refining Emissions Tracking. The draft amendments are being proposed to settle two lawsuits: (1) one filed against the Air District by three of the five Bay Area refineries that challenged the approval Rules 6-5, Rule 8-18, and Rule 11-10; and (2) one filed against the Air District by the Western States Petroleum Association (WSPA) and three refineries that challenged the approval of Rule 12-15.

1.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the potential environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid identified significant adverse environmental impacts of these projects be identified. To fulfill the purpose and intent of CEQA, the Air District has prepared this Environmental Impact Report (EIR) under the requirements of CEQA Guidelines §15187 to address the potential environmental impacts associated with the proposed Refinery Rules - Draft Rule Amendments. Prior to making a decision on the adoption of the proposed projects, the Air District Governing Board must review and certify the EIR as providing adequate information on the potential adverse environmental impacts of implementing the proposed Refinery Rules - Draft Rule Amendments. The various projects are being addressed in a single EIR for administrative convenience since they are being proposed for adoption in the same hearing. However, the projects are not interdependent – the Air District Governing Board will make separate and independent decisions on each of the proposed rules.

1.2.1 NOTICE OF PREPARATION/INITIAL STUDY

A Notice of Preparation for the Draft EIR for the Refinery Rules - Draft Rule Amendments Project was distributed to responsible agencies and interested parties for a 30-day review on August 1, 2018 through September 7, 2018. A notice of the availability of this document was distributed to other agencies and organizations and was placed on the Air District's web site and was also published in newspapers throughout the area of the Air District's jurisdiction. A public scoping

meeting was held at the District headquarters on August 20, 2018. Two public comment letters were submitted on the NOP to the Air District and are included in Appendix A of this EIR. Three verbal comments were received at the Scoping Meeting, and were addressed as described in the document included in Appendix A.

The NOP/IS identified air quality as being potentially significant, requiring further analysis in the EIR. The following environmental resources were considered to be less than significant in the NOP/IS: aesthetics, agriculture and forestry resources, biological resources, cultural resources, greenhouse gas emissions, geology/soils, hazards and hazardous materials, hydrology and water quality, land use/planning, mineral resources, noise, population/ housing, public services, recreation, transportation/traffic, tribal cultural resources, and utilities and service systems (see Appendix A).

1.2.2 TYPE OF EIR

In accordance with §15121(a) of the State CEQA Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the purpose of an EIR is to serve as an informational document that: "will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project." The EIR is an informational document for use by decision-makers, public agencies and the general public. The proposed project requires discretionary approval and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

The focus of this EIR is to address the environmental impacts of the implementation of the Refinery Rules - Draft Rule Amendments as identified in the NOP and Initial Study (included as Appendix A of this EIR). The degree of specificity required in an EIR corresponds to the degree of specificity involved in the underlying activity described in the EIR (CEQA Guidelines §15146). The Refinery Rules - Draft Rule Amendments would apply to the five refineries within the Bay Area, amending previously approved refinery rules.

1.2.3 INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers, and the public generally, of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines §15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this EIR is intended to: (a) provide the Air District's Board of Directors and the public with information on the environmental effects of the proposed projects; and, (b) be used as a tool by the Air District's Board to facilitate decision making on the proposed projects.

Additionally, CEQA Guidelines §15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the EIR in their decision-making;

2. A list of permits and other approvals required to implement the projects; and

3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

There are no State, federal or local permits required to adopt the proposed amendments to Rules 6-5, 11-10, or 12-15. Local public agencies, such as cities, and counties could be expected to utilize this EIR if local approval is required for refinery modifications due to the proposed Rule 6-5, 11-10, and 12-15 amendments, pursuant to CEQA Guidelines §15152. However, implementation of the proposed rules amendments is not expected to result in new facilities, construction activities, or any substantial refinery modifications at the refineries. Therefore, the proposed rule amendments are not expected to require permits from local governments (e.g., cities and counties with land use approval).

1.2.4 AREAS OF POTENTIAL CONTROVERSY

In accordance with CEQA Guidelines §15123(b)(2), the areas of controversy known to the lead agency including issues raised by agencies and the public shall be identified in the EIR. The Refinery rules evaluated in this EIR have been the subject of two lawsuits that have raised concerns that the previous approvals of the rules violated CEQA and its implementing regulations; certain provisions of the California Health and Safety Code; and California common law. The District is proposing amendments to the Refinery rules in order to respond to some of these concerns.

1.3 EXECUTIVE SUMMARY: CHAPTER 2 – PROJECT DESCRIPTIONS

The District's proposed rule amendments aim to amend Rules 6-5, Rule 11-10, and Rule 12-15. The draft amendments to Rule 6-5 would apply to four of the five Bay Area refineries with FCCUs. The draft amendments to Rule 11-10 and Rule 12-15 would apply to all five Bay Area refineries.

1.3.1 PROJECTS' OBJECTIVES

The objectives of Refinery Rules - Draft Rule Amendments are to:

- Resolve legal challenges to Rules 6-5, 11-10, and 12-15;
- Clarify language in the currently approved versions of Rules 6-5, 11-10, and 12-15 to provide better understanding of the requirements, and easier implementation of the rules;
- Assure that Rules 6-5, 11-10, and 12-15 can be implemented consistently;
- Reduce the emissions of ozone precursors (ROG) to help achieve the federal and state ambient air quality standards for ozone;

- Reduce emissions of particulate matter to help achieve the state ambient air quality standards for PM_{10} and $PM_{2.5}$;

- Accurately and consistently characterize emissions from refinery-related emissions sources in an on-going basis to determine if additional emission reductions can be achieved;

- Determine if significant changes to the crude slate result in increased emissions of air pollutants;

- Ensure refineries comply with the ambient air quality standards for PM_{10} and $PM_{2.5}$; and

- Provide information to the public on refinery emissions, and significant crude slate changes.

1.3.2 SOURCES AFFECTED BY THE REFINERY RULES - DRAFT RULE AMENDMENTS

A summary of the expected methods of compliance for Rules 6-5, 11-10 and 12-15 are provided below.

- **Draft Amendments Rule 6-5 – Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs):** The draft amendments to Rule 6-5 apply to four of the five Bay Area refineries with FCCUs. The draft amendments clarify exemptions to the rule (it does not apply to FCCUs with wet scrubbers) and deletes placeholders in the existing rule for future limits on condensable matter and sulfur dioxide. The draft amendments to Rule 6-5 would have no impact on emissions as the amendments are clarifications of the original intent of Rule 6-5.

- **Draft Amendments to Rule 11-10 – Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers:** Compliance with the amendments to Rule 11-10 is expected to be through improved and more stringent monitoring and more immediate repair of leaking heat exchangers. Amendments to Regulation 11-10 would require cooling towers to be sampled once every week (rather than once every day under the currently approved rule) and that leaks be minimized as soon as practicable or within seven calendar days (rather than five). Amendments to Regulation 11-10 would also exempt smaller cooling towers not in petroleum refining service and would provide the potential for less frequent monitoring for smaller cooling towers after the cooling towers demonstrate a consistent pattern with no leaks. The draft amendments to Rule 11-10 may impact emissions relative to the rule as adopted due to reduced frequency in monitoring and potential leak detection.

- **Draft Amendments to Rule 12-15 - Petroleum Refining Emissions Tracking:** The Proposed Amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan requirements,

procedures for updating guidelines, crude slate reporting requirements, and confidential information designation procedures. Rule 12-15 is an emissions reporting rule, so no controls are required, no impacts on emissions is expected and no physical impacts to the refineries would occur.

The impacts of these expected methods of compliance are evaluated in this EIR. CEQA recognizes that regulatory requirements consisting of monitoring and inspections, do not typically generate physical adverse environmental impacts (see for example, CEQA Guidelines §15309).

1.4 EXECUTIVE SUMMARY: CHAPTER 3 – ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

This chapter of the Draft EIR describes the existing environmental setting in the Bay Area, analyzes the potential environmental impacts of the Refinery Rules - Draft Rule Amendments and recommends mitigation measures (when significant environmental impacts have been identified). The chapter provides this analysis for Air Quality, which was the only environmental area identified in the Initial Study (see Appendix A). Included for each impact category is a discussion of the environmental setting, significance criteria, whether the proposed rule amendments will result in any significant impacts (either individually or cumulatively in conjunction with other projects), and feasible project-specific mitigation (if necessary and available).

1.4.1 AIR QUALITY

1.4.1.1 Air Quality Setting

It is the responsibility of the Air District to ensure that state and federal ambient air quality standards (AAQS) 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 (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

Air quality conditions in the San Francisco Bay Area have improved since the Air District was created in 1955. The long-term trend of ambient concentrations of air pollutants and the number of days on which the region exceeds (AAQS) have generally declined, although some year-to-year variability primarily due to meteorology, causes some short-term increases in the number of exceedance days (see Table 3.2-3). The Air District is in attainment of the State AAQS for CO, NO_2, and SO_2. However, the Air District does not comply with the State 24-hour PM_{10} standard. The Air District is unclassifiable/attainment for the federal CO, NO_2, SO_2, Pb, and PM_{10} standards. A designation of unclassifiable/attainment means that EPA has determined to have sufficient evidence to find the area either is attaining or is likely attaining the NAAQS.

In 2017, air quality monitoring data indicate that no monitoring stations measured an exceedance of any of the state or federal AAQS for CO and SO_2. There was one exceedance of the federal NO_2 AAQS at one monitoring station in 2017, although the area did not violate the NAAQS. All monitoring stations were in compliance with the federal PM_{10} standards. The California 24-hour PM_{10} standard was exceeded on six days in 2017, at the San Jose monitoring station (see Table 3.2-2).

The Bay Area is designated as a non-attainment area for the federal and state 8-hour ozone standard and the federal 24-hour $PM_{2.5}$ standard. The state and federal 8-hour ozone standards were exceeded on 6 days in 2017 at one site or more in the Air District; most frequently in the Eastern District (Livermore, Patterson Pass, and San Ramon) and the Santa Clara Valley (see Table 3.2-2). The federal 24-hour $PM_{2.5}$ standard was exceeded at one or more Bay Area station on 18 days in 2017, most frequently in the Napa, San Rafael, Vallejo, and San Pablo.

1.4.1.2 Air Quality Impacts

The proposed amendments to Rule 6-5 provide clarifications to the existing rule and would not require any physical changes to the existing refineries; thus, no impacts to air quality are expected. The proposed amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, as well as changes to language and reporting requirements. No physical modifications are required, no emission control is required, and thus no air emissions changes would occur.

Rule 11-10 has been implemented under the terms of the proposed settlement agreement. Proposed amendments to Rule 11-10 have been developed to formalize how Rule 11-10 has actually been implemented. The proposed amendments to Rule 11-10 require weekly monitoring, with potential adjustments to twice-monthly monitoring (i.e. two samples per month). These proposed amendments are estimated to reduce ROG emissions to as low as 64 tpy. While less stringent than daily monitoring, weekly monitoring remains substantially more stringent than monthly monitoring. Changing monitoring frequency as proposed in amendments to Rule 11-10 does not result in an increase in actual emissions because the amendments are consistent with how the Rule has been implemented since adoption. However, the change in monitoring frequency, when compared to the rule language as adopted, can theoretically allow for an emissions impact since less frequent monitoring may allow a potential future leak to go undetected for a longer period of time.

The Air District's position is that a theoretical impact of increased emissions relative to the rule language that was never implemented does not require analysis under CEQA. However, for the sake of transparency and thoroughness, the Air District is analyzing these theoretical impacts so that the public understands the difference between the rule as it was adopted (though not implemented) and the rule as proposed. Staff estimates the foregone emissions reductions that could theoretically occur when monitoring weekly rather than daily range from 1 tpy to 16 tpy depending on the method used to estimate emission factors for each monitoring frequency. This Draft Environmental Impact Report has been developed to further analyze the environmental impacts. 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 cumulative air quality impacts of the proposed Project have been evaluated in this Draft EIR.

The proposed amendments to Rule 11-10 involve changing existing monitoring requirements for refinery cooling towers. Based on the analysis conducted in subchapter 3.2, the greatest impact is the potential for foregone ROG emission reductions as a result of the proposed project could theoretically exceed the significance threshold of 10 tons per year when compared to the rule as adopted, but no implemented. Since the operational ROG emissions would exceed the significance threshold, ROG emissions are an ozone precursor, and the district is not in attainment for ozone; the proposed amendments to Rule 11-10 may contribute to an existing or projected air quality violation. The proposed amendments to Rule 11-10 could result in ROG emission reductions foregone from the existing Rule 11-10 (as adopted, but not implemented) that exceed the operational ROG significance threshold of 10 tons per year.

The only feasible method to reduce ROG emissions from cooling towers is more frequent monitoring and repair, but this method was concluded to not be feasible due to economic factors as per CEQA Guidelines §15364. Thus, no feasible mitigation measures have been identified that could avoid the significant impact or reduce the impact to less than significant.

Heat exchanger leaks can occur from any refinery unit and could include any type of organic compound present at refineries, including those TACs that are commonly emitted from refineries. The potential ROG emissions forgone associated with the proposed amendments to Rule 11-10 are estimated to be range from 1 ton per year to 16 tons per year depending on the method used to estimate emission factors for each monitoring frequency, some of which would likely be TAC emissions. However, the unit that may leak, location of the leak, the sources of the leak, and the type of material/product that may leak is unknown and cannot be estimated or predicted with any certainty. The type of TACs emitted and the quantity emitted are also unknown and the potential impacts from TAC emissions foregone are considered to be speculative and no further evaluation of TAC impacts will be provided (CEQA Guidelines §15145).

1.5 EXECUTIVE SUMMARY: CHAPTER 4 – ALTERNATIVES

An EIR is required to describe a reasonable range of feasible alternatives to the proposed projects that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project (CEQA Guidelines §15126.6(a)). As discussed in Chapter 3 of this EIR, one of the proposed projects could result in potentially significant impacts due to ROG emission reductions "foregone" under the proposed amendments to Rule 11-10. An EIR is required to describe a reasonable range of feasible alternatives to the proposed project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project (CEQA Guidelines §15126.6(a)).

Alternative 1 - No Project Alternative would theoretically reduce the potentially significant impacts associated with operational emissions increases under Rule 11-10, i.e., ROG emission reductions foregone. However, Alternative 1 is not feasible because the implementation of Rule 11-10 as currently approved is not feasible due to economic and technological factors. The

implementation of the currently approved Rules 6-5, 11-10, and 12-15 could result in the continuation of legal challenges to the rules under Alternative 1, although the outcome of the court decision cannot be determined at this time. Further, Alternative 1 would achieve three of the nine project objectives.

Under Alternative 2, the proposed amendments to Regulations 6-5 and 12-15 would be implemented, but not the proposed amendments to Regulation 11-10. The impacts under Alternative 2, would essentially be the same as the No Project Alternative because the proposed amendments to Rules 6-5 and 12-15 would not result in any significant air impacts issues (no construction or operational air emissions). Under Alternative 2, Rule 11-10 would not be implemented which would theoretically eliminate the ROG emission reductions foregone. However, implementing Rule 11-10 as currently approved is not considered to be feasible due to economic and technological factors. The implementation of the currently approved Rule 11-10 could result in the continuation of legal challenges to the rules under Alternative 2, although the outcome of the court decision cannot be determined at this time. Alternative 2 would better achieve the project objectives than Alternative 1 but the project objectives associated with Rule 11-10 would not be achieved.
Under Alternative 3 and Alternative 4, the monitoring frequency of Rule 11-10 would be modified to a weekly monitoring schedule, but the option to go to an extended sampling schedule if sampling results are below the Leak Action Level would be removed. This would help minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed. Under Alternative 3, the theoretical ROG emission reductions foregone associated with Rule 11-10 would be reduced from 0.1 to 0.5 tons per year. However, Alternative 3 is found to not be feasible because these emission reductions are not adequate to reduce the foregone emission reductions to less than 10 tons per year. Under Alternative 4, the theoretical ROG emissions foregone associated with Rule 11-10 would be reduced from 0.4 to 6.1 tons per year. However, Alternative 4 is found to not be feasible because these emission reductions are not adequate to reduce the foregone emission reductions to less than 10 tons per year. Neither Alternative 3 nor Alternative 4 are feasible based on cost impacts, and are not adequate to reduce emissions impacts to less than significant. Alternative 3 and Alternative 4 would achieve the objectives of the various projects, with the potential exception of the resolving the legal challenges associated with Rule 11-10.

Alternative 1 would not eliminate the potentially significant ROG impacts to less than significant and would not achieve any of the objectives of the proposed projects (not feasible due to economic and technological factors). Alternative 2 would also not reduce the potentially significant ROG impacts to less than significant but would achieve most of the objectives of the projects. Alternative 3 and Alternative 4 would reduce the ROG impacts (but not to less than significant) and achieve most of the objectives of the projects. Since Alternative 3 and Alternative 4 would reduce the ROG impacts and achieve most of the objectives of the projects, they would be considered the environmentally superior alternative (although they are not economically feasible). The proposed projects would be considered the preferred alternative as they would achieve all of the objectives.

1.6 EXECUTIVE SUMMARY: CHAPTER 5 - REFERENCES

Chapter 5 provides the references used in the preparation of the EIR.

TABLE 1-1

Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

Impact	Mitigation Measures	Residual Impacts
Air Quality		
No construction activities are expected to be required to implement the proposed amendments to Rules 6-5, 11-10, and 12-15, so no construction air quality impacts are expected.	None Required	None
Operational activities that may be required to implement Rules 6-5 and 12-15 are not expected to result in any emission increases of any air pollutants, including ROG, CO, SOx, NOx, PM_{10} and $PM_{2.5}$.	None Required	None
The proposed amendments to Rule 11-10 would go from daily monitoring to weekly monitoring. The potential ROG emissions foregone as a result of the proposed amendments could theoretically exceed the significance threshold of 10 tons per year. Since ROG emissions are an ozone precursor, and the district is not in attainment for ozone; the proposed amendments to Rule 11-10 may contribute to an existing or projected air quality violation, and it may diminish an existing air quality rule or future compliance requirement resulting in a significant air quality impact.	The only feasible method to reduce ROG emissions from cooling towers is more frequent monitoring and repair, but this method was concluded to not be feasible due to economic factors per CEQA Guidelines §15364. Thus, no feasible mitigation measures have been identified that could avoid the significant impact or reduce the impact to less than significant.	Operational emissions of ROG could remain significant due to the potential ROG emission reductions foregone under Rule 11-10. No emission increases are expected for NOx, SOx, CO, PM_{10}, or $PM_{2.5}$.
No TAC emissions are associated with implementation of the proposed amendments to Rules 6-5 and 12-15. The potential TAC emissions associated with implementing the proposed amendments to Rule 11-10 are considered to be speculative.	None Required	None

CHAPTER 2

PROJECT DESCRIPTIONS

Introduction
Projects' Locations
Projects' Objectives
Background
Project Descriptions
Sources Affected by the Refinery Rules - Draft Rule Amendments

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2.0 PROJECT DESCRIPTIONS

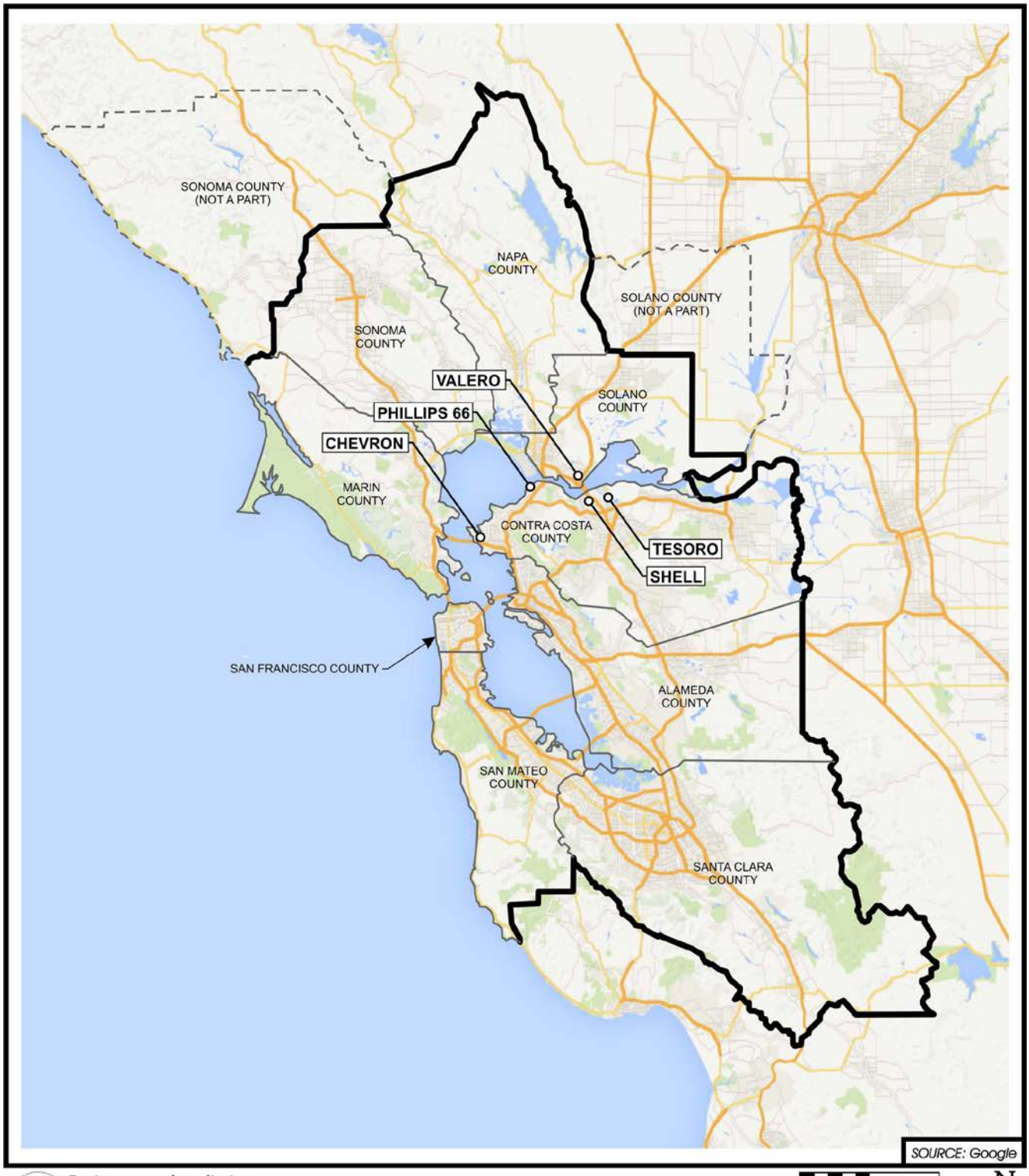
2.1 INTRODUCTION

The Bay Area Air Quality Management District (District or Air District) was established in 1955 by the California Legislature to control air pollution in the counties around San Francisco Bay and to attain federal air quality standards by the dates specified in federal law. There have been significant improvements in air quality in the Bay Area over the last several decades. The Air District is also required to meet state standards by the earliest date achievable.

The Air District is preparing the Refinery Rules – Draft Rule Amendments Projects (projects or proposed projects). The projects involve developing draft amendments to previously adopted rules: Regulation 6, Rule 5 - Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs); Regulation 11, Rule 10 - Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; and Regulation 12, Rule 15 - Petroleum Refining Emissions Tracking. The draft amendments are being proposed to settle two lawsuits: (1) one filed against the Air District by three of the five Bay Area refineries that challenged the approval of Rules 6-5, Rule 8-18, and Rule 11-10; and (2) one filed against the Air District by the Western States Petroleum Association (WSPA) and three refineries that challenged the approval of Rule 12-15.

2.2 PROJECTS' LOCATIONS

The Air District has jurisdiction of an area encompassing 5,600 square miles. The Air District 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. 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 2.2-1). The proposed Refinery Rules - Draft Rule Amendments would affect the five refineries within the Bay Area, the locations of which are shown on Figure 2.2-1.



Project No. 3091

Figure 2.2-1

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2.3 PROJECTS' OBJECTIVES

The objectives of Refinery Rules - Draft Rule Amendments are to:

- Resolve legal challenges to Rules 6-5, 11-10, and 12-15;
- Clarify language in the currently approved versions of Rules 6-5, 11-10, and 12-15 to provide better understanding of the requirements, and easier implementation of the rules;
- Assure that Rules 6-5, 11-10, and 12-15 can be implemented consistently;
- Reduce the emissions of ozone precursors (ROG) to help achieve the federal and state ambient air quality standards for ozone;
- Reduce emissions of particulate matter to help achieve the state ambient air quality standards for PM_{10} and $PM_{2.5}$;
- Accurately and consistently characterize emissions from refinery-related emissions sources in an on-going basis to determine if additional emission reductions can be achieved;
- Determine if significant changes to the crude slate result in increased emissions of air pollutants;
- Ensure refineries comply with the ambient air quality standards for PM_{10} and $PM_{2.5}$; and
- Provide information to the public on refinery emissions, and significant crude slate changes.

2.4 BACKGROUND

The District is developing draft amendments to two of three rules that were adopted by the Air District Board of Directors on December 16, 2015. These rules were challenged by three of the five Bay Area refineries in a lawsuit that was filed on January 22, 2016, *Valero, et al. v. Bay Area Air Quality Management District (*case number N16-0095), and amended on February 16, 2016. On March 24, 2017, the parties to the lawsuit entered an enforcement agreement and agreement to stay litigation for all three of these regulations (referred to as the "Valero Case Agreement"). Terms of the Agreement affect implementation of Rule 6-5, Rule 8-18, and Rule 11-10. This document will use the phrase "2016 Refinery Rules" when referring to these three rules collectively. Specifically, the Air District committed in the Agreement to implement the three rules that were challenged for a limited period of time in a manner consistent with how the rules would be proposed to be changed. The intent of this provision is that the refineries should not have to implement in the near-term

provisions that will change if the rules are amended as contemplated in the Agreement. If the rules are not changed as contemplated in the Valero Case Agreement, the refineries will have to implement the rules as originally adopted in 2016. In that scenario, the refineries could reactivate their lawsuit and move forward with their legal challenge to the 2016 Refining Rule.

The Agreement states the Air District will propose amendments to the 2016 Refinery Rules for adoption by the Air District Board of Directors by November 1, 2018. Draft amendments to Rule 8-18 – Equipment Leaks are not being proposed at this time, and will be delayed until a Refinery Heavy Liquids Fugitive Leaks study can be completed at all five Bay Area refineries. This study has been underway and findings are expected to be finalized in late 2018. Information from the study will be used to determine appropriate amendments for Rule 8-18, which are expected in Spring 2019.

In addition, the Air District is developing draft amendments to Regulation 12, Rule 15: Petroleum Refining Emissions Tracking (Rule 12-15), adopted by the Air District Board of Directors on April 20, 2016. Rule 12-15 was challenged in a lawsuit that was filed by the Western States Petroleum Association (WSPA) and three of the refineries individually on May 25, 2016, *WSPA, et al. v. Bay Area Air Quality Management District* (case number N16-0963). Similar to the Valero Case Agreement, parties to the lawsuit have entered an agreement to stay the WSPA case litigation contingent on the Air District proposing specified amendments to Rule 12-15 (but not Rule 9-14). This agreement, entered into as of March 1, 2018, will be referred to as the "WSPA Case Agreement." Similar to the Valero Case Agreement, in the WSPA Case Agreement the Air District committed to implement Rule 12-15 for a limited period of time in a manner consistent with how Rule 12-15 would be changed as contemplated in the Agreement. The intent of this provision is that the refineries should not have to implement in the near-term provisions that will change if Rule 12-15 is amended as contemplated in the Agreement. If Rule 12-15 is not changed as contemplated in the Agreement, the refineries will have to implement Rule 12-15 as originally adopted. In that scenario, the refineries could reactivate their lawsuit and move forward with their legal challenge to Rule 12-15.

Petroleum refineries convert crude oil into a wide variety of refined products, including gasoline, aviation fuel, diesel and other fuel oils, lubricating oils, and feed stocks for the petrochemical industry. Crude oil consists of a complex mixture of hydrocarbon compounds with smaller amounts of impurities including sulfur, nitrogen, oxygen and metals (e.g., iron, copper, nickel, and vanadium).

2.5 PROJECT DESCRIPTIONS

The District's proposed rule amendments aim to amend Rules 6-5, Rule 11-10, and Rule 12-15. The draft amendments to Rule 6-5 would apply to four of the five Bay Area refineries with FCCUs. The draft amendments to Rule 11-10 and Rule 12-15 would apply to all five Bay Area refineries.

The draft amendments to Regulation 6, Rule 5 (Rule 6-5) - Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs) include revisions to clarify exemptions and rule provisions.

The draft amendments to Regulation 11, Rule 10 (Rule 11-10) - Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers include revisions to:

- Modify and clarify limited exemptions for smaller cooling towers;
- Clarify a limited exemption for cooling towers not in petroleum refining service;
- Modify and clarify leak monitoring, action, and reporting requirements; and,
- Remove Best Modern Practices requirements and associated reporting requirements.

The draft amendments Regulation 12, Rule 15 (Rule 12-15) - Petroleum Refining Emissions Tracking include revisions to:

- Modify and clarify rule definitions and applicability;
- Clarify the Annual Emissions Inventory review and approval process;
- Modify and clarify fence-line monitoring plan requirements, and review and approval process;
- Modify the process for updating Emissions Inventory Guidelines and Air Monitoring Guidelines;
- Modify the monthly crude slate report requirements; and,
- Modify provisions for designating confidential information.

These proposed rule amendments are described in the following subsections.

2.5.1 DRAFT AMENDMENTS TO RULE 6-5 – PARTICULATE EMISSIONS FROM REFINERY FLUIDIZED CATALYTIC CRACKING UNITS (FCCUs)

The draft amendments to Rule 6-5 include revisions to provide more clarity and conciseness to Section 6-5-111 - Exemption, Emissions Abated by Wet Scrubber and Section 6-5-301 - FCCU Emission Limits. The rule would not apply to refineries that operate wet gas scrubbers on their FCCUs. Placeholders for future limits regarding Condensable Particulate Matter and Sulfur Dioxide (SO2) were deleted. Both of these changes reflect changes in language for clarity purposes and do not represent substantive changes to Rule 6-5.

2.5.2 DRAFT AMENDMENTS TO RULE 11-10 – HEXAVALENT CHROMIUM EMISSIONS FROM ALL COOLING TOWERS AND TOTAL HYDROCARBON EMISSIONS FROM PETROLEUM REFINERY COOLING TOWERS

The draft amendments to Rule 11-10 include revisions to modify limited exemption requirements; modify and clarify leak monitoring, action, and reporting requirements; and, remove modern practice requirements and reporting.

Proposed amendments to Rule 11-10 have been developed to codify how Rule 11-10 has actually been implemented under the terms of the Valero Case Agreement. The proposed amendments to Rule 11-10 require weekly monitoring, with potential adjustments to twice-monthly monitoring (i.e. two samples per month). These proposed amendments are estimated to reduce ROG emissions to as low as 64 tpy. While less stringent than daily monitoring, weekly monitoring remains substantially more stringent than monthly monitoring. Changing monitoring frequency as proposed in amendments to Rule 11-10 does not result in an increase in actual emissions because the amendments are consistent with how the Rule has been implemented since adoption. However, the change in monitoring frequency, when compared to the rule language as adopted, can theoretically allow for an emissions impact since less frequent monitoring may allow a potential future leak to go undetected for a longer period of time.

The Air District's position is that a theoretical impact of increased emissions relative to the rule language that was never implemented does not require analysis under CEQA. However, for the sake of transparency and thoroughness, the Air District is analyzing these theoretical impacts so that the public understands the difference between the rule as it was adopted (though not implemented) and the rule as proposed. Staff estimates the foregone emissions reductions that could theoretically occur when monitoring weekly rather than daily range from 1 tpy to 16 tpy depending on the method used to estimate emission factors for each monitoring frequency.

Limited Exemptions for Smaller Cooling Towers: This amendment requires cooling towers with water recirculation rates of less than 2,500 gallons per minute (gpm) to be monitored once every week instead of every day. Operators may also move to a monthly monitoring schedule if results are below the Leak Action Level for four consecutive weeks.

Limited Exemptions for Very Small Cooling Towers: This amendment requires cooling towers with water recirculation rates of less than 500 gallons per minute (gpm) to be monitored once every week instead of every other week. Operators may also move to a monthly monitoring schedule if results are below the Leak Action Level for four consecutive weeks.

Limited Exemption for Cooling Towers Not in Petroleum Refining Service: This amendment is to clarify that cooling towers not in petroleum refining service are exempt from Rule 11-10.

Leak Monitoring, Action, and Reporting Requirements: An amendment to total hydrocarbon leak monitoring will require cooling towers with water recirculation rates of more than 2,500 gallons per minute (gpm) to be sampled once every week instead of once every day. Operators will be able do a twice-monthly sampling schedule if sampling results are below the Leak Action Level for six consecutive months. Further, leak action requirements will be amended to require cooling tower hydrocarbon leaks to be minimized as soon as practicable or within seven calendar

days (rather than five calendar days) to provide time for necessary leak minimization sampling and analysis delays associated with potential technical and/or safety constraints.

Finally, an amendment to Refinery cooling tower reporting requirements clarifies that sampling of the cooling tower water must occur as soon as feasible, and no later than 24 hours from the discovery of the leak. This has been amended to require notification to the District's Air Pollution Control Officer (APCO) of total hydrocarbon concentration and chlorine concentration within 72 hours (rather than one calendar day) of discovering the leak. The draft amendment also removes the requirements to report lists of all heat exchangers served by the cooling tower, as well as the pH level and iron concentration of the cooling water, as this reporting is unlikely to provide additional substantive information regarding the hydrocarbon emissions from the cooling tower. Notification requirements are also being added for any delays in repair must meet the criteria cited in 40 CFR 63.654(f)-(g), as referenced in amended Section 11-10-305.

Best Modern Practices Requirements and Reporting: Section 11-10-402: The requirement to employ Best Modern Practices is being deleted to avoid potential duplication and conflicts with process safety management requirements. Section 11-10-504: Operating Records is being amended to remove recordkeeping requirements associated with the deleted Section 11-10-402, as these recordkeeping requirements are no longer applicable.

2.5.3 DRAFT AMENDMENTS TO RULE 12-15 – PETROLEUM REFINING EMISSIONS TRACKING

The draft amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan requirements, procedures for updating guidelines, crude slate reporting requirements, and confidential information designation procedures, as described below.

Rule Definitions and Applicability: The definitions of crude oil and crude oil blends have been changed to provide clarity. The requirement to include emissions from cargo carriers (ships and trains) in the emissions inventory data has been removed as they are not under the control or authority of the refineries. The definition of monthly crude slate report is being amended to address concerns from the refineries regarding the burden of providing information on non-crude feedstocks. Non-crude feedstocks are introduced at refineries across a vast spectrum of uses and is often in very small quantities. In order to maintain the intent of the Rule, a threshold is established below which non-crude feedstocks need not be addressed in the crude slate report.

Emission Factors and Calculation Methodology: Section 12-15-401 - Annual Emissions Inventory is being amended to clarify the calculation methodology to be used for calculating greenhouse gases using a "common pipe" method.

Annual Emissions Inventory Review and Approval Process: This section is being amended to clarify the process for communicating and issuing preliminary review determinations under Subsection 12-15-402.1. The draft amendment also clarifies the notification process for the Air District's review period under Subsection 12-15-402.3, and sets a limit of 45 days for the extension of the review period.

Fence-line Monitoring Plan Requirements and Review Process: Air Monitoring Plan requirements are being amended to clarify that site-specific air monitoring plans will be allowed to have implementation schedules and dates that are tailored to the specific plan, due to the unique set of circumstances of each individual refinery. The process for issuing preliminary review determinations has also been amended for clarity. Finally, amendments to Section 12-15-501 - Fence-line Monitoring System clarify that the requirements of the section will be effective once the fence-line monitoring system is installed and operational.

Update of Emissions Inventory Guidelines and Air Monitoring Guidelines: Draft amendments to the guideline update process include a 60-day comment period for affected facilities to review and comment on changes to the Emissions Inventory Guidelines and Air Monitoring Guidelines. Further, the Air District will respond to comments received. Affected facilities will be given at least 90 days to implement changes from the updated Emissions Inventory Guidelines in their respective annual emissions inventories.

Monthly Crude Slate Report Requirements: Section 12-15-408 - Availability of Monthly Crude Slate Reports is being amended to validate that the historical monthly crude slate data required for years 2013, 2014, 2015, and 2016 will be based on records maintained by the refinery in the normal course of business. The draft amendments to this subsection also define precautions and procedures for handling confidential data for inspection, audit, and review. The draft amendments ensure that refinery confidential data is protected appropriately, and remains on-site at the refinery and is prevented from inadvertent release. Subsection 12-15-408.2 is being amended to modify the summarized information required in the monthly crude slate report.

Designation of Confidential Information: Requirements regarding confidential information have been amended to defer to the amended Sections 12-15-209 and 408. The requirements for an owner/operator to provide a redacted version of the document have been removed. Additionally, crude slate reports will not be required to be submitted to the Air District.

2.6 SOURCES AFFECTED BY THE REFINERY RULES - DRAFT RULE AMENDMENTS

A summary of the expected methods of compliance for Rules 6-5, 11-10 and 12-15 are provided below.

- **Draft Amendments Rule 6-5 – Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs):** The draft amendments to Rule 6-5 apply to four of the five Bay Area refineries with FCCUs. The draft amendments clarify exemptions to the rule (it does not apply to FCCUs with wet scrubbers) and deletes placeholders in the existing rule for future limits on condensable particulate matter and sulfur dioxide. The draft amendments to Rule 6-5 would have no impact on emissions as the amendments are clarifications of the original intent of Rule 6-5.

- **Draft Amendments to Rule 11-10 – Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers:** Compliance with the amendments to Rule 11-10 is expected to be through improved and more stringent monitoring and more rapid repair of heat exchanges leaking ROG into cooling water. Amendments to Regulation 11-10 would require cooling towers to be sampled once every week (rather than once every day as in the currently adopted rule) and that leaks be minimized as soon as practicable or within seven calendar days (rather than five under the currently adopted rule). Amendments to Regulation 11-10 would also exempt smaller cooling towers not in petroleum refining service and would provide for less frequent monitoring of smaller cooling towers. The draft amendments to Rule 11-10 may impact emissions relative to the rule as adopted due to reduced frequency in monitoring and potential leak detection.

- **Draft Amendments to Rule 12-15 - Petroleum Refining Emissions Tracking:** The Proposed Amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan requirements, procedures for updating guidelines, crude slate reporting requirements, and confidential information designation procedures. Rule 12-15 is an emissions reporting rule, so no controls are required, no impacts on emissions is expected and no physical impacts to the refineries would occur.

The impacts of these expected methods of compliance are evaluated in this EIR. CEQA recognizes that regulatory requirements consisting of monitoring and inspections, do not typically generate environmental impacts (see for example, CEQA Guidelines §15309).

CHAPTER 3

ENVIRONMENTAL SETTING, IMPACTS, MITIGATION MEASURES, AND CUMULATIVE IMPACTS

Introduction
Air Quality
Other CEQA Sections

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3.0 ENVIROMENTAL SETTING, IMPACTS, MITIGATION MEASURES AND CUMULATIVE IMPACTS

3.1 INTRODUCTION

This chapter of the Draft EIR describes the existing environmental setting in the Bay Area, analyzes the potential environmental impacts of implementing the Refinery Rules - Draft Rule Amendments, and recommends mitigation measures (when significant environmental impacts have been identified). The chapter provides this analysis for each of the environmental areas identified in the Initial Study prepared by the Air District for the Draft Amendments to the Refinery Rules (BAAQMD, 2018) (see Appendix A). The Initial Study concluded that the approval of Refinery Rules - Draft Rule Amendments (specifically Rule 11-10) could potentially result in significant environmental impacts to Air Quality.

The potential impacts identified in the Initial Study will be evaluated in this EIR. Included for each impact category is a discussion of the: (1) Environmental Setting; (2) Regulatory Setting; (3) Significance Criteria; (4) Environmental Impacts; (5) Mitigation Measures (if necessary and available); and (6) Cumulative Impacts. A description of each subsection follows.

3.1.1 ENVIRONMENTAL SETTING

CEQA Guidelines §15360 (Public Resources Code Section 21060.5) defines "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance." CEQA Guidelines §15125(a) requires that an EIR include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting is intended to be no longer than is necessary to gain an understanding of the significant effects of the proposed project and its alternatives.

This Chapter describes the existing environment in the Bay Area as it exists at the time the environmental analysis commenced (2018) to the extent that information is available. The analyses included in this chapter focus on those aspects of the environmental resource areas that could be adversely affected by the implementation of the proposed Refinery Rules - Draft Rule Amendments as determined in the NOP/IS (see Appendix A), and not those environmental resource areas determined to have no potential adverse impact from the proposed projects. The NOP/IS (see Appendix A) determined that air quality impacts associated with the proposed amendments were potentially significant and are evaluated in this EIR.

3.1.2 SIGNIFICANCE CRITERIA

This section identifies the criteria used to determine when physical changes to the environment created as a result of approval of the proposed projects would be considered significant. The levels of significance for each environmental resource were established by identifying significance criteria. These criteria are based upon those presented in the CEQA environmental checklist and the Air Districts CEQA Air Quality Guidelines (BAAQMD, 2017a).

The significance determination under each impact analysis is made by comparing the impacts of the proposed projects with the conditions in the environmental setting and comparing the difference to the significance criteria.

3.1.3 ENVIRONMENTAL IMPACTS

The CEQA Guidelines also require the EIR to identify significant environmental effects that may result from a proposed project (CEQA Guidelines §15126.2(a)). Direct and indirect significant effects of a project on the environment must be identified and described, with consideration given to both short- and long-term impacts. The potential impacts associated with each resource are either quantitatively analyzed where possible or qualitatively analyzed where data are insufficient to quantify impacts. The impacts are compared to the significance criteria to determine the level of significance.

The impact sections of this chapter focus on those impacts that are considered potentially significant per the requirements of CEQA. An impact is considered significant if it leads to a "substantial, or potentially substantial, adverse change in the environment." Impacts from the project fall within one of the following categories:

Beneficial: Impacts will have a positive effect on the resource.

No Impact: There would be no impact to the identified resource as a result of the project.

Less than Significant: Some impacts may result from the project; however, they are judged to be less than significant. 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. A “less than significant impact” applies where the environmental impact does not exceed the significance threshold.

Potentially Significant but Mitigation Measures Can Reduce Impacts to Less Than Significant: Significant adverse impacts may occur; however, with proper mitigation, the impacts can be reduced to less than significant.

Potentially Significant or Significant Impacts: Adverse impacts may occur that would be significant even after mitigation measures have been applied to

minimize their severity. A "potentially significant or significant impacts" applies where the environmental impact exceeds the significance threshold, or information was lacking to make a finding of insignificance.

It is important to note that CEQA may also apply to individual projects at the time any permits are submitted in the future in response to the regulation or regulations that may be approved by the Board and the potential for any control equipment or other design modifications to affected facilities to have secondary adverse environmental impacts will be evaluated at that time.

3.1.4 MITIGATION MEASURES

If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible (CEQA Guidelines §15126.4). The analyses in this chapter describe the potential for significant adverse impacts and identify mitigation measures where appropriate. This section describes feasible mitigation measures that could minimize potentially significant or significant impacts that may result from project approval. CEQA Guidelines (§15370) defines mitigation to include:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating or restoring the impacted environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

In accordance with CEQA statutes (§21081.6), a mitigation and monitoring program would be required to be adopted to demonstrate and monitor compliance with any mitigation measures identified in this EIR. The program would identify specific mitigation measures to be undertaken, when the measure would be implemented, and the agency responsible for oversight, implementation and enforcement.

3.1.5 CUMULATIVE IMPACTS

CEQA Guidelines §15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. An EIR evaluating the environmental impact of air quality regulations essentially evaluates the cumulative

impacts associated with a variety of regulatory activities. As such, this EIR evaluates the cumulative environmental impacts associated with implementation of other air quality regulations as outlined in the 2017 Clean Air Plan, the most recent air plan for the Bay Area (BAAQMD, 2017b). In addition, the District is considering amendments to Regulation 8, Rule 18: Equipment Leaks (Rule 8-18) as part of the Valero Case Agreement. Draft amendments to Rule 8-18 are not being proposed until a Refinery Heavy Liquids Fugitive Leaks study can be completed at all five Bay Area refineries. This study has been underway and findings are expected to be finalized in late 2018. Information from the study will be used to determine appropriate amendments for Rule 8-18, expected in Spring 2019. The implementation of amendments to Rule 8-18 will also be included as a cumulative project.

The area evaluated for cumulative impacts in this EIR is the area within the jurisdiction of the District, an area encompassing 5,600 square miles, which 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.

CHAPTER 3.2

AIR QUALITY IMPACTS

Environmental Setting
Regulatory Setting
Significance Criteria
Environmental Impacts
Mitigation Measures
Cumulative Impacts

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3.2 AIR QUALITY

This subchapter of the EIR evaluates the potential air quality impacts associated with implementation of the Refinery Rules - Draft Rule Amendments, which include projects to amend Rule 6-5, Rule 11-10, and Rule 12-15, designed to reduce emissions from refinery operations.

As discussed in the Initial Study, the proposed amendments to Rule 11-10 that would result in monitoring weekly may potentially delay the detection of a leak under specific circumstances, and subsequently delay minimization and/or repair of the leak resulting in increased ROG emissions above the currently approved Rule 11-10 (emission reductions "forgone."). This potential delay exists relative to the Rule 11-10 as it was adopted, but not relative to Rule 11-10 as it was actually implemented. Rule 11-10 has been implemented consistent with the Valero Case Agreement, which provides for weekly monitoring. The NOP/IS (see Appendix A) determined that air quality impacts of the proposed rule amendments are potentially significant. Project-specific and cumulative adverse air quality impacts associated with the proposed rule amendments have been evaluated in Chapter 3.2 of this EIR.

3.2.1 ENVIRONMENTAL SETTING

3.2.1.1 Criteria Pollutants

Ambient Air Quality Standards

It is the responsibility of the Air District to ensure that state and federal ambient air quality standards (AAQS) 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 (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. The state and national NAAQS for each of these pollutants and their effects on health are summarized in Table 3.2-1.

TABLE 3.2-1

Federal and State Ambient Air Quality Standards

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. > 0.070 ppm, 8-hr	No Federal 1-hr standard 0.070 ppm, 8-hr avg. >	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.030 ppm, annual avg. 0.18 ppm, 1-hr avg. >	0.053 ppm, ann. avg.> 0.100 ppm, 1-hr 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. >	No Federal 24-hr Standard> 0.075 ppm, 1-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM_{10})	20 $\mu g/m^3$, ann. arithmetic mean > 50 $\mu g/m^3$, 24-hr average>	No Federal annual Standard 150 $\mu g/m^3$, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter ($PM_{2.5}$)	12 $\mu g/m^3$, annual arithmetic mean> No State 24-hr Standard	12 $\mu g/m^3$, annual arithmetic mean> 35 $\mu g/m^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu g/m^3$, 24-hr avg. >=	No Federal Standard	(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 $\mu g/m^3$, 30-day avg. >= No State Calendar Quarter Standard No State 3-Month Rolling Avg. Standard	No Federal 30-day avg. Standard 1.5 $\mu g/m^3$, calendar quarter> 0.15 $\mu g/m^3$ 3-Month Rolling average	(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)	No Federal Standard	Visibility based standard, not a health based standard. Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

U.S. EPA requires CARB and Air District to measure the ambient levels of air pollution to determine compliance with the NAAQS. To comply with this mandate, the Air District monitors levels of various criteria pollutants at 25 monitoring stations within the San Francisco Bay Area. A summary of the 2017 maximum concentration and number of days exceeding state and federal ambient air standards at the Air District monitoring stations are presented in Table 3.2-2.

TABLE 3.2-2
Bay Area Air Pollution Summary – 2017

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 8-Hr Days	Cal 8-Hr Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat 1-Hr Days	Cal 1-Hr Days	Max 1-Hr	Max 24-Hr	Nat 1-Hr Days	Cal 24-Hr Days	Ann Avg	Max 24-Hr	Nat 24-Hr Days	Cal 24-Hr Days	Max 24-Hr	Nat 24-Hr Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(ppb)						(ppm)			(ppb)				(ppb)				($\mu g/m^3$)				($\mu g/m^3$)				
Napa	98	1	84	2	2	63	5.6	4.7	0	53	7	0	0	-	-	-	-	-	-	-	-	199.1	13	35	13.7	10.9
San Rafael	88	0	63	0	0	58	2.6	1.6	0	53	10	0	0	-	-	-	-	17.7	94	0	2	74.7	8	27	9.7	8.2
Sebastopol	87	0	71	1	1	53	2.1	1.6	0	35	5	0	0	-	-	-	-	-	-	-	-	81.8	4	21	8.1	6.5
Vallejo	105	1	88	2	2	61	3.1	2.1	0	49	8	0	0	5.9	2.17	0	0	-	-	-	-	101.9	9	30	11.6	9.5
Coast/Central Bay																										
Berkeley Aquatic Pk*	58	0	49	0	0	*	2.2	1.7	0	123	16	1	0	-	-	-	-	-	-	-	-	52.0	7	*	9.1	*
Laney College Fwy	-	-	-	-	-	-	1.9	1.3	0	68	17	0	0	-	-	-	-	-	-	-	-	70.8	8	27	11.6	10.1
Oakland	136	2	100	2	2	54	3.2	2.2	0	65	10	0	0	-	-	-	-	-	-	-	-	70.2	7	24	9.4	7.9
Oakland-West	87	0	68	0	0	48	6.0	2.1	0	52	13	0	0	16.9	2.2	0	0	-	-	-	-	56.0	7	28	12.8	10.6
Richmond	-	-	-	-	-	-	-	-	-	-	-	-		16.0	2.9	0	0	-	-	-	-	-	-	-	-	-
San Francisco	87	0	54	0	0	47	2.5	1.4	0	73	11	0	0	-	-	-	-	22.0	77	0	2	49.9	7	27	9.7	8.3
San Pablo	104	3	80	2	2	52	2.5	1.9	0	48	8	0	0	8.3	2.7	0	0	20.3	95	0	4	71.2	9	30	10.8	9.3
Eastern District																										
Bethel Island	90	0	71	1	2	68	1.6	1.0	0	34	5	0	0	5.3	3.5	0	0	16.3	52	0	1	-	-	-	-	-
Concord	82	0	70	0	0	66	1.7	1.3	0	41	7	0	0	13.2	2.6	0	0	13.3	41	0	0	89.4	6	26	12.0	8.9
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	-	23.5	5.6	0	0	-	-	-	-	-	-	-	-	-
Fairfield	80	0	62	0	0	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore	109	5	86	6	6	75	-	-	-	45	9	0	0	-	-	-	-	-	-	-	-	41.5	2	25	8.5	8.2
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	-	15.9	3.1	0	0	-	-	-	-	-	-	-	-	-
San Ramon	92	0	75	2	2	68	-	-	-	31	5	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
South Central Bay																										
Hayward	139	2	110	3	4	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City	115	2	86	2	2	56	2.8	1.4	0	67	11	0	0	-	-	-	-	-	-	-	-	60.8	6	23	9.1	7.7
Santa Clara Valley																										
Gilroy	96	1	84	1	1	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.4	2	18	75.5	6.1
Los Gatos	93	0	75	3	3	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose	121	3	98	4	4	67	2.1	1.8	0	68	12	0	0	3.6	1.1	0	0	21.6	70	0	6	49.7	6	27	9.5	9.3
San Jose Freeway	-	-	-	-	-	-	2.6	1.8	0	77	17	0	0	-	-	-	-	-	-	-	-	48.4	8	28	10.8	9.5
San Martin	96	1	86	3	3	69	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-
Total Days over Standard		**6**		**6**	**6**				**0**			**1**	**0**			**0**	**0**			**0**	**6**		**18**			

Source: BAAQMD, 2018b.
*Near-road air monitoring at Berkeley Aquatic Park began on July 1,2016. Therefore, 3-year average statistics for ozone and $PM_{2.5}$ are not available.
(ppb) = parts per billion (ppm) = parts per million, ($\mu g/m^3$) = micrograms per cubic meter

Air quality conditions in the San Francisco Bay Area have improved since the Air District was created in 1955. The long-term trend of ambient concentrations of air pollutants and the number of days on which the region exceeds (AAQS) have generally declined, although some year-to-year variability primarily due to meteorology, causes some short-term increases in the number of exceedance days (see Table 3.2-3). The Air District is in attainment of the State AAQS for CO, NO_2, SO_2, lead and sulfates. However, the Air District does not comply with the State 24-hour PM_{10} or $PM_{2.5}$ standards. The Air District is unclassifiable/attainment for the federal CO, NO_2, SO_2, Pb, PM_{10} and $PM_{2.5}$ standards. A designation of unclassifiable/attainment means that EPA has determined to have sufficient evidence to find the area either is attaining or is likely attaining the NAAQS.

The 2017 air quality data from monitoring stations within the District are presented in Table 3.2-2. No monitoring stations measured an exceedance of any of the state or federal AAQS for CO and SO_2. There was one exceedance of the federal NO_2 AAQS at one monitoring station in 2017, although the area did not violate the NAAQS. All monitoring stations were in compliance with the federal PM_{10} standards. The California 24-hour PM_{10} standard was exceeded on six days in 2017, at the San Jose monitoring station (see Table 3.2-3).

The Bay Area is designated as a non-attainment area for the federal and state 8-hour ozone standard and the federal 24-hour $PM_{2.5}$ standard. The state and federal 8-hour ozone standards were exceeded on 6 days in 2017 at one site or more in the Air District; most frequently in the Eastern District (Livermore, Patterson Pass, and San Ramon) and the Santa Clara Valley (see Table 3.2-3). The federal 24-hour $PM_{2.5}$ standard was exceeded at one or more Bay Area station on 18 days in 2017, most frequently in the Napa, San Rafael, Vallejo, and San Pablo.

TABLE 3.2-3

Bay Area Air Quality Summary
Days over Standards

YEAR	OZONE			CARBON MONOXIDE				NOx		SULFUR DIOXIDE		PM_{10}		$PM_{2.5}$
	8-Hr	1-Hr	8-Hr	1-Hr		8-Hr		1-Hr		1-Hr	24-Hr	24-Hr*		24-Hr
	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat	Cal	Nat	Cal	Nat	Cal	Nat
2008	19	9	20	0	0	0	0	0	0	2	0	0	5	12
2009	11	11	13	0	0	0	0	0	0	0	0	0	1	11
2010	11	8	11	0	0	0	0	0	0	0	0	0	2	6
2011	9	5	10	0	0	0	0	0	0	0	0	0	3	8
2012	8	3	8	0	0	0	0	1	0	0	0	0	2	3
2013	3	3	3	0	0	0	0	0	0	0	0	0	6	13
2014	9	3	10	0	0	0	0	0	0	0	0	0	2	3
2015	12	7	12	0	0	0	0	0	0	0	0	0	1	9
2016	15	6	15	0	0	0	0	0	0	0	0	0	0	0
2017	6	6	6	0	0	0	0	1	0	0	0	0	6	18

3.2.1.2 Criteria Pollutant Health Effects

3.2.1.2.1 Ozone

Ozone is not emitted directly from pollution sources. Instead ozone is formed in the atmosphere through complex chemical reactions between hydrocarbons, or reactive organic gases (ROG, also commonly referred to as reactive organic gases (ROG), and nitrogen oxides (NOx), in the presence of sunlight. ROG and NOx are referred to as ozone precursors.

Ozone, a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of ozone mixing is limited. At the earth's surface in sites remote from urban areas ozone concentrations are normally very low (0.03-0.05 ppm). While ozone is beneficial in the stratosphere because it filters out skin-cancer-causing ultraviolet radiation, ground level ozone is harmful, is a highly reactive oxidant, which accounts for its damaging effects on human health, plants and materials at the earth's surface.

Ozone is harmful to public health at high concentrations near ground level. Ozone can damage the tissues of the lungs and respiratory tract. High concentrations of ozone irritate the nose, throat, and respiratory system and constrict the airways. Ozone also can aggravate other respiratory conditions such as asthma, bronchitis, and emphysema, causing increased hospital admissions. Repeated exposure to high ozone levels can make people more susceptible to respiratory infection and lung inflammation and permanently damage lung tissue. Ozone can also have negative cardiovascular impacts, including chronic hardening of the arteries and acute triggering of heart attacks. Children are most at risk as they tend to be active and outdoors in the summer when ozone levels are highest. Seniors and people with respiratory illnesses are also especially sensitive to ozone’s effects. Even healthy adults can be affected by working or exercising outdoors during high ozone levels.

The propensity of ozone for reacting with organic materials causes it to be damaging to living cells, and ambient ozone concentrations in the Bay Area are occasionally sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, reducing the respiratory system's ability to remove inhaled particles and fight infection while long-term exposure damages lung tissue. People with respiratory diseases, children, the elderly, and people who exercise heavily are more susceptible to the effects of ozone.

Plants are sensitive to ozone at concentrations well below the health-based standards and ozone is responsible for significant crop damage. Ozone is also responsible for damage to forests and other ecosystems.

3.2.1.2.2 Reactive Organic Gases (ROGs)

It should be noted that there are no state or national ambient air quality standards for ROGs because they are not classified as criteria pollutants. ROGs are regulated, however, because ROG emissions contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, contributing to higher PM_{10} and lower visibility levels.

Although health-based standards have not been established for ROGs, health effects can occur from exposures to high concentrations of ROGs because of interference with oxygen uptake. In general, ambient ROG concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as ROG emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of ROG emissions, is known to be a human carcinogen.

ROG emissions result primarily from incomplete fuel combustion and the evaporation of paints, solvents and fuels. Mobile sources are the largest contributors to ROG emissions. Stationary sources include processes that use solvents (such as manufacturing, degreasing, and coating operations) and petroleum refining, and marketing. Area-wide ROG sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, and other evaporative emissions.

3.2.1.2.3 Carbon Monoxide (CO)

CO is a colorless, odorless, relatively inert gas. It is a trace constituent in the unpolluted troposphere and is produced by both natural processes and human activities. In remote areas far from human habitation, carbon monoxide occurs in the atmosphere at an average background concentration of 0.04 ppm, primarily as a result of natural processes such as forest fires and the oxidation of methane. Global atmospheric mixing of CO from urban and industrial sources creates higher background concentrations (up to 0.20 ppm) near urban areas. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels, mainly gasoline used in mobile sources. Consequently, CO concentrations are generally highest in the vicinity of major concentrations of vehicular traffic.

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the District exhibit large spatial and temporal variations, due to variations in the rate at which CO is emitted, and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable atmospheric portion of the day.

When CO is inhaled in sufficient concentration, it can displace oxygen and bind with the hemoglobin in the blood, reducing the capacity of the blood to carry oxygen. Individuals most at risk from the effects of CO include heart patients, fetuses (unborn babies), smokers, and people who exercise heavily. Normal healthy individuals are affected at higher concentrations, which may cause impairment of manual dexterity, vision, learning ability, and performance of work. The results of studies concerning the combined effects of CO and other pollutants in animals have shown a synergistic effect after exposure to CO and ozone.

3.2.1.2.4 Particulate Matter (PM_{10} & $PM_{2.5}$)

Particulate matter, or PM, consists of microscopically small solid particles or liquid droplets suspended in the air. PM can be emitted directly into the air or it can be formed from secondary reactions involving gaseous pollutants that combine in the atmosphere. Particulate pollution is primarily a problem in winter, accumulating when cold, stagnant weather comes into the Bay Area. PM is usually broken down further into two size distributions, PM_{10} and $PM_{2.5}$. Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$.

A consistent correlation between elevated ambient particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long-term exposure to air pollution dominated by fine particles ($PM_{2.5}$) and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in fine particulate matter concentration levels have also been related to hospital admissions for acute respiratory conditions, to school and kindergarten absences, to a decrease in respiratory function in normal children and to increased medication use in children and adults with asthma. Studies have also shown lung function growth in children is reduced with long-term exposure to particulate matter. The elderly, people with pre-existing respiratory and/or cardiovascular disease and children appear to be more susceptible to the effects of PM_{10} and $PM_{2.5}$.

3.2.1.2.5 Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N_2) and oxygen (O_2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO_2. NO_2 is responsible for the brownish tinge of polluted

air. The two gases, NO and NO_2, are referred to collectively as nitrogen oxides or NOx. In the presence of sunlight, NO_2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO_3) which reacts further to form nitrates, which are a component of PM_{10}.

NO_2 is a respiratory irritant and reduces resistance to respiratory infection. Children and people with respiratory disease are most susceptible to its effects.

3.2.1.2.6 Sulfur Dioxide (SO_2)

SO_2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H_2SO_4), which contributes to acid precipitation, and sulfates, which are a component of PM_{10} and $PM_{2.5}$. Most of the SO_2 emitted into the atmosphere is produced by the burning of sulfur-containing fuels.

At sufficiently high concentrations, SO_2 affects breathing and the lungs' defenses, and can aggravate respiratory and cardiovascular diseases. Asthmatics and people with chronic lung disease or cardiovascular disease are most sensitive to its effects. SO_2 also causes plant damage, damage to materials, and acidification of lakes and streams.

3.2.1.3 Current Emissions Inventory

An emission inventory is a detailed estimate of air pollutant emissions from a range of sources in a given area, for a specified time period. Future projected emissions incorporate current levels of control on sources, growth in activity in the Air District and implementation of future programs that affect emissions of air pollutants.

3.2.1.3.1 Ozone

NOx and ROG emissions are decreasing state-wide and in the San Francisco Bay Area since 1975 and are projected to continue to decline. ROG emissions result primarily from incomplete fuel combustion and the evaporation of paints, solvents and fuels. Mobile sources are the largest contributors to ROG emissions. Stationary sources include processes that use solvents (such as manufacturing, degreasing, and coating operations) and petroleum refining, and marketing. Area-wide ROG sources include consumer products, pesticides, aerosol and architectural coatings, asphalt paving and roofing, and other evaporative emissions. About 42 percent of anthropogenic ROG emissions in the Bay Area are from mobile source emissions, while 26 percent are from petroleum and solvent evaporation (see Table 3.2-4) (BAAQMD, 2017b).

TABLE 3.2-4

Anthropogenic Air Emission Inventory 2015
(tons per day)

Source	ROG	NOx
On-Road Motor Vehicles	59.6	128.1
Other Mobile Sources	49.2	122.2
Petroleum & Solvent Evaporation	67.3	--
Industrial and Commercial	15.4	3.0
Combustion	13.0	44.7
Other Sources	54.4	1.2

Source: BAAQMD, 2017b

Approximately 84 percent of NOx emissions in the Bay Area are produced by the combustion of fuels. Mobile sources of NOx include motor vehicles, aircraft, trains, ships, recreation boats, industrial and construction equipment, farm equipment, off-road recreational vehicles, and other equipment. NOx and ROG emissions have been reduced for both stationary and mobile sources due to more stringent regulations from CARB and the District, respectively (see Table 3.2-5) (BAAQMD, 2017b).

3.2.1.3.2 Particulate Matter

Particulate matter (both PM_{10} and $PM_{2.5}$) is a diverse mixture of suspended particles and liquid droplets (aerosols). PM includes elements such as carbon and metals; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust, wood smoke, and soil. Unlike the other criteria pollutants which are individual chemical compounds, PM includes all particles that are suspended in the air. PM is both directly emitted (referred to as direct PM or primary PM) and also formed in the atmosphere through reactions among different pollutants (this is referred to as indirect or secondary PM).

PM is generally characterized on the basis of particle size. Ultra-fine PM includes particles less than 0.1 microns in diameter. Fine PM ($PM_{2.5}$) consists of particles 2.5 microns or less in diameter. PM_{10} consists of particles 10 microns or less in diameter. Total suspended particulates (TSP) includes suspended particles of any size.

Combustion of fossil fuels and biomass, primarily wood, from various sources are the primary contributors of directly-emitted Bay Area $PM_{2.5}$ (BAAQMD, 2017b). Biomass combustion concentrations are about 3-4 times higher in winter than during the other seasons, and its contribution to peak $PM_{2.5}$ is greater. The increased winter biomass combustion sources reflect increased residential wood-burning during the winter season. The inventory of PM_{10} and $PM_{2.5}$ emission sources is provided in Table 3.2-5.

TABLE 3.2-5

Particulate Emissions Inventory by Source, Annual Average 2015 (tons per day)

Source	PM_{10}	$PM_{2.5}$
Residential Wood-Burning	12.0	11.8
Geological Dust	49.1	6.6
On-Road Motor Vehicles	12.0	5.6
Other Mobile Sources	5.5	5.6
Industrial Combustion	6.5	6.1
Industrial/Commercial Processes	7.6	4.7
Accidental Fires	4.4	3.8
Commercial Cooking	2.2	1.9
Animal Waste	9.8	0.9

Source: BAAQMD, 2017b

3.2.1.4 Non-Criteria Pollutants Health Effects

Although the primary mandate of the Air District is attaining and maintaining the national and state Ambient Air Quality Standards for criteria pollutants within the Air District jurisdiction, the Air District also has a general responsibility to control, and where possible, reduce public exposure to airborne toxic compounds. TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. TACs can be emitted directly and can also be formed in the atmosphere through reactions among different pollutants. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis or genetic damage; or short-term acute affects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. TACs are separated into carcinogens and non-carcinogens based on the nature of the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Non-carcinogenic substances differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is expected to occur. These levels are determined on a pollutant-by-pollutant basis. The air toxics program was established as a separate and complementary program designed to evaluate and reduce adverse health effects resulting from exposure to TACs.

The major elements of the District's air toxics program are outlined below.

- Preconstruction review of new and modified sources for potential health impacts, and the requirement for new/modified sources with TAC emissions that exceed a specified threshold to use BACT.

- The Air Toxics Hot Spots Program, designed to identify industrial and commercial facilities that may result in locally elevated ambient concentrations of TACs, to

report significant emissions to the affected public, and to reduce unacceptable health risks.

- The District's Community Air Risk Evaluation (CARE) Program has been implemented to identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution; to reduce the health impacts in these areas; and to engage the community and other agencies to develop additional actions to reduce local health impacts.

- Control measures designed to reduce emissions from source categories of TACs, including rules originating from the state Toxic Air Contaminant Act and the federal Clean Air Act.

- The TAC emissions inventory, a database that contains information concerning routine and predictable emissions of TACs from permitted stationary sources.

- Ambient monitoring of TAC concentrations at a number of sites throughout the Bay Area.

- The District's Regulation 11, Rule 18: Reduction from Air Toxic Emissions at Existing Facilities was adopted November 15, 2017. This rule requires the District to conduct screening analyses for facilities that report TAC emissions within the District and calculate health prioritization scores based on the amount of TAC emissions, the toxicity of the TAC pollutants, and the proximity of the facilities to local communities. The District will conduct health risk assessments for facilities that have priority scores above a certain level. Based on the health risk assessment, facilities found to have a potential health risk above the risk action level would be required to reduce their risk below the action level, or install Best Available Retrofit Control Technology for Toxics on all significant sources of toxic emissions.

3.2.1.4.1 TAC Health Effects

TACs can cause or contribute to a wide range of health effects. Acute (short-term) health effects may include eye and throat irritation. Chronic (long-term) exposure to TACs may cause more severe effects such as neurological damage, hormone disruption, developmental defects, and cancer. CARB has identified roughly 200 TACs, including diesel particulate matter (diesel PM) and environmental tobacco smoke.

Unlike criteria pollutants which are subject to ambient air quality standards, TACs are primarily regulated at the individual emissions source level based on risk assessment. Human outdoor exposure risk associated with an individual air toxic species is calculated as its ground-level concentration multiplied by an established unit risk factor for that air toxic species. Total risk due to TACs is the sum of the individual risks associated with each air toxic species.

Occupational health studies have shown diesel PM to be a lung carcinogen as well as a respiratory irritant. Benzene, present in gasoline vapors and also a byproduct of combustion, has been classified as a human carcinogen and is associated with leukemia. 1,3-butadiene, produced from motor vehicle exhaust and other combustion sources, has also been associated with leukemia. Reducing 1,3-butadiene also has a co-benefit in reducing the air toxic acrolein.

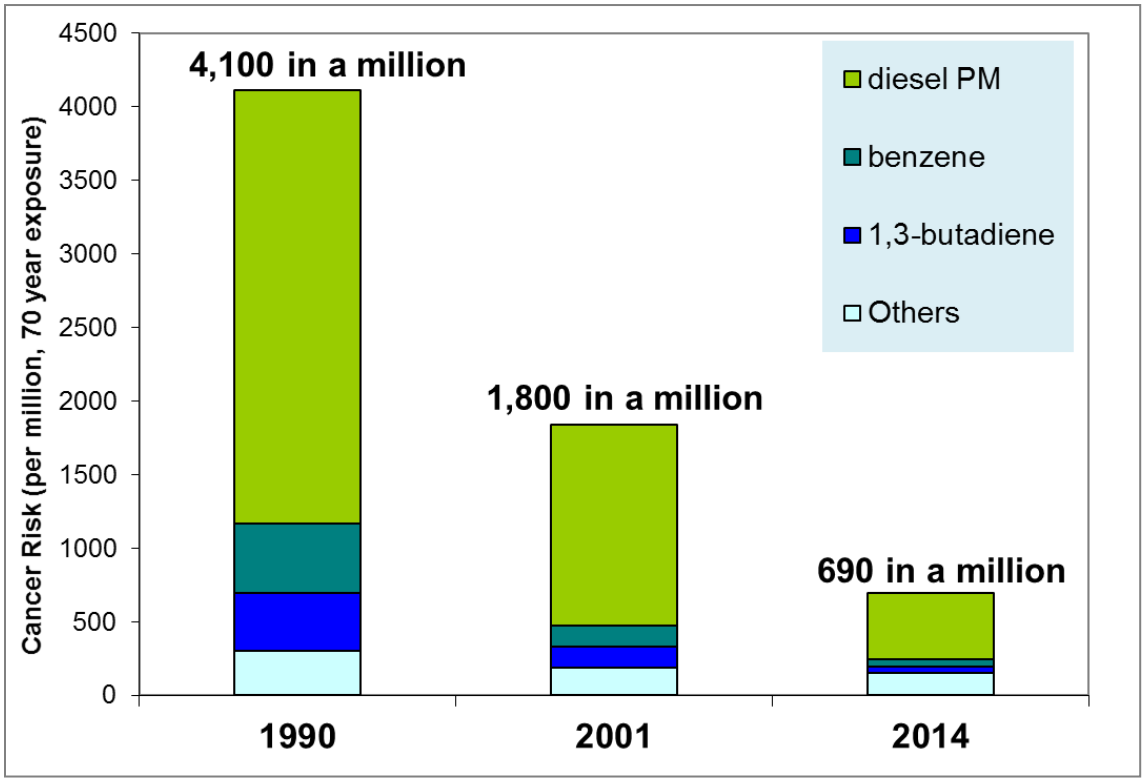
Acetaldehyde and formaldehyde are emitted from fuel combustion and other sources. They are also formed photo-chemically in the atmosphere from other compounds. Both compounds have been found to cause nasal cancers in animal studies and are also associated with skin and respiratory irritation. Human studies for carcinogenic effects of acetaldehyde are sparse but, in combination with animal studies, sufficient to support classification as a probable human carcinogen. Formaldehyde has been associated with nasal sinus cancer and nasopharyngeal cancer, and possibly with leukemia.

The primary health risk of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there are not "safe" levels of exposure to carcinogens without some risk to causing cancer. The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods. Based on ambient air quality monitoring, and using OEHHA cancer risk factors,[1] the estimated lifetime cancer risk for Bay Area residents, over a 70-year lifespan from all TACs combined, declined from 4,100 cases per million in 1990 to 690 cases per million people in 2014, as shown in Figure 3.2-1. This represents an 80 percent decrease between 1990 and 2014 (BAAQMD, 2016).

The cancer risk related to diesel PM, which accounts for most of the cancer risk from TACs, has declined substantially over the past 15-20 years as a result of ARB regulations and Air District programs to reduce emissions from diesel engines. However, diesel PM still accounts for roughly 60 percent of the total cancer risk related to TACs.

[1] See CARB's Risk Management Guidance for Stationary Sources of Air Toxics, Discussion Draft, May 27, 2015, https://www.arb.ca.gov/toxics/rma/rma_guidancedraft052715.pdf and the Office Environmental Health Hazard Assessment's toxicity values at http://oehha.ca.gov/media/CPFs042909.pdf. The cancer risk estimates shown in Figure 3.2-1 are higher than the estimates provided in documents such as the Bay Area 2010 Clean Air Plan and the April 2014 CARE report entitled *Improving Air Quality and Health in Bay Area Communities*. It should be emphasized that the higher risk estimates shown in Figure 3.2-1 are due solely to changes in the methodology used to estimate cancer risk, and not to any actual increase in TAC emissions or population exposure to TACs.

FIGURE 3.2-1 Cancer-Risk Weighted Toxics Trends



Source: BAAQMD, 2016

3.2.1.4.2 Air Toxics Emission Inventory

The Air District 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 emissions inventory is reported in the Air District, Toxic Air Contaminant Special Reports that summarizes and analyses TAC air monitoring data, facility risk assessments, health risk assessments and other relevant information.[2]

3.2.1.4.3 Ambient Monitoring Network

Table 3.2-6 contains a summary of average ambient concentrations of TACs measured at monitoring stations in the Bay Area by the District in 2015.

[2] See Toxic Air Contaminants Special Reports available at http://www.baaqmd.gov/research-and-data/emission-inventory/toxic-air-contaminants.

TABLE 3.2-6

Summary of 2017 Air District Ambient Air Toxics Monitoring Data

Compound	Max. Conc. (ppb) (1)	Min. Conc. (ppb) (2)	Mean Conc. (ppb) (3)
1,3-Butadiene	0.541	0.000	0.012
Acetaldehyde	5.680	0.480	1.982
Acetone	29.901	0.345	4.072
Acetonitrile	3.799	0.000	0.088
Acyrlonitrile	0.323	0.000	0.001
Benzene	3.123	0.000	0.221
Carbon Tetrachloride	0.130	0.024	0.098
Chloroform	0.115	0.000	0.023
Dichloromethane	1.791	0.000	0.159
Ethyl Alcohol	91.740	0.236	5.455
Ethylbenzene	1.136	0.000	0.138
Ethylene Dibromide	0.000	0.000	0.000
Ethylene Dichloride	0.000	0.000	0.000
Formaldehyde	7.290	0.480	2.707
Freon-113	0.205	0.051	0.070
Methyl Chloroform	1.226	0.000	0.006
Methyl Ethyl Ketone	5.743	0.000	0.259
Tetrachloroethylene	0.337	0.000	0.003
Toluene	3.925	0.000	0.503
Trichloroethylene	0.328	0.000	0.001
Trichlorofluoromethane	0.593	0.194	0.248
Vinyl Chloride	0.000	0.000	0.000
m/p-Xylene	2.929	0.000	0.236
o-Xylene	1.446	0.000	0.108

Source: BAAQMD, 2018

NOTES: Table 3.2-6 summarizes the results of the Air District gaseous toxic air contaminant monitoring network for the year 2017. These data represent monitoring results at 21 separate sites at which samples were collected.

(1) "Maximum Conc." is the highest daily concentration measured at any of the 21 monitoring sites.

(2) "Minimum Conc." is the lowest daily concentration measured at any of the 21 monitoring sites.

(3) "Mean Conc." is the arithmetic average of the air samples collected in 2017 at the 21 monitoring sites.

(4) Acetaldehyde and formaldehyde concentrations reflect measurements from one monitoring site (San Jose-Jackson).

3.2.2 REGULATORY SETTING

3.2.2.1 Criteria Pollutants

Ambient air quality standards in California are the responsibility of, and have been established by, both the U.S. EPA and CARB. These standards have been set at concentrations, which provide margins of safety for the protection of public health and welfare. Federal and state air quality standards are presented in Table 3.2-1. The federal, state, and local air quality regulations are identified below in further detail.

3.2.2.1.1 Federal Regulations

The U.S. EPA is responsible for setting and enforcing the National Ambient Air Quality Standards for oxidants (ozone), CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

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 Air District, 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.

Other federal regulations applicable to the Bay Area include Title III of the Clean Air Act, which regulates toxic air contaminants. Title V of the Act establishes a federal permit program for large stationary emission sources. The U.S. EPA also has authority over the Prevention of Significant Deterioration (PSD) program, as well as the New Source Performance Standards (NSPS), both of which regulate stationary sources under specified conditions.

3.2.2.1.2 California Regulations

CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act and federal Clean Air Act, and for regulating emissions from consumer products and motor vehicles. CARB has established California Ambient Air Quality Standards for all pollutants for which the

federal government has established National Ambient Air Quality Standards and also has standards for sulfates, visibility, hydrogen sulfide and vinyl chloride. Federal and state air quality standards are presented in Table 3.2-1 under Air Quality Environmental Setting. California standards are generally more stringent than the National Ambient Air Quality Standards. CARB has established emission standards for vehicles sold in California and for various types of combustion equipment. CARB also sets fuel specifications to reduce vehicular emissions.

CARB released the Proposed 2016 State Strategy for the State Implementation Strategy on May 17, 2016. The measures contained in the State SIP Strategy reflect a combination of state actions, petitions for federal action, and actions for deployment of cleaner technologies in all sectors. CARB's proposed state SIP Strategy includes control measures for on-road vehicles, locomotives, ocean going vessels, and off-road equipment that are aimed at helping all districts in California to comply with federal and state ambient air quality standards.

California gasoline specifications are governed by both state and federal agencies. During the past two decades, federal and state agencies have imposed numerous requirements on the production and sale of gasoline in California. CARB adopted the Reformulated Gasoline Phase III regulations in 1999, which required, among other things, that California phase out the use of MTBE in gasoline. The CARB Reformulated Gasoline Phase III regulations have been amended several times (the most recent amendments were adopted in 2013) since the original adoption by CARB.

The California Clean Air Act (AB2595) mandates achievement of the maximum degree of emission reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date.

3.2.2.1.3 Air District Regulations

The California Legislature created the Air District in 1955. The Air District is responsible for regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The District is governed by a 24-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 District is responsible for implementing emissions standards and other requirements of federal and state laws. Numerous regulations have been developed by the District to control emissions sources within its jurisdiction. It is also responsible for developing air quality planning documents required by both federal and state laws.

Bay Area facilities are subject to various air quality regulations that have been adopted by the Air District, CARB and U.S. EPA. These rules contain standards that are expressed in a variety of forms to ensure that emissions are effectively controlled including:

- Requiring the use of specific emission control strategies or equipment (e.g., the use of floating roof tanks for ROG emissions);
- Requiring that emissions generated by a source be controlled by at least a specified percentage (e.g., 95 percent control of ROG emissions from pressure relief devices);
- Requiring that emissions from a source not exceed specific concentration levels (e.g., 100 parts per million (ppm) by volume of ROG for equipment leaks, unless those leaks are repaired within a specific timeframe; 250 ppm by volume SO_2 in exhaust gases from sulfur recovery units; 1,000 ppm by volume SO_2 in exhaust gases from catalytic cracking units);
- Requiring that emissions not exceed certain quantities for a given amount of material processed or fuel used at a source (e.g., 0.033 pounds NOx per million BTU of heat input, on a refinery-wide basis, for boilers, process heaters, and steam generators);
- Requiring that emissions be controlled sufficient to not result in off property air concentrations above specified levels (e.g., 0.03 ppm by volume of hydrogen sulfide (H_2S) in the ambient air);
- Requiring that emissions from a source not exceed specified opacity levels based on visible emissions observations (e.g., no more than 3 minutes in any hour in which emissions are as dark or darker than No. 1 on the Ringelmann chart); and
- Requiring that emissions be minimized by the use of all feasible prevention measures (e.g., flaring prohibited unless it is in accordance with an approved Flare Minimization Plan).
- Requiring that emissions of non-methane organic compounds and methane from the waste decomposition process at solid waste disposal sites be limited.
- Requiring emission limits on ozone precursor organic compounds from valves and flanges.
- Requiring the limitation of emissions of organic compounds from gasoline dispensing facilities.

3.2.2.2 Toxic Air Contaminants

3.2.2.2.1 Federal and State Regulations

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 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 required the U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by the U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for affected 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 promulgated by May 2015.

Many sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed four 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), as amended by Senate Bill (SB) 1731, 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. AB2588 requires operators of certain stationary sources to inventory air toxic emissions from their operation and, if directed to do so by the local air district, prepare a health risk assessment to determine the potential health impacts of such emissions. If the health impacts are determined to be "significant" (greater than 10 per million exposures or non-cancer chronic or acute hazard index greater than 1.0), each facility must, upon approval of the health risk assessment, provide public notification to affect individuals.

Community Air Protection Program (AB617): The Community Air Protection Program was established under AB617 to reduce exposure in communities most impacted by air pollution. The Program includes community air monitoring and community emissions reduction programs, as well as funding to support early actions to address localized air pollution through targeted incentive funding to deploy cleaner technologies in these impacted communities. AB617 also includes new requirements for accelerated retrofit of pollution controls on industrial sources, increased penalty fees, and greater transparency and availability of air quality and emissions data, which will help advance air pollution control efforts. CARB is required to select the communities for action in the first year of the program and develop the program requirements by October 2018.

3.2.2.2.2 District TAC Rules and Regulations

The Air District uses three approaches to reduce TAC emissions and to reduce the health impacts resulting from TAC emissions: 1) Specific rules and regulations; 2) Pre-construction review; and, 3) the Air Toxics Hot Spots Program. In addition, the Air District implements U.S. EPA, CARB, and Air District rules that specifically target toxic air contaminant emissions from sources at petroleum refineries.

District Rules and Regulations: The Air District has a number of rules that reduce or control emissions from stationary sources. A number of regulations that control criteria pollutant emissions also control TAC emissions. For example, inspection and maintenance programs for fugitive emission sources (e.g., pumps, valves, and flanges) control ROG emissions, some of which may also be TAC emissions. As discussed above, the District's Rule 11-18: Reduction from Air Toxic Emissions at Existing Facilities requires a review of TAC emissions, health risk assessments for facilities that have priority scores above a certain level, and risk reduction measures or installation of Best Available Retrofit Control Technology for Toxics on all significant sources of toxic emissions, if certain health risks are exceeded.

Preconstruction Review: The Air District's Regulation 2, Rule 5 is a preconstruction review requirement for new and modified sources of TACs implemented through the Air District's permitting process. This rule includes health impact thresholds, which require the use of the best available control technology for TAC emissions (TBACT) for new or modified equipment, and health risk limits cannot be exceeded for any proposed project.

Air Toxics Hot Spots Program: The Air Toxic Hot Spots program, or AB2588 Program, is a statewide program implemented by each individual air district pursuant to the Air Toxic Hot Spots Act of 1987 (Health and Safety Code Section 44300 et. seq.). The Air District uses standardized procedures to identify health impacts resulting from industrial and commercial facilities and encourage risk reductions at these facilities. Health impacts are expressed in terms of cancer risk and non-cancer hazard index. Under this program, the Air District uses a prioritization process to identify facilities that warrant further review. This prioritization process uses toxic emissions data, health effects values for TACs, and Air District approved calculation procedures to determine a cancer risk prioritization score and a non-cancer prioritization score for each site. The District updates the prioritization scores annually based on the most recent toxic emissions inventory data for the facility.

Facilities that have a cancer risk prioritization score greater than 10 or a non-cancer prioritization greater than 1 must undergo further review. If emission inventory refinements and other screening procedures indicate that prioritizations scores remain above the thresholds, the Air District will require that the facility perform a comprehensive site-wide HRA.

In 1990, the Air District Board of Directors adopted the current risk management thresholds pursuant to the Air Toxic "Hot Spots" Act of 1987. These risk management thresholds, which are summarized in Table 3.2-7 below, set health impact levels that require sites to take further action, such as conducting periodic public notifications about the site's health impacts and implementing mandatory risk reduction measures.

TABLE 3.2-7

Summary of Bay Area Air Toxics Hot Spots Program Risk Management Thresholds

Requirement	Site Wide Cancer Risk	Site Wide Non-Cancer Hazard Index
Public Notification	Greater than 10 in one million	Greater than 1
Mandatory Risk Reduction	Greater than 100 in one million	Greater than 10

Targeted Control of TACs Under the Community Air Risk Evaluation Program: In 2004, the Air District 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, the Air District 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.

The CARE program was initiated to evaluate and reduce health risks associated with exposures to outdoor TACs and other pollutants in the Bay Area. The program examines emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The main objectives of the program are to:

- Characterize and evaluate potential cancer and non-cancer health risks associated with exposure to TACs and other pollutants from both stationary and mobile sources throughout the Bay Area.
- Assess potential exposures to sensitive populations including children, senior citizens, and people with respiratory illnesses.
- Identify significant sources of emissions and prioritize use of resources to reduce exposure in the most highly impacts areas (i.e., priority communities).
- Develop and implement mitigation measures such as grants, guidelines or regulations, to achieve cleaner air for the public and the environment, focusing initially on priority communities.

The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the

technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations.

The District's Regulation 11, Rule 18: Reduction from Air Toxic Emissions at Existing Facilities: Rule 11-18, adopted November 15, 2017, requires the District to conduct screening analyses for facilities that report TAC emissions within the District and calculate health prioritization scores based on the amount of TAC emissions, the toxicity of the TAC pollutants, and the proximity of the facilities to local communities. The District will conduct health risk assessments for facilities that have priority scores above a certain level. Based on the health risk assessment, facilities found to have a potential health risk above the risk action level would be required to reduce their risk below the action level, or install Best Available Retrofit Control Technology for Toxics on all significant sources of toxic emissions.

A partial list of the air pollution rules and regulations that the Air District implements and enforces at Bay Area refineries follows:

- Air District Regulation 1: General Provisions and Definitions
- Air District Regulation 2, Rule 1: Permits, General Requirements
- Air District Regulation 2, Rule 2: New Source Review
- Air District Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants
- Air District Regulation 2, Rule 6: Major Facility Review (Title V)
- Air District Regulation 6, Rule 1: Particulate Matter, General Requirements
- Air District Regulation 6, Rule 2: Miscellaneous Operations
- Air District Regulation 8, Rule 5: Storage of Organic Liquids
- Air District Regulation 8, Rule 6: Terminals and Bulk Plants
- Air District Regulation 8, Rule 7: Gasoline Dispensing Facilities
- Air District Regulation 8, Rule 8: Wastewater (Oil-Water) Separators
- Air District Regulation 8, Rule 9: Vacuum Producing Systems
- Air District Regulation 8, Rule 10: Process Vessel Depressurization
- Air District Regulation 8, Rule 18: Equipment Leaks
- Air District Regulation 8, Rule 22: Valves and Flanges at Chemical Plants
- Air District Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants
- Air District Regulation 8, Rule 33: Gasoline Bulk Terminals and Gasoline Delivery Vehicles
- Air District Regulation 8, Rule 39: Gasoline Bulk Terminals and Gasoline Delivery Vehicles
- Air District Regulation 8, Rule 44: Marine Vessel Loading Terminals
- Air District Regulation 9, Rule 1: Sulfur Dioxide
- Air District Regulation 9, Rule 2: Hydrogen Sulfide
- Air District Regulation 9, Rule 7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters

- Air District Regulation 9, Rule 8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines
- Air District Regulation 9, Rule 9: Nitrogen Oxides and Carbon Monoxide from Stationary Gas Turbines
- Air District Regulation 9, Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries
- Air District Regulation 9, Rule 11: Nitrogen Oxides And Carbon Monoxide from Utility Electric Power Generating Boilers
- Air District Regulation 11, Rule 1: Lead
- Air District Regulation 11, Rule 8: Hexavalent Chromium
- Air District Regulation 11, Rule 18: Risk Reduction from Air Toxic Emissions at Existing Facilities
- Air District Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries
- Air District Regulation 12, Rule 12: Flares at Petroleum Refineries
- 40 CFR Part 63, Subpart CC: Petroleum Refineries (NESHAP)
- 40 CFR Part 63, Subpart UUU: Petroleum Refineries: Catalytic Cracking, Catalytic Reforming, and Sulfur Plant Units (NESHAP)
- 40 CFR Part 61, Subpart FF: Benzene Waste Operations (NESHAP)
- 40 CFR Part 60, Subpart J: Standards of Performance for Petroleum Refineries (NSPS)
- State Airborne Toxic Control Measure for Stationary Compression Ignition (Diesel) Engines (ATCM)

3.2.3 SIGNIFICANCE CRITERIA

On June 2, 2010, the District's Board of Directors unanimously adopted thresholds of significance to assist in the review of projects under CEQA. These CEQA thresholds were designed to establish the level at which the District believed air pollution emissions would cause significant environmental impacts under CEQA. The CEQA thresholds were challenged in court. Following litigation in the trial court, the court of appeal, and the California Supreme Court, all of the Thresholds were upheld. However, in an opinion issued on December 17, 2015, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards.

In view of the Supreme Court’s opinion, local agencies may rely on the District’s CEQA thresholds designed to reflect the impact of locating development near areas of toxic air contamination where such an analysis is required by CEQA or where the agency has determined that such an analysis would assist in making a decision about the project. However, the CEQA thresholds are not mandatory and agencies should apply them only after determining that they reflect an appropriate measure of a project’s impacts.

The Air District published a new version of the Guidelines dated May 2017, which includes revisions made to address the Supreme Court’s opinion. The CEQA Guidelines for

implementation of the Thresholds are for information purposes only to assist local agencies. Recommendations in the Guidelines are advisory and should be followed by local governments at their own discretion. The Air District is currently working to revise any outdated information in the Guidelines as part of its update to the CEQA Guidelines and thresholds of significance. Since these are the most current air quality significance thresholds and address court decisions, they will be used in the CEQA air quality analysis for the current project.

Construction Emissions

Regarding construction emissions, the Air District's 2017 Thresholds of Significance will be used in the current air quality analysis for construction emissions (see Table 3.2-8).

TABLE 3.2-8

Thresholds of Significance for Construction-Related Criteria Air Pollutants and Precursors

Pollutant/Precursor	Daily Average Emissions (lbs/day)
ROG	54
NOx	54
PM_{10}	82*
$PM_{2.5}$	54*
PM_{10}/ $PM_{2.5}$ Fugitive Dust	Best Management Practices

*Applies to construction exhaust emissions only.
Source: BAAQMD, 2017a

Operational Emissions

The most recently available CEQA Guidelines established emission thresholds for specific projects, general plans, and regional plans. An air quality rule does not fall neatly into any of these categories. Air quality rules are typically regional in nature, as opposed to general plans, community plans and regional plans. In addition, air quality rules are usually specific to particular source types and particular pollutants. The Air Quality Plan threshold of "no net increase in emissions" is appropriate for Air Quality Plans because they include a mix of control measures with individual trade-offs. For example, one control measure may result in combustion of methane to reduce greenhouse gas emissions, while increasing criteria pollutant emissions by a small amount. Those increases from the methane measure would be offset by decreases from other measures focused on reducing criteria pollutants. In a particular individual rule development effort, there may not be opportunities to make these trade-offs.

The 2017 project-level stationary source CEQA thresholds are identified in Table 3.2-9. These represent the levels at which a project's individual emissions would result in a cumulatively considerable contribution to the Air District's existing air quality conditions

for individual projects. These thresholds are based on the federal offset requirements for ozone precursors for which the Bay Area is designated an a non-attainment area, which is an appropriate approach to prevent further deterioration of ambient air quality and thus has nexus and proportionality to prevent regionally cumulative significant impacts (e.g., worsened status of non-attainment). Despite being a non-attainment area for state PM_{10} and pending nonattainment for federal $PM_{2.5}$, the federal NSR significant emission rate annual limits of 15 and 10 tons per year, respectively, are the thresholds as the District has not established an offset requirement limit for $PM_{2.5}$ and the existing limit of 100 tons per year is much less stringent and would not be appropriate in light of the pending non-attainment designation for the federal 24-hour $PM_{2.5}$ standards. These operational thresholds represent the emission levels above which a project's individual emissions would result in a cumulatively considerable contribution to the Bay Area's existing air quality conditions. The Air District is planning to develop significance thresholds specifically for rules. Until that effort is complete and in order to provide a conservative air quality analysis, the project-specific thresholds recommended in the revised 2017 CEQA Guidelines (BAAQMD, 2017a) will be used in the current air quality impacts analysis (see Table 3.2-9).

TABLE 3.2-9

Thresholds of Significance for Operation-Related Criteria Air Pollutants and Precursors

Pollutant/Precursor	Daily Average Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	10
NOx	54	10
PM_{10}	82	15
$PM_{2.5}$	54	10

Source: BAAQMD, 2017a

3.2.4 ENVIRONMENTAL IMPACTS

As discussed in Chapter 2, the proposed amendments to Rule 6-5 clarifies that Rule 6-5 does not apply to existing FCCUs that have wet scrubbers and deletes placeholders in the existing rule for future limits on condensable matter and sulfur dioxide. The amendments to Rule 6-5 providing clarifications to the existing rule, would not require any physical changes to the existing refinery FCCUs, and would not require the construction and operation of any new equipment. Therefore, the proposed amendments to Rule 6-5 would have no impact on air quality.

The proposed amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan

requirements, procedures for updating the guidelines, crude slate reporting requirements, and confidential information designation procedures. Rule 12-15 is an emissions reporting rule, so no refinery modifications are required, no emission control is required, no physical impacts to the refineries would occur, and no air emissions changes (increases or decreases) would occur, if implemented.

Amendments to Rule 11-10 were passed by the District in December 2015 (2015 Rule 11-10 Amendments), which required daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm. The currently proposed amendments would require cooling towers in petroleum refining service to be sampled once per week instead of once per day. The amendments to Rule 11-10 would not require the construction of any new equipment or modifications to the existing refineries but would modify the monitoring requirements.

3.2.4.1 Potential Criteria Pollutant Impacts During Construction

As discussed above, the proposed amendments to Rules 6-5, 12-15, and 11-10 would not require the construction of any new equipment or require modifications to existing refinery equipment. Therefore, the proposed rule amendments would not result in any emissions associated with construction activities.

3.2.4.2 Potential Criteria Pollutant Impacts During Operation

The proposed projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require any physical modifications or the construction of any additional air pollution control equipment or refinery modifications. Changing monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. However, changing monitoring requirements for cooling towers as proposed in the amendments to Rule 11-10 may impact emissions relative to the Rule 11-10 as adopted in December 2015 due to reduced frequency in monitoring and potential leak detection.

The goal of implementing Rule 11-10 was to achieve technically feasible ROG and TAC emission reductions from cooling towers at Bay Area refineries by requiring more rapid detection of heat exchanger leaks. The Bay Area has five large-scale petroleum refineries which operate a total of 34 cooling towers. These cooling towers are large, industrial heat exchangers that are used to dissipate significant heat loads to the atmosphere through the evaporation of water. When heat exchanger leaks go undetected for long periods of time, significant quantities of organic compounds (both ROG and TAC emissions) can be stripped from the cooling tower water and emitted to the atmosphere.

Proposed amendments to Rule 11-10 have been developed to codify how Rule 11-10 has actually been implemented under the terms of the Valero Case Agreement. The proposed amendments to Rule 11-10 require weekly monitoring, with potential adjustments to twice-

monthly monitoring (i.e. two samples per month). These proposed amendments are estimated to reduce ROG emissions to as low as 64 tpy. While less stringent than daily monitoring, weekly monitoring remains substantially more stringent than monthly monitoring. Changing monitoring frequency as proposed in amendments to Rule 11-10 does not result in an increase in actual emissions because the amendments are consistent with how the Rule has been implemented since adoption. However, the change in monitoring frequency, when compared to the rule language as adopted, can theoretically allow for an emissions impact since less frequent monitoring may allow a potential future leak to go undetected for a longer period of time.

The Air District's position is that a theoretical impact of increased emissions relative to the rule language that was never implemented does not require analysis under CEQA. However, for the sake of transparency and thoroughness, the Air District is analyzing these theoretical impacts so that the public understands the difference between the rule as it was adopted (though not implemented) and the rule as proposed. Staff estimates the foregone emissions reductions that could theoretically occur when monitoring weekly rather than daily range from 1 tpy to 16 tpy depending on the method used to estimate emission factors for each monitoring frequency.

Approval of Rule 11-10 in December 2015 required daily monitoring of cooling towers for leaks, while the currently proposed amendments to Rule 11-10 would require weekly monitoring with potential adjustments to twice-monthly monitoring. Approval of Rule 11-10 would have resulted in emission reductions, if implemented. These potential emission reductions have been estimated using three different methodologies based on data developed by the U.S. EPA during development of the MACT standard for cooling towers:

- Method 1: Used the "no monitoring" emissions factor (6.0 lb ROG/million gallons of cooling tower recirculating water) and "monthly monitoring" emission factor (0.7 lb ROG/million gallons) to back calculate the likely leak magnitude and frequency of a "typical" cooling tower.
- Method 2: Extrapolate directly (linear extrapolation) from the "no monitoring" emission factor through "monthly monitoring" emission factor to derive emissions factors for twice monthly, weekly, and daily monitoring.
- Method 3: Extrapolate directly (linear extrapolation) from the emission factors for annual, quarterly, and monthly monitoring periods. The staff report supporting the MACT development from RTI International to U.S. EPA provided leak rate and emission reduction estimates for annual, quarterly, and monthly monitoring periods. This information provided the basis for extrapolating the estimated emission factors for twice monthly, weekly, and daily monitoring.[3]

Approval of Rule 11-10 in December 2015 was based on estimated reduction of ROG emissions from 978 tons per year to 117 tons per year (a reduction in 861 tons per year:

[3] The details of the emission calculations are provided in the District Staff Report, Refinery Rules, Proposed Rule Amendments to Rules 6-5, 11-10, and 12-15, October 2018.

978 – 117 = 861) (see Table 3.2-10). The estimate was based on the U.S. EPA AP-42 emissions factors of 6.0 lbs ROG per million gallons on cooling water circulation for un-monitored cooling towers, and 0.7 lbs per million gallons of cooling water circulation for cooling towers that are monitored monthly (see Table 3.2-10).

The daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm (Rule 11-10 as adopted) are more stringent than monthly monitoring. Using Method 1, the daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm (Rule 11-10 as adopted) was expected to reduce ROG emissions to 48 tons per year assuming one leak per cooling tower per year (with an emission factor of 0.255 lbs ROG per million gallons of cooling water circulation, assuming leaks are detected within one day and are repaired on average within a 14 day repair period) (see Table 3.2-10). Methods 2 and 3 for weekly and daily monitoring, resulting in estimates of ROG emissions to be 76 tons per year and 90 tons per year, respectively.

TABLE 3.2-10

ROG Emission Changes Associated with Amendments to Rule 11-10

Refinery	2015 Emissions (Baseline)	Rule 11-10 Estimated Reductions	Emission Reductions under Rule 11-10 as adopted Tons/yr			Emission Reductions Proposed Amendments to Rule 11-10 Tons/yr		
	Tons/yr	Tons/yr	Method 1	Method 2	Method 3	Method 1	Method 2	Method 3
1	278.78	33.33	14.34	21.65	25.99	18.99	23.36	25.93
2	257.83	30.83	10.92	20.03	23.72	14.51	21.61	23.98
3	84.41	10.09	3.57	6.56	7.76	4.68	7.07	7.85
4	354.34	42.37	15.09	27.52	32.59	20.13	29.70	32.95
5	3.11	0.37	4.03	0.24	0.28	5.35	0.26	0.29
Totals:	**978.47**	**117**	**48**	**76**	**90**	**64**	**82**	**91**
Emission Reductions	**--**	**861**	**930**	**902**	**888**	**914**	**896**	**887**
Potential Emission Reductions Forgone						**16 (930-914)**	**6 (902-896)**	**1 (888-887)**

While less stringent than daily monitoring, weekly monitoring remains substantially more stringent than monthly monitoring. The draft amendments to Rule 11-10 (weekly monitoring for cooling towers larger than 2,500 gpm) are estimated to result in emissions from heat exchanger leaks at a range of 64 to 91 tons per year, depending on the calculation method used (see Table 3.2-10). The range of higher emission factors is estimated based on the fact that less frequent monitoring means that it could take longer to find and repair the leak. The proposed amendments to Rule 11-10 that would result in weekly monitoring

may, relative to the rule as written, potentially delay the detection of a leak under specific circumstances, and subsequently delay minimization and/or repair of a leak resulting in increased ROG emissions above the currently approved Rule 11-10 (referred to as emission reductions "forgone" because these emission reductions have not been achieved). The potential ROG emissions forgone have been estimated to range from 1 to 16 tons per year (see Table 3.2-10).

Based on the above analysis, the greatest impact would be that potential ROG emission reductions foregone would exceed the significance threshold of 10 tons per year. Since the operational ROG emissions could exceed the significance threshold, ROG emissions are an ozone precursor, and the district is not in attainment for ozone; the proposed amendments to Rule 11-10 may contribute to an existing or projected air quality violation. The proposed amendments to Rule 11-10 would result in ROG emission reductions foregone (not achieved) from the existing Rule 11-10 that exceed the operational ROG significance threshold of 10 tons per year.

3.2.4.3 Potential Toxic Air Contaminant Impacts

The goal of implementing Rule 11-10 was to achieve technically feasible ROG and TAC emission reductions from cooling towers at Bay Area refineries by requiring more rapid detection of heat exchanger leaks. When heat exchanger leaks go undetected for long periods of time, organic compounds (both ROG and TAC emissions) can be stripped from the cooling tower water and emitted to the atmosphere.

As discussed in Section 3.2.4.2, approval of Rule 11-10 in December 2015 required daily monitoring of cooling towers for leaks, while the currently proposed amendments to Rule 11-10 would require weekly monitoring with potential adjustments to bi-monthly monitoring. Approval of Rule 11-10 in December 2015 was based on estimated reduction of hydrocarbon emissions from 978 tons per year to 117 tons per year, a reduction in 861 tons per year. The daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm (Rule 11-10 as adopted) are more stringent than monthly monitoring. While less stringent than daily monitoring, weekly monitoring remains substantially more stringent than monthly monitoring.

The proposed amendments to Rule 11-10 that would result in monitoring weekly may potentially delay, relative to the rule as written, the detection of a leak under specific circumstances, and subsequently delay minimization and/or repair of a leak resulting in increased ROG and TAC emissions above the currently approved Rule 11-10 (emission reductions "forgone."). The potential emissions forgone have been estimated to range from approximately 1 to 16 tons per year and could exceed the ROG significance criteria.

A portion of the ROG emissions associated with leaks into the cooling towers may also be TAC emissions. OEHHA has compiled a comprehensive list of 188 chemicals that have been reported to be emitted from California refineries. The ten highest routine emissions from California refineries include ammonia, formaldehyde, methanol, sulfuric acid, hydrogen sulfide, toluene, xylenes, benzene, hexane, and hydrogen chloride. The refinery

processes and equipment associated with the most chemical emissions were product loading, fluid catalytic cracking units (FCCUs), heaters, cokers, and vents. The chemicals released in the majority of the processes were phenol, naphthalene, benzene, and toluene (OEHHA, 2017).

OEHHA also calculated the toxicity-weighted score for refinery emissions using the emissions data (pounds emitted per year) and a toxicity weight derived from the U.S. EPA's Inhalation Toxicity Scores for individual chemicals. The chemicals emitted from refineries in California with the highest calculated toxicity-weighted emissions are: formaldehyde, nickel, arsenic, cadmium, benzene, polycyclic aromatic hydrocarbons, hexavalent chromium, benzo(a)pyrene, phenanthrene, beryllium, ammonia, 1,3-butadiene, naphthalene, hydrogen sulfide, acetaldehyde, manganese, and diethanolamine. Gases make up the majority of the routine refinery TAC emissions (OEHHA, 2017).

Heat exchanger leaks can occur from any refinery unit and could include any type of organic compound present at refineries, including those TACs that are commonly emitted from refineries. The potential ROG emissions forgone associated with the proposed amendments to Rule 11-10 are estimated to be as much as 16 tons per year, some of which would likely be TAC emissions. However, the unit that may leak, location of the leak, the sources of the leak, and the type of material/product that may leak is unknown and cannot be estimated or predicted with any certainty. The TAC emissions from a cooling tower would be dependent on the units being cooled by a given cooling tower and, therefore, the TAC emission factors are unit-specific. The U.S. EPA's AP-42 does not provide any generic TAC emission factors for cooling towers. The type of TACs emitted and the quantity emitted are also unknown and the potential impacts from TAC emissions foregone are considered to be speculative and not a reasonably foreseeable impact (CEQA Guidelines §15064(d)(3)). CEQA Guidelines §15145 states: "If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusions and terminate discussion of the impact." Therefore, no further evaluation of TAC impacts will be provided as the potential TAC emission impacts are considered speculative.

3.2.5 MITIGATION MEASURES

Since the proposed amendments to Rule 11-10 would result in ROG emission reductions foregone from the existing Rule 11-10 that can exceed the operational ROG significance threshold of 10 tons per year, feasible mitigation measures are required to be evaluated to reduce the potential ROG impacts.

There is no feasible control equipment that could be used to remove the generally low concentrations of ROG that may be present in cooling tower water. The concentration of ROG as compared to the volume of water makes air pollution control equipment such as air strippers or carbon adsorption technologically and economically not feasible.

The only method to reduce ROG emissions from cooling towers is more frequent monitoring and repair. The District has reviewed the costs and requirements associated

with daily or continuous monitoring with the affected refineries since the approval of the Rule 11-10 in December 2015. The use of continuous monitors has a number of limitations at this time, which include the sensitivity of the analysis (detection limits are not low enough) and the reliability of the monitors (frequent downtime) so continuous monitors are not considered to be feasible at this time.

The costs effectiveness associated with implementation of daily cooling tower monitoring as Rule 11-10 was currently adopted compared to weekly cooling tower monitoring was determined to be over $100,000 per ton of ROG emissions controlled, which exceeds the cost effectiveness determinations generally used by the District, which are more in the range of $25,000 to $35,000 per ton of emissions controlled. Therefore, the "no project" alternative of daily monitoring to further control emissions from cooling towers is not considered to be feasible at this time.

Per CEQA Guidelines §15364, "feasible" "means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Therefore, additional air pollution control equipment and continuous monitors are not feasible based on technological factors. Monitoring on a daily basis is not feasible because it is not cost effective. Based on the above, no feasible mitigation measures have been identified that could avoid the significant impact (increase in ROG emissions foregone) or reduce the impact to less than significant.

It is concluded that the proposed project has the potential to generate significant adverse air quality impacts for operation. As a result, a Statement of Findings and Statement of Overriding Considerations will be prepared for the Board's consideration and approval.

3.2.6 CUMULATIVE IMPACTS

Pursuant to CEQA Guidelines §15130(a), "An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065 (a)(3). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Further, CEQA Guidelines §15130 requires that an EIR reflect the severity of the cumulative impacts from a proposed project and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness. Cumulative impacts are defined by CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, §15355).
Cumulative impacts are further described as follows:

- The individual effects may be changes resulting from a single project or a number of separate projects. (State CEQA Guidelines §15355(a).

- The cumulative impacts from several projects are the changes in the environment which result from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines, §15355(b)).

- A "cumulative impact" consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR. (CEQA Guidelines, §15130(a)(1)).

With regard to related projects or projects with related environmental impacts, because the proposed project consists of amendments to Rules 6-5, 11-10 and 12-15, related projects would consist of other past, present, and probable future District rules and regulations, as well as implementing control measures in the 2017 Clean Air Plan.

3.2.6.1 Criteria Air Pollutants

The proposed amendments to Rules 6-5, 11-10 and 12-15 would not result in any construction activities and would not generate any construction - related air emissions. Therefore, construction emissions are not considered to be cumulatively considerable and would not generate any significant adverse impacts.

The preceding analysis concluded that air quality impacts from operational activities associated with the proposed modifications to Rule 11-10 could result in as much as 16 tons per year of ROG emissions foregone, which exceeds the 10 ton per year ROG significance threshold and, therefore, are potentially significant. As a result, air quality impacts from Rule 11-10 are considered to be cumulatively considerable, pursuant to CEQA Guidelines §15064 (h)(1), since the district in not in attainment of the ozone ambient air quality standards and ROG is an ozone precursor.

As described in the EIR for the Clean Air Plan (BAAQMD, 2017b), air quality within the Bay Area has improved since 1955 when the Air District was created and is projected to continue to improve. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the Air District. This trend towards cleaner air has occurred in spite of continued population growth. The Air District is in attainment of the State and federal ambient air quality standards for CO, NOx, and SO_2.

However, the Bay Area is designated as a non-attainment area for the federal and state 8-hour ozone standard. The State 8-hour standard was exceeded on 6 days in 2017 in the Air District, most frequently in the Eastern District (Livermore, Patterson Pass, and San Ramon) and Santa Clara Valley (see Table 3.2-2). The federal 8-hour standard was also exceeded on 6 days in 2017. The Air District is unclassified for the federal 24-hour PM_{10} standard and is non-attainment with the State 24-hour PM_{10} standard. Since the District is

not in attainment for the federal and state ozone standard, the state 24-hour PM_{10} standard, and the federal 24-hour $PM_{2.5}$ standard, past projects and activities have contributed to the nonattainment air quality impacts that are cumulatively significant.

The 2017 Clean Air Plan contains numerous control measures that the District intends to impose to improve overall air quality in the District. Control measures in the 2017 Clean Air Plan (BAAQMD, 2017b) included:

- Control Measure SS1 – Fluid Catalytic Cracking in Refineries, which included the currently proposed amendments to Rule 6-5.
- Control Measure SS3 – Cooling Towers, which included the 2015 amendments to Rule 11-10. Therefore, Control Measure SS3 will not be implemented as proposed in the 2017 CAP.
- Control Measure SS10 – Petroleum Refining Emissions Tracking, which included the currently proposed Rule 12-15.

The 2017 Clean Air Plan is expected to result in overall reductions in VOC, NOx, SOx, and PM emissions, providing an air quality benefit (BAAQMD, 2017b). As reported in the Final EIR for the 2017 Air Plan, large emission reductions are expected from implementation of the 2017 Plan including reductions in ROG emissions of 1,596 tons/year; NOx emissions of 2,929 tons/year, SOx emissions of 2,590 tons/year, and $PM_{2.5}$ emissions of 503 tons/year (see Table 3.2-21 of the Final EIR, BAAQMD 2017b). These emission reductions are expected to help the Bay Area come into compliance or attainment with the federal and state 8-hour ozone standard, the federal and state PM_{10} standards, the federal 24-hour $PM_{2.5}$ standards, and the state 24-hour $PM_{2.5}$ standard, providing both air quality and public health benefits. The proposed amendments to Rule 11-10 are expected to result in a cumulatively considerable contribution to the existing air quality. However, the ROG emission reductions from the 2017 Plan (1,596 tons per year) are expected to far outweigh the potential ROG emission increases (16 tons per year) associated with the proposed amendments to Rule 11-10, providing an overall beneficial impact on air quality and public health.

CHAPTER 3.3

OTHER CEQA SECTIONS

Growth Inducing Impacts
Significant Environmental Effects Which Cannot be Avoided and Significant Irreversible Environmental Changes
Potential Environmental Impacts Found Not to be Significant

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3.3 OTHER CEQA SECTIONS

3.3.1 GROWTH INDUCING IMPACTS

3.3.1.1 Introduction

CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects, which would remove obstacles to population growth" (CEQA Guidelines §15126.2(d)).

To address this issue, potential growth-inducing effects are examined through the following considerations:

- Facilitation of economic effects that could result in other activities that could significantly affect the environment;
- Expansion requirements for one or more public services to maintain desired levels of service as a result of the proposed Project modifications;
- Removal of obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area or through changes in existing regulations pertaining to land development;
- Adding development or encroachment into open space; and/or,
- Setting a precedent that could encourage and facilitate other activities that could significantly affect the environment.

3.3.1.2 Economic and Population Growth, and Related Public Services

The proposed rule amendments would not directly foster economic or population growth or the construction of new housing in the Bay area. The proposed rule amendments will not require construction or the addition of new workers; therefore, it would not stimulate significant population growth, remove obstacles to population growth, or necessitate the construction of new community facilities that would lead to additional growth.

A project would directly induce growth if it would directly foster economic or population growth or the construction of new housing in the surrounding environment (e.g., if it would remove an obstacle to growth by expanding existing infrastructure). The proposed rule amendments would not remove barriers to population growth, as it involves no changes to General Plans, zoning ordinance, or related land use policies. The proposed rule amendments do not include the development of new housing or population-generating uses or infrastructure that would directly encourage such uses. The proposed rule amendments are limited to existing refineries. Therefore,

the Refinery Rule Amendments would not directly or indirectly trigger new residential development in the District.

Further, the proposed rule amendments would not result in an increase in local population, housing, or associated public services (e.g. fire, police, schools, recreation, and library facilities) since the proposed rule would not result in an increase in workers or residents. Likewise, the proposed rule amendments would not create new demand for secondary services, including regional or specialty retail, restaurant or food delivery, recreation, or entertainment uses. As such, the proposed rule amendments would not foster economic or population growth in the surrounding area in a manner that would be growth-inducing.

3.3.1.3 Removal of Obstacles to Growth

The proposed rule amendments would not employ activities or uses that would result in growth inducement, such as the development of new infrastructure (i.e., new roadway access or utilities, such as wastewater treatment facilities) that would directly or indirectly cause the growth of new populations, communities, or currently undeveloped areas. Likewise, the proposed rule amendments would not result in an expansion of existing public service facilities (e.g., police, fire, libraries, and schools) or the development of public service facilities that do not already exist.

3.3.1.4 Development of Encroachment Into Open Space

Development can be considered growth-inducing when it is not contiguous to existing urban development and introduces development into open space areas. The proposed rule amendments would only apply to existing refineries and no physical modifications are required. New development outside of the boundaries of industrial facilities is not expected to occur. Therefore, the proposed rule amendments would not result in development within or encroachment into an open space area.

3.3.1.5 Precedent Setting Action

The Refinery Rule Amendments would lead to changes in reporting and monitoring requirements. Similar types of activities are currently required of refineries and other industrial facilities to comply with various regulatory requirements. Similar requirements already exist and making minor changes to these existing requirements would not result in precedent-setting actions that might cause significant environmental impacts.

3.3.1.6 Conclusion

The proposed rule amendments would not be considered growth-inducing, because they would not result in an increase in production of resources or cause a progression of growth that could significantly affect the environment either individually or cumulatively.

3.3.2 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED AND SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less than significant level. As evaluated in the preceding portions of Chapter 3 of this EIR, the proposed rule amendments would result in potentially significant unavoidable air quality impacts due to the potential ROG emissions reductions "foregone."

3.3.3 POTENTIAL ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

The environmental effects of the Refinery Rule Amendments that may have potentially significant adverse effects on the environment are identified, evaluated, and discussed in detail in the preceding portions of Chapter 3 of this EIR and in the Initial Study (see Appendix A) per the requirements of the CEQA Guidelines (§§15126(a) and 15126.2). The potentially significant adverse environmental impacts as determined by the Initial Study (see Appendix A) are limited to air quality impacts. The analysis provided in the Initial Study has concluded that the following environmental topics would be less than significant: aesthetics; agriculture and forestry resources; biological resources; cultural resources; geology and soils; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation and traffic; tribal cultural resources; and utilities and service systems. The reasons for finding the environmental resources to be less than significant are explained in the following subsections.

3.3.3.1 Aesthetics

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. None of the proposed rule amendments are expected to result in visual changes to the refineries. Therefore, obstruction of scenic resources or degrading the visual character of a site, including but not limited to: trees, rock outcroppings, or historic buildings, is not expected.

Additionally, the proposed rule amendments are not expected to require any new equipment or any new light generating equipment for compliance. The existing refineries are current lighted for nighttime work and operate 24 hours per day, and no additional light or glare would be added to impact day or nighttime views in the Bay Area.

3.3.3.2 Agriculture and Forestry Resources

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

The proposed rule amendments would affect petroleum refineries that are located within industrial areas and no agricultural or forest resources are located within refineries. The proposed project would not conflict with existing agriculture related zoning designations or Williamson Act contracts. Williamson Act lands within the boundaries of the District would not be affected. No effects on agricultural or forestland resources are expected because the proposed project would not require any new development. All of the activities associated with the proposed rule amendments would occur within the confines of the existing refineries. Therefore, there is no potential for conversion of farmland to non-agricultural use or conflicts related to agricultural uses or land under a Williamson Act contract or impacts to forestland resources.

3.3.3.3 Biological Resources

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

Vegetation has been removed from the operating portions of refineries to minimize the potential for fire hazards. Since the proposed amendments to Rules 6-5, 11-10, and 12-15 are not expected to result in physical modifications to the existing refineries, they are not expected to result in impacts to biological resources and would not directly or indirectly affect riparian habitat, federally protected wetlands, or migratory corridors.

The proposed rule amendments would not conflict with local policies or ordinances protecting biological resources, nor would they conflict with local, regional, or state conservation plans because as the proposed project applies to equipment in existing developed refineries. The proposed project will also not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan as these types of conservation plans are not located within existing refineries.

3.3.3.4 Cultural Resources

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

Refinery structures are typically not considered to be historic resources. Therefore, no impacts to historical resources are expected as a result of the proposed project, since no structures would be required to be removed. No construction activities are expected to be required as part of the proposed project; therefore, no impacts to cultural resources, including archaeological resources, paleontological resources, or disturbance of human remains would occur as a result of the proposed project.

3.3.3.5 Geology and Soils

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.

No significant impacts from seismic hazards are expected since no new equipment or structures would be required to comply with the proposed rule amendments. Thus, exposure of people or structures to the risk of loss, injury, or death involving seismic-related activities is not anticipated as a result of compliance with the proposed rule amendments. Therefore, no significant adverse impacts on geology and soils are expected. Additionally, the proposed amendments would not result in additional grading or other construction activities that could result in soil erosion or the loss of topsoil. Further, no construction activities would be required so no additional landslide, lateral spreading, subsidence, liquefaction or collapse impacts or development on expansive soils would occur due to the proposed rule amendments.

The proposed rule amendments would have no effect on the installation of septic tanks or alternative wastewater disposal systems. Refineries operate existing wastewater treatment systems and the proposed rule amendments would result in no impacts to their existing wastewater treatment systems or require alternative wastewater treatment systems. Consequently, no impacts from failures of septic systems related to soils incapable of supporting such systems are anticipated.

3.3.3.6 Greenhouse Gas Emissions

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 carbon dioxide (CO_2). CO_2 is not a pollutant that occurs in relatively low concentrations as a by-product of the combustion process; CO_2 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.

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction, require additional energy or fuel, or generate GHG emissions.

CARB has designed a California Cap-and-Trade program that is enforceable and meets the requirements of AB 32. The program began on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions inventory. All refineries in the Bay Area are subject to the requirements of the AB32 Cap-and-Trade Program and have a GHG allocation based on current GHG emissions levels. The AB32 Cap-and-Trade Program requires that the refineries subject to the program (including all refineries in the Bay Area) to offset any GHG emissions in excess of the total allocation obtained through the program. As the emissions cap is gradually reduced over time, and as additional sources are brought under the cap to include the vast majority of emissions in the State, the program will ensure that California remains on track to continually reduce GHG emissions and meet the 2020 limit. Therefore, the refineries are subject to a plan to reduce GHG emissions. The proposed rule amendments would not require any additional equipment, construction, fuel or energy use; therefore, they would not result in any increase in GHG emissions.

3.3.3.7 Hazards and Hazardous Materials

The potential hazards associated with petroleum refining activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the refinery. 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 potential events: (1) toxic gas clouds; (2) torch fires, flash fires, pool fires, and vapor cloud explosions; (3) thermal radiation; and (4) explosion/overpressure. The potential for these types of events to occur currently exists at existing refineries.

The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring requirements (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed rule amendments would not require any new construction or development. Physical

modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. Ammonia is currently used to reduce NOx emissions at existing refineries. Rule 6-5 limited ammonia emissions from FCCUs. To comply, refineries were required to optimize the injection of ammonia or urea. Rule 6-5 did not increase the use of ammonia or urea and likely resulted in a decrease in ammonia use. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications.

Changing monitoring requirements from daily to weekly (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction, require the use of additional hazardous materials, generate additional hazardous materials or create new refinery hazards. Therefore, no increased hazards are expected from implementation of the proposed rule amendments.

The proposed rule amendments would not generate hazardous emissions, handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school. Rule 6-5 limited ammonia emissions from FCCUs and resulted in a decrease in ammonia emissions. (Note that ammonia is regulated as a TAC). Proposed amendments to Rule 12-15 are not expected to result in an increase in TAC emissions from refineries. Note that Section 3.2.4.2 of this EIR determined that TAC emission impacts associated with the proposed amendments to Rule 11-10 were determined to be speculative per CEQA Guidelines §15064(d)(3)." Therefore, no increase in TAC emissions is expected from implementation of the proposed rule amendments and thus no increase in hazards and hazardous materials impacts is expected.

Government Code §65962.5 requires creation of lists of facilities that may be subject to Resource Conservation and Recovery Act (RCRA) permits or site cleanup activities. The refineries affected by the proposed rules may be located on the hazardous materials sites list pursuant to Government Code §65962.5. The refineries would be required to manage any and all hazardous materials in accordance with federal, state and local regulations. Implementation of the proposed rule amendments would not interfere with site cleanup activities or create additional site contamination. As a result, the proposed project is not expected to require any physical modifications to facilities included on a list of hazardous material sites and, therefore, would not create a significant hazard to the public or environment.

The proposed rule amendments would not result in a safety hazard for people residing or working within two miles or a public airport or air strip. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments which would apply to petroleum refineries operating in the Bay Area, which are not located near public airports or air strips. No construction activities or additional refinery structures are required due to the proposed rule amendments. Therefore, no significant adverse impacts on an airport land use plan or on a private air strip are expected.

No impacts on emergency response plans are anticipated from the proposed new and amended rules that would apply to existing petroleum refineries. The refineries affected by the proposed

rule amendments already exist and operate within the confines of existing industrial facilities. The proposed rule amendments do not require construction activities or new structures that would impact any emergency response plan. The existing refineries affected by the proposed rule amendments already use, produce, store and transport hazards materials, so emergency response plans already include hazards associated with existing refinery operations. The proposed rule amendments would not require any changes in emergency response planning. Therefore, no significant adverse impacts on emergency response plans are expected.

No increase in hazards associated with wildfires is anticipated from proposed rule amendments. The petroleum refineries affected by the proposed rule amendments already exist and operate within the confines of existing industrial areas. Native vegetation has been removed from the operating portions of the affected refineries to minimize fire hazards. The proposed rule amendments would not increase the risk of hazards associated with wildland fires in general and specifically in areas with flammable materials. Therefore, the proposed project would not expose people or structures to significant risk of loss, injury or death involving wildland fires.

3.3.3.8 Hydrology and Water Quality

No increase in wastewater discharge is expected from the proposed project so no impacts on water quality resources are anticipated from the proposed project. The proposed project is not expected to require any new construction or development. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed rule amendments would not require any new construction or development. Changing monitoring requirements from daily to weekly (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, require the use of additional water or result in additional wastewater discharges from the affected refineries. Therefore, the proposed rule amendments would not result in the violation of any water quality standards or waste discharge requirements, nor would it deplete groundwater supplies or interfere with groundwater recharge.

The proposed project does not have the potential to increase the area subject to runoff since no construction activities, new development or new structures are expected to occur. In addition, storm water drainage within refineries has been controlled and no construction activities are expected, therefore, storm water drainage within the existing refineries would not be altered. Therefore, the proposed rule amendments would not 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. Therefore, no significant adverse impacts to storm water runoff are expected as a result of the proposed project.

The proposed project does not include the construction of new or relocation of existing housing or any other facilities and, as such, would not require the placement of housing or other structures within a 100-year flood hazard area. (See also XIII “Population and Housing”). No new construction is associated with the proposed project at refineries. As a result, the proposed project would not be expected to create or substantially increase risks from flooding; expose people or

structures to significant risk of loss, injury or death involving flooding; or increase existing risks, if any, of inundation by seiche, tsunami, or mudflow.

3.3.3.9 Land Use and Planning

Based on a review of the applicable land use plans, the proposed rule amendments would not conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project. The jurisdictions with land use approval recognize and support the continued use of industrial facilities. The proposed project has no components which would affect land use plans, policies, or regulations as no new development or physical refinery modifications would be expected. Habitat conservation or natural community conservation plans, agricultural resources or operations, would not be affected by the proposed project, and divisions of existing communities would not occur. Therefore, current or planned land uses within the District will not be affected as a result of the proposed rule amendments.

3.3.3.10 Mineral Resources

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.

3.3.3.11 Noise

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. No new major industrial equipment is expected to be required to be installed due to the proposed project so that no noise impacts associated with the proposed project are expected. Further, the refineries are regulated by local noise ordinances.

The proposed project is not expected to generate or expose people to excessive groundborne vibration or groundborne noise. No construction equipment or activities that would generate vibration (e.g., backhoes, graders, jackhammers, etc.) is required to comply with the proposed rule amendments and no modifications to refinery equipment are required. The existing refineries are not located within existing airport land use plans. The proposed new and amended regulations would not locate residents or commercial buildings or other sensitive noise sources closer to airport operations. Thus, there are no components of the proposed regulations that would increase ambient noise levels, either intermittently or permanently.

3.3.3.12 Population and Housing

Population in the Bay Area is currently about 7.6 million people and is expected to grow to about 9.6 million people by 2040 (ABAG, 2017). The proposed project is not anticipated to generate any significant effects, either directly or indirectly, on the Bay Area's population or population distribution. The proposed new and amended regulations will affect five refineries in Contra Costa and Solano counties. It is not expected that the affected refineries would need to hire additional personnel to implement the proposed rule amendments and no construction is expected to be required. Additional labor was required to monitor fugitive equipment under Rule 11-10; however, the proposed amendments Rule 11-10 will reduce the frequency of monitoring required for cooling towers. As such, adopting the proposed rule amendments are not expected to need additional workers or induce population growth.

3.3.3.13 Public Services

There is no potential for adverse public service impacts as a result of adopting the proposed rule amendments as it would not result in the need for new or physically altered government facilities to maintain acceptable service ratios, response times, or other performance objectives. All of the affected refineries have on-site security and fire protection personnel, so no increase in police or fire protection services is expected. Implementing the proposed rule would not cause a future population increase, thus it is not expected to affect land use plans, future development, or the demand for public facilities such as schools and parks.

3.3.3.14 Recreation

As discussed under "Land Use and Planning" and "Population and Housing," there are no provisions of the proposed rule amendments that would affect land use plans, policies, ordinances, or regulations as land use and other planning considerations are determined by local governments. No land use or planning requirements, including those relating to recreational facilities, will be altered by the proposed rule amendments. The proposed project does not have the potential to directly or indirectly induce population growth or redistribution. As a result, the proposed project would not increase the use of, or demand for, existing neighborhood or regional parks or other recreational facilities nor require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

3.3.3.15 Transportation and Traffic

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. It is not expected that the affected refineries would need to hire additional personnel to implement the proposed rule amendments and no construction is expected to be required. Additional labor was required to

monitor cooling towers under Rule 11-10; however, the proposed Rule 11-10 amendments will reduce the frequency of monitoring required for cooling towers. As such, adopting the proposed rule amendments is not expected to require any new employees or generate additional truck traffic associated with equipment/material delivery.

The proposed rule amendments would not affect the performance of mass transit or non-motorized travel to street, highways and freeways, pedestrian or bicycle paths. No conflicts with any congestion management programs, to include level of service and travel demand measures, or other standards established by county congestion management agencies for designated roads or highways are expected. No changes are expected to parking capacity at or in the vicinity of affected refineries as the proposed project would not require additional employees. Therefore, no significant adverse impacts resulting in changes to traffic patterns or levels of service at local intersections are expected.

The proposed rule amendments are not expected to involve the delivery of materials via air so no increase in air traffic is expected. The proposed project is not expected to increase traffic hazards or create incompatible uses. No effect on emergency access to affected refineries would occur from adopting the proposed rule amendments as traffic is not expected to increase. The proposed project is not expected to have a significant adverse impact on traffic hazards, create incompatible uses or restrict emergency access. The proposed rule amendments affect existing refineries and would not conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks) as no increase in employees or other traffic is expected.

3.3.3.16 Tribal Cultural Resources

As discussed in Section V, Cultural Resources, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places unless they can be shown to be exceptionally important. The proposed amendment rules would only affect refineries and would not require the demolition, construction or operation or any additional refinery equipment. Affected refineries may have equipment or structures older than 50 years, however, this type of equipment does not meet the criteria identified in CEQA Guidelines §15064.5(a)(3), are not listed or eligible for listing in the California Register of Historic Resources or a local register of historical resources (Public Resources Code Section 5020.1(k), and are not considered to have cultural value to a California Native American Tribe.

Further, no construction activities are required to implement the proposed rule amendments at the refineries; therefore, no grading is required and the proposed project would not require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. The proposed rule amendments would not result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. No tribes have requested consultation under the AB52 requirements.

Since no construction activities are required, the proposed rule amendments would not affect historical or tribal resources as defined in Public Resources Section 5020.1(k), or 5024.1. Therefore, no impacts to tribal resources are anticipated to occur as a result of the proposed project.

3.3.3.17 Utilities and Service Systems

The proposed project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements from daily to weekly, for example (Rule 11-10), or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. The refineries affected by the proposed rule amendments already exist and already use water, generate wastewater, treat wastewater, and discharge wastewater under existing wastewater discharge permits. The proposed rule amendments would not require new equipment or result in an increase in water demand or an increase in wastewater discharge. As discussed in Hydrology and Water Quality, no water use and wastewater impacts are expected. Additionally, the proposed project would not require additional electricity, natural gas, refinery fuel gas, or any other type of fuel

Implementation of the proposed rule amendments would not require any new refinery equipment or modifications. Therefore, the proposed project would not alter the existing drainage systems or require the construction of new storm water drainage facilities. Nor would the proposed amendments create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. The proposed project is not expected to generate any increase in hazardous or solid waste. Therefore, no adverse impacts are expected to landfill capacity or compliance with federal, state and local statues and regulations related to solid waste as a result of the proposed amendments.

CHAPTER 4

ALTERNATIVES ANALYSIS

Discussion of Alternatives
Description of Alternatives
Environmental Impacts of Project Alternatives
Conclusion
Comparison of Alternatives

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4.0 ALTERNATIVES ANALYSIS

4.1 DISCUSSION OF ALTERNATIVES

An EIR is required to describe a reasonable range of feasible alternatives to the proposed project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project (CEQA Guidelines §15126.6(a)). As discussed in Chapter 3 of this EIR, one of the proposed projects could result in potentially significant impacts to air quality due to ROG emissions foregone. Therefore, alternatives analysis should focus on alternatives that avoid or minimize these potentially significant impacts. The project objectives are as follows:

1. Resolve legal challenges to Rules 6-5, 11-10, and 12-15;

2. Clarify language in the currently approved versions of Rules 6-5, 11-10, and 12-15 to provide better understanding of the requirements, and easier implementation of the rules;

3. Assure that Rules 6-5, 11-10, and 12-15 can be implemented consistently;

4. Reduce the emissions of ozone precursors (ROG) to help achieve the federal and state ambient air quality standards for ozone;

5. Reduce emissions of particulate matter to help achieve the state ambient air quality standards for PM_{10} and $PM_{2.5}$;

6. Accurately and consistently characterize emissions from refinery-related emissions sources in an on-going basis to determine if additional emission reductions can be achieved;

7. Determine if significant changes to the crude slate result in increased emissions of air pollutants;

8. Ensure refineries comply with the ambient air quality standards for PM_{10} and $PM_{2.5}$; and

9. Provide information to the public on refinery emissions, and significant crude slate changes.

Chapter 4 provides a discussion of alternatives to the proposed projects as required by CEQA. According to the CEQA guidelines, alternatives should include feasible measures to attain the basic objectives of the proposed projects and provide means for evaluating the comparative merits of each alternative. In addition, though the range of alternatives must be sufficient to permit a reasoned choice, they need not include every conceivable project

alternative (CEQA Guidelines, §15126.6(a)). The key issue is whether the selection and discussion of alternatives fosters informed decision making and public participation.

In accordance with CEQA Guidelines §15126.6(c), a CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and briefly explain the reason underlying the lead agency's determination. Section 15126.6(c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (1) failure to meet most of the basic project objectives; (2) infeasibility; or (3) inability to avoid significant environmental impacts.

4.2 DESCRIPTION OF THE PROJECT ALTERNATIVES

The possible alternatives to the proposed rule are limited by the nature of the project. Other than the No Project Alternative, the other alternatives are limited to modifications to Rule 11-10 only. This is because the proposed amendments to Rule 6-5 and 12-15 would not result in any physical modifications to refineries and will have no significant impacts. The potentially significant impacts associated with the proposed rule amendments are limited to the proposed amendments to Rule 11-10 due to the change in frequency of monitoring activities which could potentially result in a significant increase in ROG emissions, as compared to the currently approved Rule 11-10. Therefore, the alternatives will be limited to alternatives to Rule 11-10 (except for the No Project Alternative).

4.2.1 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

CEQA Guidelines §151216.6 (e) requires evaluation of a "No Project Alternative." Under the No Project Alternative, the proposed rule amendments would not be adopted and the currently approved version of Rules 6-5, 11-10, and 12-15 would be implemented. There would be no revisions made to Rule 6-5 to clarify that the rule does not apply to refineries that operate Wet Gas Scrubbers on their FCCUs. Further, revisions would not be made to Rule 11-10 to clarify exemptions for small cooling towers and cooling towers not in petroleum refining service. In addition, Rule 11-10 would not be amended to allow for weekly monitoring instead of the currently required daily monitoring. Finally, under Alternative 1, Rule 12-15 would not be modified to eliminate ships and trains from emissions inventories, clarify the use of non-crude feedstocks, clarify fence-line monitoring requirements, clarify the inventory and air monitoring guidelines, and modify the requirements for handling confidential information.

4.2.2 ALTERNATIVE 2 – IMPLEMENT AMENDMENTS TO RULES 6-5 AND 12-15 ONLY

Alternative 2 would implement the proposed amendments to Rules 6-5 and Rule 12-15 only. The amendments to Rule 11-10 would not be implemented under Alternative 2 and Rule 11-10 would be implemented as currently adopted. Therefore, the monitoring requirements under Rule 11-10 would remain as daily or continuous monitoring.

4.2.3 ALTERNATIVE 3 – MODIFY MONITORING FREQUENCY OF RULE 11-10

As currently adopted, Rule 11-10 requires weekly monitoring of cooling towers smaller than 2,500 gpm water circulation capacity and that any identified leaks be repaired in five calendar days. The proposed amendments to Rule 11-10 would keep the monitoring frequency to once every week and require that leaks be minimized as soon as practicable or within seven calendar days (rather than five days). Operators would also be able to do monthly sampling schedule if sampling results are below the Leak Action Level for four consecutive weeks.

Under Alternative 3, the weekly monitoring frequency of Rule 11-10 would be retained, but the option to go to a monthly sampling schedule if sampling results are below the Leak Action Level would be removed. This would help to minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed.

4.2.4 ALTERNATIVE 4 – MODIFY MONITORING FREQUENCY OF RULE 11-10

As currently adopted, Rule 11-10 requires daily or continuous monitoring of cooling towers greater than 2,500 gpm water circulation capacity and that any identified leaks be repaired in five calendar days. The proposed amendments to Rule 11-10 would change the monitoring frequency to once every week instead of once every day, and require that leaks be minimized as soon as practicable or within seven calendar days (rather than five days). Operators would be able to go to a twice-monthly sampling schedule, if sampling results are below the Leak Action Level for six consecutive months.

Under Alternative 4, the monitoring frequency of Rule 11-10 would be modified for cooling towers greater than 2,500 gpm to a weekly monitoring schedule, but the option to go to a twice-monthly sampling schedule if sampling results are below the Leak Action Level would be removed. This would help to minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed.

4.3 ENVIRONMENTAL IMPACTS OF PROJECT ALTERNATIVES

4.3.1 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

4.3.1.1 Air Quality

Under Alternative 1, the proposed amendments to Regulations 6-5, 11-10, and 12-15 would not be implemented. No construction emissions were expected under any of the proposed rule amendments and no operational air quality impacts were identified for Rules 6-5 and 12-15.

The operational air quality impacts associated with the proposed amendments to Rule 11-10 were determined to be potentially significant. The daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm (Rule 11-10 as adopted) was expected to reduce ROG emissions to between 48 and 90 tons per year (see Table 3.2-10). The proposed amendments to Rule 11-10 (weekly monitoring for cooling towers larger than 2,500 gpm) are estimated to result in ROG emissions from heat exchanger leaks at an estimated range from 64 to 91 tons per year. The highest impact case (using emission calculation Method 1) is where the potential ROG emissions foregone associated with the proposed amendments to Rule 11-10 were estimated to be 16 tons per year (64-48 tons per year, see Table 3.2-10) and potentially significant. Under the No Project Alternative there would not be any theoretical ROG emission reductions "foregone."

The District has reviewed the costs and requirements associated with daily or continuous monitoring with the affected refineries since the approval of the Rule 11-10 in December 2015. The use of continuous monitors has a number of limitations at this time, which include the sensitivity of the analysis (detection limits are not low enough) and the reliability of the monitors (frequent downtime) so continuous monitors are not considered to be feasible at this time. The only method to reduce ROG emissions from cooling towers is more frequent monitoring and repair.

However, the incremental cost effectiveness of daily monitoring associated with implementation of Rule 11-10 as currently adopted when compared to weekly monitoring was determined to be over $100,000 per ton of ROG emissions controlled, which exceeds the cost effectiveness determinations generally used by the District, which are more in the range of $25,000 to $35,000 per ton of emissions controlled. Therefore, Alternative 1 (implementation of Rule 11-10 as currently approved) is not cost effective and, therefore, is not feasible.

Per CEQA Guidelines §15364, "feasible" "means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Therefore, continuous emission monitors are not feasible based on technological factors. Monitoring on a daily basis is not feasible because it is not cost effective. In addition, the legal challenges to the three refinery rules could continue under Alternative 1, although the outcome of the court

decision cannot be determined at this time. Based on the above, the No Project Alternative is not feasible at this time.

4.3.2 ALTERNATIVE 2 – IMPLEMENT AMENDMENTS TO RULES 6-5 AND 12-15 ONLY

4.3.2.1 Air Quality

Under Alternative 2, the proposed amendments to Regulations 6-5 and 12-15 would be implemented. No construction emissions were expected under the proposed rule amendments for Rule 6-5 and 12-15. Further no operational air quality impacts were identified for Rules 6-5 and 12-15. Under Alternative 2, the proposed amendments to Regulation 11-10 would not be implemented; however, the proposed amendments to Rules 6-5 and 12-15 would be implemented.

The operational air quality impacts associated with the proposed amendments to Rules 6-5 and Rule 12-15 were determined to be less than significant and would remain less than significant under Alternative 2. The operational air quality impacts associated with the proposed amendments to Rule 11-10 were determined to be potentially significant. The potential ROG emission reductions foregone associated with the proposed amendments to Rule 11-10 were estimated to range from 1 to 16 tons per year and, thus, are considered to be potentially significant. Under the Alternative 2, there would not be any theoretical ROG emission reductions "foregone."

The District has reviewed the costs and requirements associated with daily or continuous monitoring with the affected refineries since the approval of Rule 11-10 in December 2015. As discussed under Alternative 1, continuous monitors have a number of limitations at this time, which include the sensitivity of the analysis (detection limits are not low enough) and the reliability of the monitors (frequent downtime) so continuous monitors are not considered to be feasible at this time. In addition, the incremental cost effectiveness of daily monitoring associated with implementation of Rule 11-10 as currently adopted when compared to weekly monitoring was determined to exceed the cost effectiveness determinations generally used by the District ($25,000 to $35,000 per ton of emissions controlled). Therefore, implementing Rule 11-10 as currently approved is not cost effective and, therefore, is not feasible at this time.

Alternative 2 would be feasible in that the proposed amendments to Rules 6-5 and 12-15 would be implemented, while the proposed amendments to Rule 11-10 would not be implemented. However, as discussed above, implementation of Rule 11-10 as currently approved is not feasible at this time because of technological factors and costs factors. Alternative 2 would potentially eliminate the legal challenges to Rules 6-5 and 12-15. However, the legal challenges to Rule 11-10 could continue under Alternative 2, although the outcome of the court decision cannot be determined at this time. Based on the above, Alternative 2 is not feasible at this time.

4.3.3 ALTERNATIVE 3 – MODIFY MONITORING FREQUENCY OF RULE 11-10

4.3.3.1 Air Quality

Under Alternative 3, the weekly monitoring frequency of Rule 11-10 would be retained, but the option to go to a monthly sampling schedule if sampling results are below the Leak Action Level would be removed for cooling towers smaller than 2,500 gallons per minute water circulation rate. This would help to minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed.

No construction emissions were expected under any of the proposed rule amendments and no operational air quality impacts were identified for Rules 6-5 and 12-15. These impacts would remain the same as the proposed project under Alternative 3.

The operational air quality impacts associated with the proposed amendments to Rule 11-10 were determined to be potentially significant. The potential ROG emissions foregone associated with the proposed amendments to Rule 11-10 were estimated to range from 1 to 16 tons per year and are considered potentially significant. Under the Alternative 3, the monitoring frequency of Rule 11-10 would continue to be a weekly monitoring schedule (as under the proposed amendments), but the option to go to a monthly sampling schedule if sampling results are below the Leak Action Level would be removed. This would help to minimize the time it takes to discover and repair a leak and reduce the theoretical ROG emissions "foregone."

The District has reviewed the costs and emission impacts of no longer providing the option to go to a monthly sampling schedule if sampling results are below the Leak Action Level. The emission reductions under Alternative 3 were calculated using the same three methodologies described in Chapter 3.2.4. The emission reductions under Alternative 3 were estimated to range from 0.1 to 0.5 tons per year (BAAQMD, 2018c). These emission reductions would not be sufficient to reduce the potential ROG emission reductions foregone to less than the significance threshold of 10 tons per year. Therefore, air quality impacts under Alternative 3 would remain significant.

Under Alternative 3, costs from continuing the weekly sampling schedule are estimated to increase $51,750 per year, with emission reductions estimated to range from 0.1 to 0.5 tons per year. Incremental cost effectiveness of Alternative 3 ranges from $100,000 - $500,000 per ton of ROG reduced, so Alternative 3 is not cost effective (BAAQMD, 2018c).

Alternative 3 would be feasible in that the proposed amendments to Rules 6-5 and 12-15 would be implemented, while the extended sampling period for small cooling towers would not be implemented. However, as discussed above, Alternative 3 is not feasible at this time because of costs factors. Alternative 3 would potentially eliminate the legal challenges to Rules 6-5 and 12-15. However, the legal challenges to Rule 11-10 could continue under

Alternative 3, although the outcome of the court decision cannot be determined at this time. Based on the above, Alternative 3 is not feasible at this time.

4.3.4 ALTERNATIVE 4 – MODIFY MONITORING FREQUENCY OF RULE 11-10

4.3.4.1 Air Quality

Under Alternative 4, the monitoring frequency of Rule 11-10 for cooling towers greater than 2,500 gpm water circulation rate would be modified to a weekly monitoring schedule, but the option to go to a twice-monthly sampling schedule if sampling results are below the Leak Action Level would be removed. This would help to minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed.

No construction emissions were expected under any of the proposed rule amendments and no operational air quality impacts were identified for Rules 6-5 and 12-15. These impacts would remain the same as the proposed project under Alternative 4.

The operational air quality impacts associated with the proposed amendments to Rule 11-10 were determined to be potentially significant. The potential ROG emission reductions foregone associated with the proposed amendments to Rule 11-10 were estimated to range from 1 to 16 tons per year and are considered potentially significant. Under the Alternative 4, the monitoring frequency of Rule 11-10 would be modified to a weekly monitoring schedule (as under the proposed amendments), but the option to go to a twice-monthly sampling schedule if sampling results are below the Leak Action Level would be removed. This would help to minimize the time it takes to discover and repair a leak and reduce the theoretical ROG emission reductions "foregone."

The District has reviewed the costs and emission impacts of no longer providing the option to go to a twice-monthly sampling schedule if sampling results are below the Leak Action Level. The emission reductions under Alternative 4 were calculated using the same three methodologies described in Chapter 3.2.4. The emission reductions under Alternative 4 were estimated to range from 0.4 to 6.1 tons per year (BAAQMD, 2018c). These emission reductions would not be sufficient to reduce the potential ROG emission reductions foregone to less than the significance threshold of 10 tons per year. Therefore, air quality impacts under Alternative 4 would remain significant.

Under Alternative 4, costs from continuing the weekly sampling schedule are estimated to increase $62,500 per year, with emission reductions estimated to range from 0.4 to 6.1 tons per year. Incremental cost effectiveness of Alternative 4 ranges from $10,200 - $156,000 per ton of ROG reduced (BAAQMD, 2018c). The most significant cost impact from Alternative 4 exceeds the cost effectiveness determinations generally used by the District, so Alternative 4 is not cost effective.

Alternative 4 would be feasible in that the proposed amendments to Rules 6-5 and 12-15 would be implemented, while the extended sampling period for large cooling towers would not be implemented. However, as discussed above, Alternative 4 is not feasible at this time because it is not cost effective. Alternative 4 would potentially eliminate the legal challenges to Rules 6-5 and 12-15. However, the legal challenges to Rule 11-10 could continue under Alternative 4, although the outcome of the court decision cannot be determined at this time. Based on the above, Alternative 4 is not feasible at this time.

4.4 CONCLUSION

Alternative 1 - No Project Alternative would theoretically reduce the potentially significant impacts associated with operational emissions increases under Rule 11-10, i.e., ROG emission reductions foregone. However, Alternative 1 is not feasible because the implementation of Rule 11-10 as currently approved is not feasible due to both economic and technological factors. The implementation of the currently approved Rules 6-5, 11-10, and 12-15 could result in the continuation of legal challenges to the rules under Alternative 1, although the outcome of the court decision cannot be determined at this time. Further, Alternative 1 would not achieve project objectives 1 through 3 (see page 4-1)

Under Alternative 2, the proposed amendments to Regulations 6-5 and 12-15 would be implemented, but not the proposed amendments to Regulation 11-10. The impacts under Alternative 2, would essentially be the same as the No Project Alternative because the proposed amendments to Rules 6-5 and 12-15 would not result in any significant air impacts issues (no construction or operational air emissions). Under Alternative 2, Rule 11-10 would not be implemented which would theoretically eliminate the ROG emission reductions foregone. However, implementing Rule 11-10 as currently approved is not considered to be feasible due to both economic, and technological factors. The implementation of the currently approved Rule 11-10 could result in the continuation of legal challenges to the rules under Alternative 2, although the outcome of the court decision cannot be determined at this time. Alternative 2 would better achieve the project objectives, than Alternative 1 but the project objectives associated with Rule 11-10 would not be achieved. Alternative 2 would achieve the following project objectives in addition to objectives 4 through 9 (see Page 4-1):

- Resolve legal challenges to Rules 6-5 and 12-15 (Alternative 2 would not resolve the legal challenges to Rule 11-10);

- Clarify language in the currently approved versions of Rule 6-5 and 12-15 to provide a better understanding of the requirements and easier implementation of the rules (Alternative 2 would not clarify the language of Rule 11-10);

- Assure that Rules 6-5 and 12-15 can be implemented consistently (this objective would not be achieved for Rule 11-10 under Alternative 2);

Under Alternative 3 and Alternative 4, the monitoring frequency of Rule 11-10 would be modified to a weekly monitoring schedule, but the option to go to an extended sampling schedule if sampling results are below the Leak Action Level would be removed. This would help minimize the time it takes to discover and repair a leak. Rules 6-5 and 12-15 would be implemented as currently proposed. Under Alternative 3, the theoretical ROG emission reductions foregone associated with Rule 11-10 would be reduced from 0.1 to 0.5 tons per year. However, Alternative 3 is found to not be feasible because these emission reductions are not adequate to reduce the foregone emission reductions to less than 10 tons per year. Under Alternative 4, the theoretical ROG emission reductions foregone associated with Rule 11-10 would be reduced from 0.4 to 6.1 tons per year. However, Alternative 4 is found to not be feasible because these emission reductions are not adequate to reduce the foregone emission reductions to less than 10 tons per year. Neither Alternative 3 nor Alternative 4 are feasible based on cost impacts, and are not adequate to reduce emissions impacts to less than significant. Alternative 3 and Alternative 4 would achieve the project objectives, with the potential exception of the resolving the legal challenges associated with Rule 11-10. It should be noted that the proposed projects, as well as the four alternatives would be considered to result in cumulatively considerable air quality impacts. The proposed modifications to Rule 11-10 could result in as much as 16 tons per year of ROG emissions foregone, which exceeds the 10 ton per year ROG significance threshold and, therefore, are potentially significant. As a result, air quality impacts from the proposed modifications to Rule 11-10 are also considered to be cumulatively considerable, pursuant to CEQA Guidelines §15064 (h)(1), since the district in not in attainment of the ozone ambient air quality standards and ROG is an ozone precursor. Further, the alternatives would not reduce the air quality impacts to less than significant, so that the air quality impacts for all four alternatives would also be cumulatively considerable.

4.5 COMPARISON OF ALTERNATIVES

Pursuant to CEQA Guidelines §15126.6(d), an EIR should include sufficient information about each alternative to allow meaningful comparison with the proposed project. Section 15126.6(d) also recommends the use of a matrix to summarize the comparison. Table 4.5-1 provides this matrix comparison displaying the major characteristics and significant environmental effects of each alternative. Table 4.5-1 lists the alternatives considered in this EIR and how they compare to the proposed project. Table 4.5-1 presents a matrix that lists the significant adverse impacts as well as the cumulative impacts associated with the proposed project and the project alternatives for all environmental topics analyzed. The table also ranks each section as to whether the proposed project or a project alternative would result in greater or lesser impacts relative to one another.

As shown in Table 4.5-1, Alternative 1 would not eliminate the potentially significant ROG impacts to less than significant and would not achieve any of the proposed project objectives (not feasible due to economic and technological factors). Alternative 2 would also not reduce the potentially significant ROG impacts to less than significant but would achieve most of the objectives of the projects. Alternative 3 and Alternative 4 would reduce

the ROG impacts (but not to less than significant) and achieve most of the objectives of the projects. Since Alternative 3 and Alternative 4 would reduce the ROG impacts and achieve most of the objectives of the projects, they would be considered the environmentally superior alternative (although they are not economically feasible).

The projects as proposed would be considered the preferred alternative as it would achieve all of the objectives and is economically feasible.

TABLE 4.5-1

COMPARISON OF ALTERNATIVES

ENVIRONMENTAL TOPIC	Proposed Project	Alternative 1 No Project Alternative	Alternative 2 Implement Amendments to Rules 6-5 and 12-15 Only	Alternative 3 Modify Monitoring Frequency in Rule 11-10	Alternative 4 Modify Monitoring Frequency in Rule 11-10
Air Quality					
Construction Emissions	No Impact	No Impact	No Impact	No Impact	No Impact
Operational Criteria Pollutants	PS	PS*	PS*	PS*	PS*
Cumulative Air Quality Impacts	PS	PS*	PS*	PS*	PS*

Notes:
PS = Potentially Significant
PS* = Potentially Significant, because portions of the Alternative are not feasible.
(-) = Potential impacts are less than the proposed project.
(+) = Potential impacts are greater than the proposed project.
(=) = Potential impacts are approximately the same as the proposed project.

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CHAPTER 5

REFERENCES

References
Organizations and Persons Consulted
List of Environmental Impact Report Preparers

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5.2 ORGANIZATIONS AND PERSONS CONSULTED

The CEQA statues and Guidelines require that organizations and persons consulted be provided in the EIR. The following organizations and persons have provided input into this document.

Victor Douglas
William Guy
David Joe
Adan Schwartz
Guy Gimlen

5.3 LIST OF ENVIRONMENTAL IMPACT REPORT PREPARERS

Bay Area Air Quality Management District
San Francisco, California

Environmental Audit, Inc.
Placentia, California

APPENDIX A

NOTICE OF PREPARATION AND INITIAL STUDY

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California Environmental Quality Act

Notice of Preparation of Draft Environmental Impact Report and Scoping Meeting for Amendments to Refinery Rules

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TO: **Interested Parties**

FROM: **Bay Area Air Quality Management District**
375 Beale St., Suite 600
San Francisco, CA 94105

Lead Agency: **Bay Area Air Quality Management District**
Contact: **Victor Douglas, Manager** **Phone: (415) 749-4752**

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Notice is hereby given pursuant to California Public Resources Code §21091, 21092, 21092.2, and 21092.3 and CEQA Guidelines Section 15085 and 15087 that the Bay Area Air Quality Management District ("Air District"), as lead agency, will prepare a Draft Environmental Impact Report (EIR) in connection with the project described below.

Project Title: Amendments to Refinery Rules: Rule 6, Particulate Matter, Rule 5: Particulate Matter Emissions from Refinery Fluid Catalytic Cracking Units; Regulation 11, Hazardous Pollutants, Rule 10: Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; and Regulation 12, Miscellaneous Standards of Performance, Rule 15: Petroleum Refinery Emissions Tracking

Project Location: The rule would apply within the Bay Area Air Quality Management District jurisdiction, which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, and the southern portions of Solano and Sonoma counties.

Project Description: Amendments to the three Refinery rules clarify exemptions, definitions, and requirements for specific sections of all three rules. Amendments to Rule 6-5 are simply clarifications of original intent. Amendments to Rule 11-10 reduce monitoring of cooling towers for hydrocarbon leaks from daily to weekly, with provisions to extend monitoring periods after proving no leaks for an extended time. Costs for daily monitoring were found to be excessive relative to the potential hydrocarbon emission reductions. Requirements for cooling tower best management practices and reporting were eliminated when found to be focused primarily on Process Safety Management and cooling water chemistry rather than leak detection. Thresholds were established regarding Rule 12-15 requirements for non-crude oil feedstock imports, and processes for handling and securing confidential information were clarified.

Scoping Meetings: Notice is also given pursuant to California Public Resource Code, Sections 15206 and 15082 (c) that the Air District will conduct a California Environmental Quality Act (CEQA) scoping meeting at the Air District Headquarters' Yerba Buena Room, 375 Beale Street, San Francisco, California, on Monday, August 20, 2018 at 2:00 p.m. to discuss and accept oral comments on the scope and content described in a Notice of Preparation and an Initial Study (NOP/IS) prepared in anticipation of a draft Environmental Impact Report (DEIR) for the Refinery Rules.

Reviewing the Notice of Preparation/Initial Study (NOP/IS): The NOP/IS documents are available at the on the Air District's website at www.baaqmd.gov/ruledev, at Air District headquarters, or, by request, via mail or email. Requests for copies of the NOP/IS should be directed to Guy Gimlen (ggimlen@baaqmd.gov) at (415) 749-4734.

Comment Procedure: Comments relating to the environmental analysis in the NOP/IS should be addressed to Guy Gimlen, Bay Area Air Quality Management District, 375 Beale Street, Suite 600, San Francisco, CA 94105. Comments may also be sent by e-mail to ggimlen@baaqmd.gov. Comments on the NOP/IS will be accepted until Friday, September 7, 2018 at 5:00 p.m.

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BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Initial Study for

Draft Amendments to Refinery Rules

Prepared by:

Bay Area Air Quality Management District
375 Beale St., Suite 600
San Francisco, CA 94109

Contact: Guy Gimlen
(415) 749-4734

July 2018

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CHAPTER 1

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

The Bay Area Air Quality Management District (District or Air District) is preparing the Refinery Rules - Draft Rule Amendments (Projects or Proposed Projects). These Projects involve developing draft amendments to previously adopted rules: Regulation 6, Rule 5 - Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs); Regulation 11, Rule 10 - Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; and Regulation 12, Rule 15 - Petroleum Refining Emissions Tracking. The draft amendments aim to do the following:

The draft amendments to Regulation 6, Rule 5 (Rule 6-5) - Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs) include revisions to:

- Clarify exemptions and rule provisions.

The draft amendments to Regulation 11, Rule 10 (Rule 11-10) - Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers include revisions to:

- Modify and clarify limited exemptions for smaller cooling towers;
- Clarify a limited exemption for cooling towers not in petroleum refining service;
- Modify and clarify leak monitoring, action, and reporting requirements; and,
- Remove Best Modern Practices requirements and associated reporting requirements.

The draft amendments Regulation 12, Rule 15 (Rule 12-15) - Petroleum Refining Emissions Tracking include revisions to:

- Modify and clarify rule definitions and applicability;
- Clarify the Annual Emissions Inventory review and approval process;
- Modify and clarify fence-line monitoring plan requirements, and review and approval process;
- Modify the process for updating Emissions Inventory Guidelines and Air Monitoring Guidelines;
- Modify the monthly crude slate report requirements; and,
- Modify provisions for designating confidential information.

1.2 AGENCY AUTHORITY

CEQA, Public Resources Code §21000 et seq., requires that the environmental impacts of proposed Projects be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these Projects be identified and implemented. To fulfill the purpose and intent of CEQA, the Air District is the lead agency for these Projects and has prepared the Notice of Preparation/Initial Study (NOP/IS) for the proposed amendments to these refinery rules. These Projects are being addressed in the same CEQA document because they are moving through the

rule amendment process together. However, revisions to each of the rules is a distinct CEQA project independent of the others.

The Lead Agency is the "public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment" (Public Resources Code §21067). It was determined that the Air District has the primary responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency (CEQA Guidelines §15051(b)).

1.3 PROJECT LOCATION

The Air District has jurisdiction of an area encompassing 5,600 square miles. The Air District 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. 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 1.2-1).

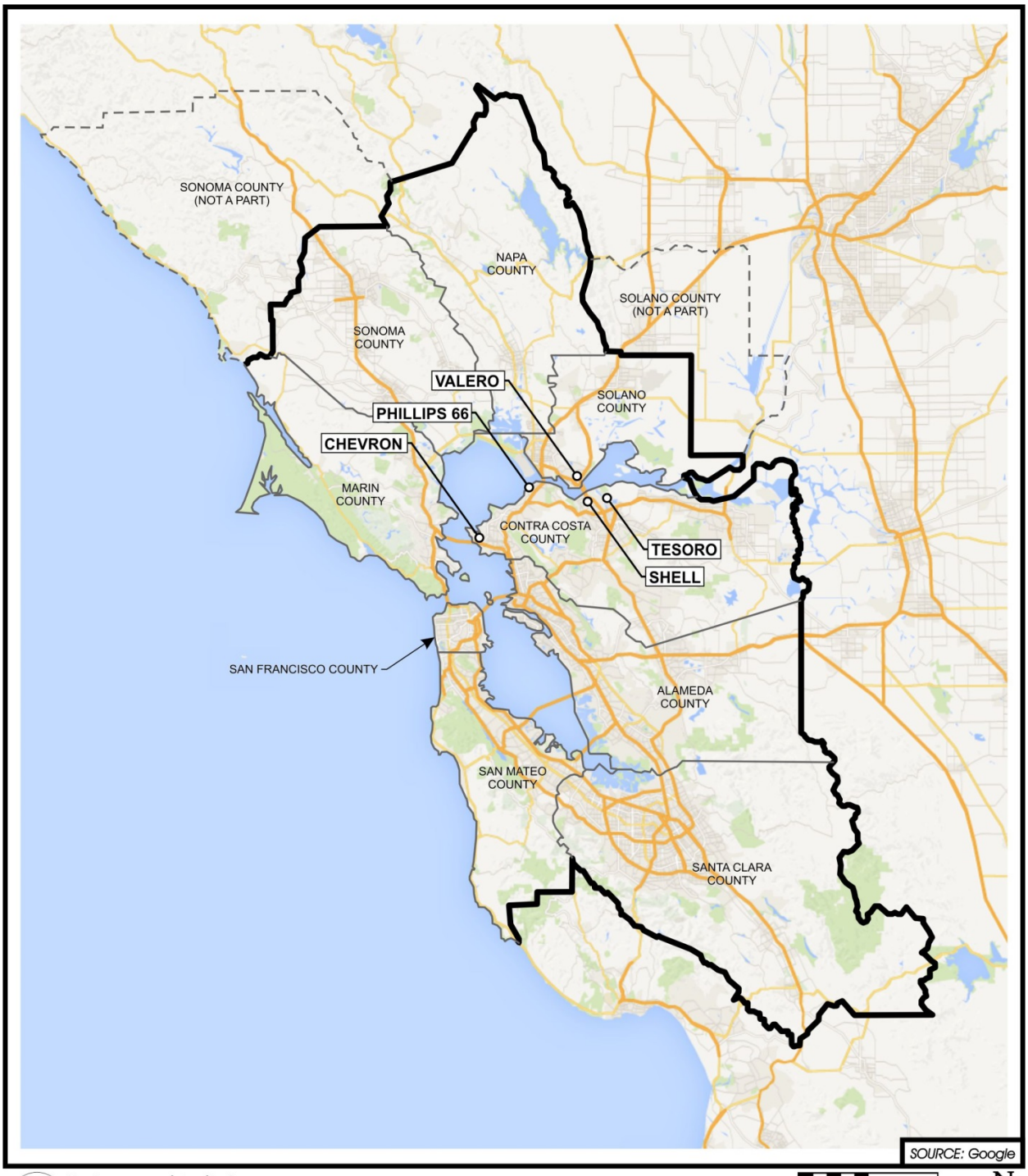
Currently, five petroleum refineries are located in the Bay Area within the jurisdiction of the Air District (see Figure 1.2-1). Four of the refineries are located in Contra Costa County and one refinery is located in Solano County:

- Chevron Products Company (Richmond),
- Phillips 66 Company – San Francisco Refinery (Rodeo),
- Shell Martinez Refinery (Martinez),
- Andeavor Refinery (formerly Tesoro Refining and Marketing Company) (Martinez), and
- Valero Refining Company (Benicia).

1.4 PROJECT BACKGROUND

The Air District is developing draft amendments to two of three rules that were adopted by the Air District Board of Directors on December 16, 2015. These rules were challenged by three of the five Bay Area refineries in a lawsuit that was filed on January 22, 2016, *Valero, et al. v. Bay Area Air Quality Management District (*case number N16-0095), and amended on February 16, 2016. On March 24, 2017, the parties to the lawsuit entered an enforcement agreement and agreement to stay litigation for all three of these regulations (referred to as the "Valero Case Agreement"). Terms of the Agreement affect implementation of Rule 6-5, Rule 8-18, Rule 11-10. This document will use the phrase "2016 Refinery Rules" when referring to these three rules collectively. Specifically, the Air District staff committed in the Valero Case Agreement to implement the three rules that

were challenged for a limited period of time in a manner consistent with how the rules would be proposed to be changed. The intent of this provision is that the refineries should not have to implement in the near-term provisions that will change if the rules are amended as contemplated in the Valero Case Agreement. If the rules are not changed as contemplated in the Valero Case Agreement, the refineries will have to implement the rules as originally adopted in 2016.



Project No. 3091

Figure 1.2-1

N:\3091\SiteLocMap.cdr

In that scenario, the refineries could reactivate their lawsuit and move forward with their legal challenge to the rules.

The Valero Case Agreement states the Air District will propose amendments to the 2016 Refinery Rules for adoption by the Air District Board of Directors by November 1, 2018. Draft amendments to Rule 8-18 – Equipment Leaks are not being put forth at this time, and will be delayed until a Refinery Heavy Liquids Fugitive Leaks study can be completed at all five Bay Area refineries. This study has been underway and findings are expected to be finalized in late 2018. Information from the study will be used to develop appropriate amendments for Rule 8-18, which are expected in Spring 2019.

In addition, the Air District is developing draft amendments to Regulation 12, Rule 15: Petroleum Refining Emissions Tracking (Rule 12-15), adopted by the Air District Board of Directors on April 20, 2016. Rule 12-15 was challenged in a lawsuit that was filed by the Western States Petroleum Association (WSPA) and three of the refineries individually on May 25, 2016, *WSPA, et al. v. Bay Area Air Quality Management District* (case number N16-0963). Similar to the Valero Case Agreement, parties to the lawsuit have entered an agreement to stay the WSPA case litigation contingent on the Air District proposing specified amendments to Rule 12-15 (but not Rule 9-14). This agreement, entered into as of March 1, 2018, will be referred to as the "WSPA Case Agreement." Similar to the Valero Case Agreement, in the WSPA Case Agreement the Air District committed to implement Rule 12-15 for a limited period of time in a manner consistent with how Rule 12-15 would be changed as contemplated in the WSPA Case Agreement. The intent of this provision is that the refineries should not have to implement in the near-term provisions that will change if Rule 12-15 is amended as contemplated in the Agreement. If Rule 12-15 is not changed as contemplated in the WSPA Case Agreement, the refineries will have to implement Rule 12-15 as originally adopted. In that scenario, the refineries could reactivate their lawsuit and move forward with their legal challenge to Rule 12-15.

The draft amendments would apply to petroleum refineries. Petroleum refineries convert crude oil into a wide variety of refined products, including gasoline, aviation fuel, diesel and other fuel oils, lubricating oils, and feed stocks for the petrochemical industry. Crude oil consists of a complex mixture of hydrocarbon compounds with smaller amounts of impurities including sulfur, nitrogen, oxygen and metals (e.g., iron, copper, nickel, and vanadium).

1.5 PROJECT DESCRIPTION

The Air District proposed rule amendments aim to amend Rules 6-5, Rule 11-10, and Rule 12-15. The draft amendments to Rule 6-5 would apply to four of the five Bay Area refineries with FCCUs. The draft amendments to Rule 11-10 and Rule 12-15 would apply to all five Bay Area refineries. These proposed rule amendments are described in the following subsections.

1.5.1 DRAFT AMENDMENTS TO RULE 6-5

The draft amendments to Rule 6-5 include revisions to provide more clarity and conciseness to Section 6-5-111 - Exemption, Emissions Abated by Wet Scrubber and Section 6-5-301 - FCCU Emission Limits. Both of these changes reflect changes in language for clarity purposes and do not represent substantive changes to Rule 6-5.

1.5.2 DRAFT AMENDMENTS TO RULE 11-10

The draft amendments to Rule 11-10 include revisions to modify limited exemption requirements; modify and clarify leak monitoring, action, and reporting requirements; and remove modern practice requirements and reporting.

Limited Exemptions for Smaller Cooling Towers: This amendment requires cooling towers with water recirculation rates of less than 2,500 gallons per minute (gpm) to be monitored once every other week instead of every week. Operators may also move to a monthly monitoring schedule if results are below the Leak Action Level for four consecutive weeks.

Limited Exemption for Cooling Towers Not in Petroleum Refining Service: This amendment is to clarify that cooling towers not in petroleum refining service are exempt from Rule 11-10.

Leak Monitoring, Action, and Reporting Requirements: An amendment to total hydrocarbon leak monitoring will require cooling towers to be sampled once every week instead of once every day. Operators will be able to move to a bi-monthly sampling schedule if sampling results are below the Leak Action Level for six consecutive months. Further, leak action requirements will be amended to require cooling tower hydrocarbon leaks to be minimized as soon as practicable or within seven calendar days (rather than five calendar days) to provide time for necessary leak minimization delays associated with potential technical and/or safety constraints.

Finally, an amendment to Refinery cooling tower reporting requirements clarifies that sampling of the cooling tower water must occur as soon as feasible, and no later than 24 hours from the discovery of the leak. This has been amended to require notification to the Air District's Air Pollution Control Officer (APCO) of total hydrocarbon concentration and chlorine concentration within 72 hours (rather than one calendar day) of discovering the leak. The draft amendment also removes the requirements to report lists of all heat exchangers served by the cooling tower, as well as the pH level and iron concentration of the cooling water, as this reporting is unlikely to provide additional substantive information regarding the hydrocarbon emissions from the cooling tower. Notification requirements are also being added for delays in repair that meet the criteria cited in 40 CFR 63.654(f)-(g), as referenced in amended Section 11-10-305.

Best Modern Practices Requirements and Reporting: Section 11-10-402: Best Modern Practices is being deleted to avoid potential duplication and conflicts with process safety management requirements. Section 11-10-504: Operating Records is being amended to remove recordkeeping requirements associated with the deleted Section 11-10-402, as these recordkeeping requirements are no longer applicable.

1.5.3 DRAFT AMENDMENTS TO RULE 12-15

The draft amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan requirements, procedures for updating guidelines, crude slate reporting requirements, and confidential information designation procedures, as described below.

Rule Definitions and Applicability: The requirement to include emissions from cargo carriers (ships and trains) in the emissions inventory data has been removed as they are not under the control or authority of the refineries. The definition of monthly crude slate report is being amended to better focus on non-crude feedstocks that may be serving as a substitute for crude feedstocks. Non-crude feedstocks are introduced at refineries across a vast spectrum of uses and is often in very small quantities. To better effect the intent of the Rule, a threshold will be established below which non-crude feedstocks need not be addressed in the crude slate report.

Emission Factors and Calculation Methodology: Section 12-15-401 - Annual Emissions Inventory is being amended to clarify the calculation methodology to be used for calculating greenhouse gases using a "common pipe" method, when many fuel consumers use fuel from one "common pipe" source.

Annual Emissions Inventory Review and Approval Process: This section is being amended to clarify the process for communicating and issuing preliminary review determinations under Subsection 12-15-402.1. The draft amendment also clarifies the notification process for APCO extension of the Air District's review period under Subsection 12-15-402.3, and sets a limit of 45 days for the extension of the review period.

Fence-line Monitoring Plan Requirements and Review Process: Air Monitoring Plan requirements are being amended to clarify that site-specific air monitoring plans will be allowed to have implementation schedules and dates that are tailored to the specific plan, due to the unique set of circumstances of each individual refinery. The process for issuing preliminary review determinations has also been amended for clarity. Finally, amendments to Section 12-15-501 - Fence-line Monitoring System clarify that the requirements of the section will be effective once the fence-line monitoring system is installed and operational.

Update of Emissions Inventory Guidelines and Air Monitoring Guidelines: Draft amendments to the guideline update process include a 60-day comment period for affected facilities to review and comment on changes to the Emissions Inventory Guidelines and Air Monitoring Guidelines. Further, the Air District will respond to comments received. Affected facilities will be given at least 90 days to implement changes from the updated Emissions Inventory Guidelines in their respective annual emissions inventories.

Monthly Crude Slate Report Requirements: Section 12-15-408 - Availability of Monthly Crude Slate Reports is being amended to validate that the historical monthly crude slate data required for years 2013, 2014, 2015, and 2016 will be based on records

maintained by the refinery in the normal course of business. The draft amendments to this section also define precautions and procedures for handling confidential data for inspection, audit, and review. The draft amendments ensure that refinery confidential data is protected appropriately, and remains on-site at the refinery and is prevented from inadvertent release. Subsection 12-15-408.2 is being amended to modify the summarized information required in the monthly crude slate report.

Designation of Confidential Information: Requirements regarding confidential information have been amended to defer to the amended Sections 12-15-209 and 12-15-408. The requirements for an owner/operator to provide a redacted version of the document have been removed.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Significant

Determination

Evaluation of Environmental Impacts

Summary of Proposed Project and Potential Impacts

Environmental Checklist and Discussion

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CHAPTER 2

2.0 ENVIRONMENTAL CHECKLIST

2.1 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 projects.

2.2 GENERAL INFORMATION

Project Title:	Draft Amendments to Refinery Rules
Lead Agency Name: Lead Agency Address:	Bay Area Air Quality Management District 375 Beale Street San Francisco, California 94105
Contact Person:	Guy Gimlen
Contact Phone Number:	415-749-4734
Project Location:	The proposed Project 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: Project Sponsor's Address:	Bay Area Air Quality Management District 375 Beale Street San Francisco, California 94105
General Plan Designation:	The proposed Projects relate to refineries located within the District which are located in land use areas designated as industrial.
Zoning:	The proposed Projects apply to five petroleum refineries within the District, which are located in industrially zoned areas.
Description of Project:	See “Project Description” in Chapter 1.
Surrounding Land Uses and Setting:	See “Project Location” in Chapter 1.
Other Public Agencies Whose Approval is Required:	None

2.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☐ 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	☐ Utilities / Service Systems	☐ Mandatory Findings of Significance

2.4 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.

Original NOP/IS signed and submitted 8/1/2018

Signature: Date:

Printed Name: Date:

2.5 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.

2.6 SUMMARY OF PROPOSED PROJECT AND POTENTIAL IMPACTS

Chapter 2 provides a summary of the main components of proposed amendments to Regulations 6-5, 11-10, and 12-15. A summary of the expected methods of compliance is provided below.

- **Draft Amendments Rule 6-5 – Particulate Emissions from Refinery Fluidized Catalytic Cracking Units (FCCUs):** The draft amendments to Rule 6-5 apply to four of the five Bay Area refineries with FCCUs. The draft amendments clarify exemptions to the rule (it does not apply to FCCUs with wet scrubbers) and deletes placeholders in the existing rule for future limits on condensable matter and sulfur dioxide. The draft amendments to Rule 6-5 would have no impact on emissions as the amendments are clarifications of the original intent of Rule 6-5.

- **Draft Amendments to Rule 11-10 – Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers:** Compliance with the amendments to Rule 11-10 is expected to be achieved through monitoring and repair programs. Amendments to Regulation 11-10 would require cooling towers to be sampled once every week (rather than once every day) and that leaks be minimized as soon as practicable or within seven calendar days (rather than five). Amendments to Regulation 11-10 would also clarify limited exemptions for cooling towers not in petroleum refining service and would require less frequent monitoring for smaller cooling towers. The draft amendments to Rule 11-10 will not impact actual emissions because the amendments are consistent with how the Rule has been implemented since adoption. The draft amendments may impact emissions if compared to the rule as adopted due to reduced frequency in monitoring and potential leak detection.

- **Draft Amendments to Rule 12-15 - Petroleum Refining Emissions Tracking:** The Proposed Amendments to Rule 12-15 include revisions to modify and clarify definitions and rule applicability, emission calculation methodologies, emission inventory review and approval requirements and procedures, fence-line monitoring plan requirements, procedures for updating guidelines, crude slate reporting requirements, and confidential information designation procedures. Rule 12-15 is an emissions reporting rule, so no controls are required, no impacts on emissions is expected and no physical impacts to the refineries would occur.

- **Draft Amendments to Rule 8-18 - Equipment Leaks:** Compliance with the amendments to Rule 8-18 is expected to be achieved through improved and more stringent leak detection and repair programs that will require monitoring of additional fugitive components, more frequent monitoring of some components, and potentially more repair of fugitive components. Draft amendments to Rule 8-18 are not being put forth at this time and will be delayed until a Refinery Heavy Liquids Fugitive Leaks study can be completed at all five Bay Area refineries. To provide a complete review, potential amendments to Rule 8-18 will be included as a cumulative project in the EIR.

The impacts of these expected methods of compliance are evaluated in this Initial Study. CEQA recognizes that regulatory requirements consisting of monitoring and inspections, do not typically generate environmental impacts (see for example, CEQA Guidelines §15309). The analysis of potential secondary adverse environmental impacts from control strategies identified in Chapter 1 as a result of implementing amendments to Rules 6-5, 11-10, and 12-15 have been further analyzed in the subsections below.

2.7 ENVIRONMENTAL CHECKLIST AND DISCUSSION

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

Setting

The Bay Area Air Quality Management District covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano County and southern Sonoma County. 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. Important views of natural features include the San Francisco Bay and ocean, San Francisco Bay, Mount Tamalpais, Mount Diablo, and other peaks and inland valleys of the Coast Range. Cityscape views offered by buildings and distinctive Bay Area bridges, especially the Golden Gate and Bay Bridges and the San Francisco skyline, are also important built visual resources to the region (ABAG, 2017). Views along travel corridors, including roads and rail lines, are in abundance in the Bay Area and include views of the San Francisco Bay, city scape, mountains and hills, redwood groves, and broader views of the ocean and lowlands, such as along ridgelines. Because of the variety of visual resources, scenic highways or corridors are located throughout the Bay Area and includes 15 routes that have been designated as scenic highways and 29 routes eligible for designation as scenic highways (ABAG, 2017).

The proposed rule amendments would affect the five refineries within the Bay Area. Petroleum refineries are generally located in industrial areas.

Regulatory Background

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

Significance Criteria

Project-related impacts on aesthetics and visual resources will be considered significant if any of the following conditions are met:

- The proposed Project would have a substantial adverse effect on a scenic vista.
- The proposed Project would substantially damage scenic resources, including but not limited to trees, rock outcropping, and historical buildings within a state scenic highway.
- The proposed Project would substantially degrade the existing visual character or quality of the site and its surrounds.
- The proposed Project would add a visual element of urban character to an existing rural or open space area or add a modern element to a historic area.
- The proposed Project would create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Discussion of Impacts

I a – c. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of particulate matter (PM), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), reactive organic gases (ROG), nitrogen oxides (NOx), sulfur dioxide (SO_2), and ammonia (NH_3) from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. None of the proposed rule amendments are expected to result in visual changes to the refineries. Therefore, obstruction of scenic resources or degrading the visual character of a site, including but not limited to: trees, rock outcroppings, or historic buildings, is not expected.

I d. The proposed Projects are not expected to require any new equipment or any new light generating equipment for compliance. The existing refineries are current lighted for nighttime work and no additional light or glare would be added to impact day or nighttime views in the Bay Area.

Conclusion

Based upon the above considerations, significant adverse impacts to aesthetics or light and glare are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact

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?	☐	☐	☐	☑
b)	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District 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. Agricultural land under Williamson Act contract includes both prime and nonprime lands. Prime agricultural land includes land with certain specific soil characteristics, land that has returned a predetermined annual gross value for three of the past five years, livestock-supporting land with specific carrying capacities, or land planted with fruit or nut trees, vines, bushes or crops that have a non-bearing period of less than five years (Government Code §51200-51207). Nonprime lands include pasture and grazing lands and other non-irrigated agricultural lands with lesser soil quality.

The Bay Area has a significant amount of land in agricultural uses. In 2010, approximately over half of the region's approximately 4.5 million acres were classified as agricultural lands, as defined by the California Department of Conservation Farmland Mapping and Monitoring Program. Of these, 2.3 million acres of agricultural land, over 70 percent (about 1.7 million acres) are used for grazing. Products grown in the Bay Area include field crops, fruit and nut crops, seed crops, vegetable crops, and nursery products. Field crops, which include corn, wheat, and oats, as well as pasture lands, represent approximately 62 percent of the Bay Area agricultural land (ABAG, 2017). In 2014, about 1.25 million acres of land were under Williamson Act contract in the Bay Area. Of this, about 203,200 acres were prime farmland and one million acres were nonprime. Lands under Williamson Act contract are primarily used for pasture and grazing and not for cultivation of crops. Approximately 70 percent of prime farmlands under contract are in Santa Clara, Solano, and Sonoma counties (ABAG, 2017).

The proposed rule amendments would affect the five refineries within the Bay Area. Petroleum refineries are generally located in industrial areas. Agricultural or forest resources are typically not located within these industrial areas 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.

Significance Criteria

Project-related impacts on agricultural and forest resources will be considered significant if any of the following conditions are met:

- The proposed Project conflicts with existing zoning or agricultural use or Williamson Act contracts.

- The proposed Project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed Project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code § 51104 (g)).
- The proposed Project would involve 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.

Discussion of Impacts

II a – e. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

The proposed rule amendments would affect petroleum refineries that are located within industrial areas and no agricultural or forest resources are located within refineries. The proposed Projects would not conflict with existing agriculture related zoning designations or Williamson Act contracts. Williamson Act lands within the boundaries of the District would not be affected. No effects on agricultural or forestland resources are expected because the proposed Project would not require any new development. All of these activities associated with the proposed rule amendments would occur within the confines of the existing refineries. Therefore, there is no potential for conversion of farmland to non-agricultural use or conflicts related to agricultural uses or land under a Williamson Act contract, or impacts to forestland resources.

Conclusion

Based upon the above considerations, significant adverse impacts to agricultural and forest resources are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☑	☐	☐	☐
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)?	☑	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

Setting

It is the responsibility of the Air District to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead.

The San Francisco Bay Area is characterized by a large, shallow basin surrounded by mountain ranges tapering into sheltered inland valleys. The basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of mountains, valleys and bays. 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.

Air quality conditions in the San Francisco Bay Area have improved greatly since the Air District was created in 1955, and regional concentrations of criteria pollutants are now in compliance with or near compliance with most ambient air quality standards. However, the Bay Area is not in attainment with the National and State 8-hour ozone standards and the State one-hour ozone standard. The Bay Area is also not in attainment for the California standards for PM_{10} and $PM_{2.5}$. NOx and other pollutants react to produce secondary $PM_{2.5}$ in the form of nitrates. NOx reductions will have the added benefit of reducing secondary $PM_{2.5}$ formation.

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 and compiled state-wide air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a local level, California's air districts, including the Bay Area Air Quality Management District, are responsible for overseeing stationary source emissions, approving permits, maintaining local stationary point source emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

The Air District is governed by a 24-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 Air District 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

Toxic air contaminants (TACs) are regulated in the Air 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 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 regulatory programs for the control of TACs, including: (1) California's TAC identification and control program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), 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; and (2) The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) established 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.

In 2004, the Air District initiated the Community Air Risk Evaluation (CARE) program to identify areas with relatively high concentrations of air pollution – including toxic air contaminants (TACs) and fine particulate matter – and populations most vulnerable to air pollution's health impacts. Maps of communities most impacted by air pollution, generated through the CARE program, have been integrated into many Air District programs. For example, the Air District uses 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.

Significance Criteria

On June 2, 2010, the Air District's Board of Directors unanimously adopted thresholds of significance to assist in the review of projects under CEQA. These CEQA thresholds were designed to establish the level at which the Air District believed air pollution emissions would cause significant environmental impacts under CEQA. The CEQA thresholds were challenged in court. Following litigation in the trial court, the court of appeal, and the California Supreme Court, all of the thresholds were upheld. However, in an opinion issued on December 17, 2015, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards.

In view of the Supreme Court's opinion, local agencies may rely on the Air District's CEQA thresholds designed to reflect the impact of locating development near areas of toxic air contamination where such an analysis is required by CEQA or where the agency has determined that such an analysis would assist in making a decision about the project. However, the CEQA thresholds are not mandatory and agencies should apply them only after determining that they reflect an appropriate measure of a project's impacts.

The Air District published a new version of the Guidelines dated May 2017, which includes revisions made to address the Supreme Court's opinion. The CEQA Guidelines for implementation of the Thresholds are for information purposes only to assist local agencies.

Recommendations in the Guidelines are advisory and should be followed by local governments at their own discretion. The Air District is currently working to revise any outdated information in the Guidelines as part of its update to the CEQA Guidelines and thresholds of significance. Since these are the most current air quality significance thresholds and address court decisions, they will be used in the CEQA analysis for the current Project.

Construction Emissions

Regarding construction emissions, the Air District's 2017 Thresholds of Significance will be used in the current air quality analysis for construction emissions (see Table 2-1).

TABLE 2-1

Thresholds of Significance for Construction-Related Criteria Air Pollutants and Precursors

Pollutant/Precursor	Daily Average Emissions (lbs/day)
ROG	54
NOx	54
PM_{10}	82*
$PM_{2.5}$	54*
PM_{10}/ $PM_{2.5}$ Fugitive Dust	Best Management Practices

*Applies to construction exhaust emissions only.
Source: BAAQMD, 2017

Operational Emissions

The most recently available CEQA Guidelines established emission thresholds for specific projects, general plans, and regional plans. An air quality rule does not fall neatly into any of these categories. Air quality rules are typically regional in nature, as opposed to general plans and community plans. In addition, air quality rules are usually specific to particular source types and particular pollutants. The Air Quality Plan threshold of "no net increase in emissions" is appropriate for Air Quality Plans because they include a mix of several control measures with individual trade-offs. For example, one control measure may result in combustion of methane to reduce greenhouse gas emissions, while increasing criteria pollutant emissions by a small amount. Those increases from the methane measure would be offset by decreases from other measures focused on reducing criteria pollutants. In a particular rule development effort, there may not be opportunities to make these trade-offs.

The 2017 project-level stationary source CEQA thresholds are identified in Table 2-2. These represent the levels at which a project's individual emissions would result in a cumulatively considerable contribution to the Air District's existing air quality conditions for individual projects. The Air District does not currently have significance thresholds specifically for rules. In order to provide a conservative air quality analysis, the project-specific thresholds recommended in the revised 2017 CEQA Guidelines (BAAQMD, 2017) will be used in the current air quality impacts analysis (see Table 2-2).

TABLE 2-2

Thresholds of Significance for Operation-Related Criteria Air Pollutants and Precursors

Pollutant/Precursor	Daily Average Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	10
NOx	54	10
PM_{10}	82	15
$PM_{2.5}$	54	10

*Source: BAAQMD, 2017

Discussion of Impacts

III a. The proposed rule amendments are not expected to conflict with or obstruct implementation of the applicable air quality plan. The applicable air quality plan is the Air District's recently-adopted 2017 Clean Air Plan, *Spare the Air, Cool the Climate*. The Plan outlines the overall strategy for achieving the Bay Area's clean air goals by reducing emissions of ozone precursors, particulate matter, and other pollutants in the region.

Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed amendments will not conflict with or obstruct implementation of the 2017 Clean Air Plan, rather it will help achieve the Plan's goals by helping to better implement some of the Air District's existing rules. Thus, no significant impacts to the implementation of the 2017 Clean Air Plan are expected.

III b – d. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. Changing monitoring frequency as proposed in amendments to Rule 11-10 would not result in an increase in actual emissions because the amendments are consistent with how the Rule has been implemented since adoption. However, the change in monitoring frequency, when

compared to the rule language as adopted, can theoretically allow for an emissions impact since less frequent monitoring may allow a future leak to go undetected for a longer period of time.

The Air District's position is that a theoretical impact relative to the rule language that was never implemented does not require analysis under CEQA. However, for the sake of transparency and thoroughness, the Air District is analyzing these theoretical impacts so that the public understands the difference between the rule as it was adopted (though not implemented) and the rule as it would be amended.

Rule 11-10 as adopted in December 2015 required daily monitoring of cooling towers for leaks, while the currently proposed amendments to Rule 11-10 would require weekly monitoring with potential adjustments to bi-monthly monitoring. Approval of Rule 11-10 in December 2015 was based on estimated reduction of hydrocarbon emissions from 978 tons per year to 117 tons per year (a reduction in 861 tons per year). This estimate was based on available emissions factors for un-monitored cooling towers and emissions factors for cooling towers that are monitored monthly. The daily or continuous monitoring requirements for cooling towers larger than 2,500 gpm (Rule 11-10 as adopted) are more stringent than monthly monitoring. While the proposed amendments for weekly monitoring are less stringent than daily monitoring, both monitoring requirements remain substantially more stringent than monthly monitoring.

The weekly monitoring proposed for Rule 11-10, as compared to the daily monitoring in the rule as adopted, equates to a potentially longer period of time before a leak is detected under specific circumstances, and subsequently delay minimization and/or repair of a leak resulting in increased ROG emissions (i.e. "foregone" emission reductions). The theoretical foregone emission reductions have been initially estimated to be approximately 16 tons per year[1] and could exceed the ROG significance criteria. These theoretical air quality impacts associated with the ROG emissions will be evaluated in the Draft EIR.

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 cumulative air quality impacts of the proposed Project will also be evaluated in the Draft EIR.

III e. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed amendments are not expected to result in an increase in any emissions at refineries, including odorous emissions. The proposed amendments to Rule 11-10 could result in theoretical foregone ROG emission reductions; however, cooling towers are generally not sources of odors because leaks start out small, are diluted with a high volume of cooling water, and further diluted by a high volume of air flowing up through the cooling tower. Therefore, the proposed rule amendments are not expected to result in an increase in the emissions that could generate odors. The Air District will continue to enforce odor nuisance complaints through District Regulation 7, Odorous Substances.

[1] Described in Appendix 1 of the Refinery Rules – Draft Amendments Workshop Report

Conclusion

The currently proposed amendments would not require the construction of any additional equipment or refinery modifications. However, changing monitoring requirements for cooling towers as proposed in the amendments to Rule 11-10 from daily to weekly equates to a theoretical increase in the time that it would take for a leak to be detected and subsequently delay the minimization and/or repair of the leak, resulting in increased ROG emissions above the currently approved Rule 11-10 (emission reductions "forgone.") The theoretical emission reductions foregone could exceed the ROG significance criteria and will be evaluated in the Draft EIR. No significant impacts were identified on air quality plans or the generation of odors and these topics will not be addressed further in the Draft EIR.

		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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
e)	Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District 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 Bay Area supports numerous distinct natural communities composed of a diversity of vegetative types that provide habitat for a wide variety of plan and wildlife species. Broad habitat categories in the region include grasslands, coastal scrubs and chaparral, woodlands and forests, riparian systems and freshwater aquatic habitat, and wetlands. Extensive aquatic resources are provided by the San Francisco Bay Delta estuary, as well as numerous other rivers and streams. Urban and otherwise highly disturbed habitats, such as agricultural fields, also provide natural functions and values as wildlife habitat (ABAG, 2017).

The proposed rule amendments would affect the five refineries within the Bay Area. Petroleum refineries are generally located in industrial areas where native vegetation has been removed from the operating portions of the refinery to minimize the potential for fire hazards.

Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Wildlife, 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 Wildlife 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.

Significance Criteria

The proposed Project impacts on biological resources will be considered significant if:

- The Project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The Project interferes substantially with the movement of any resident or migratory wildlife species.
- The Project adversely affects aquatic communities through construction or operation of the Project.

Discussion of Impacts

IV a – f. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

Vegetation has been removed from the operating portions of refineries to minimize the potential for fire hazards. Since the proposed amendments to Rules 6-5, 11-10, and 12-15 are not expected to result in physical modifications to the existing refineries, they are not expected to result in impacts to biological resources and would not directly or indirectly affect riparian habitat, federally protected wetlands, or migratory corridors.

The proposed rule amendments would not conflict with local policies or ordinances protecting biological resources, nor would they conflict with local, regional, or state conservation plans because as the proposed Project applies to equipment in existing developed refineries. The proposed Project will also not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan as these types of conservation plans are not located within existing refineries.

Conclusion

Based upon the above considerations, significant adverse impacts to biological resources are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		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?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☑
c)	Directly of indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑

Setting

The Air District 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. Cultural resources also include paleontological sites, which can consist of mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains that are more than 5,000 years old and occur mainly in Pleistocene or older sedimentary rock units.

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.

Important vertebrate and invertebrate fossils and unique geologic units have been documented throughout California. The fossil yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks. Pleistocene or older (older than 11,000 years) continental sedimentary deposits are considered to have a high paleontological potential while Holocene-age deposits (less than 10,000 years old) are generally considered to have a low

paleontological potential because they are geologically immature and are unlikely to contain fossilized remains of organisms. Metamorphic and igneous rocks have a low paleontological potential, either because they formed beneath the surface of the earth (such as granite), or because they have been altered under heat and high pressures.

Historic resources are standing structures of historic or aesthetic significance. Architectural sites dating from the Spanish Period (1529-1822) through the late 1960s are generally considered for protection if they are determined to be historically or architecturally significant. These may include missions, historic ranch lands, and structures from the Gold Rush and the region's early industrial era. More recent architectural sites may also be considered for protection if they could gain historic significance in the future (ABAG, 2017).

Of the 8,199 sites recorded in the Bay Area, there are 1,006 cultural resources listed on the California Register of Historic Resources (CRHR), meaning that they are significant at the local, State or federal level; of those, 744 are also listed on the National Register of Historic Places (NRHP). From this list, 249 resources are listed as California Historic Landmarks. The greatest concentration of historic resources listed on both the NRHP and the CRHR in the Bay Area occurs in San Francisco, with 181 resources. Alameda County has the second highest number with 147 resources (ABAG, 2017).

The petroleum refineries are located within industrial areas in the Bay Area. These areas have generally already been graded to accommodate development. Cultural resources would not be expected to be impacted by modifications to existing refineries.

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 §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 §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 §§50020.1(k) and 5024.1(g).

Significance Criteria

The proposed Project impacts to cultural resources will be considered significant if:

- The Project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed Project.
- The Project would disturb human remains.

Discussion of Impacts

V a – d. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

Refinery structures are typically not considered to be historic resources. Therefore, no impacts to historical resources are expected as a result of the proposed Project, since no structures would be required to be removed. No construction activities are expected to be required as part of the proposed Project; therefore, no impacts to cultural resources, including archaeological resources, paleontological resources, or disturbance of human remains would occur as a result of the proposed Project.

Conclusion

Based upon the above considerations, significant adverse impacts to cultural resources are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS.				
Would the Project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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 known 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

California has 11 natural geologic regions, known as geomorphic provinces, which are defined by the presence of similar physical characteristics, such as relief, landforms, and geology. Most of the Bay Area is located in the natural region of California known as the Coast Ranges geomorphic province, with the eastern portions of Contra Costa and Alameda Counties extending into the neighboring Great Valley geomorphic province, located east of the Coast Ranges. The Coast Range, extends about 400 miles from Oregon south into Southern California, and is characterized by a series of northwest trending ridges and valleys that roughly parallel the San Andreas fault zone. The San Francisco Bay is a broad, shallow regional structural depression created from an east-west expansion between the San Andreas and the Hayward fault systems.

Much of the Coast Range province is composed of marine sedimentary and volcanic rocks located east of the San Andreas Fault. The region west of the San Andreas Fault is underlain by a mass of basement rock that is composed of mainly marine sandstone and various metamorphic rocks. Marginal lands surrounding San Francisco Bay consist generally of alluvial plains of low relief that slope gently towards the bay from bordering uplands and foothills (ABAG, 2017). Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The 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 tectonic plate boundary marked by the San Andreas 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). The San Andreas and the Hayward faults are the two faults considered to have the highest probabilities of causing a significant seismic event in the Bay Area. These two faults are classified as strike-slip faults that have experienced movement within the last 150 years. Other principal faults capable of producing significant ground shaking in the Bay Area are included in Table 2-3, and include the Rodgers Creek-Healdsburg, Concord-Green Valley, Marsh Creek-Greenville, San Gregorio-Hosgri, West Napa and Calaveras faults (ABAG, 2017). A major seismic event on any of these active faults could cause significant ground shaking and surface fault rupture. 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.

TABLE 2-3

Active Faults in the Bay Area

Fault	Date of Last Movement	Maximum Moment Magnitude Earthquake
San Andreas	1989	7.9
Hayward	1868	7.1
Rodgers Creek-Healdsburg	1969	7.0
Concord-Green Valley	1955	6.9
Marsh Creek-Greenville	1980	6.9
San Gregorio-Hosgri	Late Quaternary	7.3
West Napa	2000	6.5
Maacama	Holocene	7.1
Calaveras	1990	6.8
Mount Diablo Thrust	Quaternary	6.7

(Source: ABAG, 2017)

A summary of the existing geological hazards in the vicinity of the existing five refineries is summarized below. The data is from the Contra Costa Internet GIS Map.

1. Chevron Richmond: The portions of the refinery immediately adjacent to the Bay are identified as areas subject to liquefaction. A landslide area is noted in the upper portions of the hill. No faults are identified in the immediate area of the refinery.

2. Shell Martinez: The portions of the refinery immediately adjacent to the Bay are identified as areas subject to liquefaction. Generally, areas southwest of Highway 680 are not subject to liquefaction, which is where the operating portion of the refinery is located. A portion of the Concord fault is located east of Highway 680 and east of the Shell Refinery. A portion of the Southampton fault is located west of the refinery. No landslides have been identified in the vicinity of the refinery.

3. Tesoro Martinez: The portions of the refinery immediately adjacent to the Bay are identified as areas subject to liquefaction. The operating refinery is generally located outside of the areas subject to liquefaction. A portion of the Concord fault is located east of Highway 680 and west of the Tesoro Refinery. A portion of the Southampton fault is located west of the refinery. No landslides have been identified in the vicinity of the refinery.

4. Valero Benicia: The operating portions of the refinery are not subject to liquefaction. The refinery is located west of the Concord fault and east of the Southampton fault. No landslides have been identified in the vicinity of the refinery.

5. Phillips 66 Rodeo: Areas along the northeastern and southwestern boundaries of the refinery may be subject to liquefaction. The Franklin fault is located east of the refinery. No landslides have been identified in the vicinity of the refinery

While there are existing geological hazards in the vicinity of the refineries, there is extensive development within and surrounding the refineries and the areas have been urbanized. Development within geologically active areas is protected by developing structures in compliance with the California Building Codes.

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 California 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 reviewing procedures that will reduce losses from ground failure during future earthquakes.

Significance Criteria

The proposed Project impacts on the geological environment will be considered significant if:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed Project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.

- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

Discussion of Impacts

VI a. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

The proposed rule amendments would not require any new construction, development, or refinery modifications. New structures must be designed to comply with the California Building Code requirements since the Bay Area is located in a seismically active area. The local cities or counties are responsible for assuring that any new or remodeled structures comply with the California Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The California 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.

No significant impacts from seismic hazards are expected since no new equipment or structures would be required to comply with the proposed rule amendments. As a result, exposure of people or structures to the risk of loss, injury, or death involving seismic-related activities is not anticipated as a result of compliance with the proposed rule amendments. Therefore, no significant adverse impacts on geology and soils are expected.

VI b – d. The proposed rule amendments would affect existing refineries. However, no additional construction activities or physical modifications to the refineries would be required to comply with the proposed amendments. The proposed amendments would not require additional construction activities and, therefore, would not result in additional grading or other construction activities that could result in soil erosion or the loss of topsoil. Further, no construction activities would be required so no additional landslide, lateral spreading, subsidence, liquefaction or collapse impacts or development on expansive soils would occur due to the proposed rule amendments.

VI e. The proposed rule amendments would have no effect on the installation of septic tanks or alternative wastewater disposal systems. Refineries operate existing wastewater treatment systems

and the proposed rule amendments would result in no impacts to their existing wastewater treatment systems or require alternative wastewater treatment systems. Consequently, no impacts from failures of septic systems related to soils incapable of supporting such systems are anticipated.

Conclusion

Based upon the above considerations, significant adverse impacts to geology and soils are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

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 climate change is caused primarily by an increase in levels of greenhouse gases (GHGs) in the atmosphere. The major greenhouse gases are the so-called "Kyoto Six" gases – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) – as well as black carbon.[2] These greenhouse gases absorb longwave radiant energy (heat) reflected by the earth, which warms the atmosphere in a phenomenon known as the "greenhouse effect." The potential effects of global climate change include rising surface temperatures, loss in snow pack, sea level rise, ocean acidification, more extreme heat days per year, and more drought years.

Increases in the combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.) since the beginning of the industrial revolution have resulted in a significant increase in atmospheric levels of greenhouse gases. CO_2 levels have increased from long-term historical levels of around 280 ppm before the mid-18th century to over 400 ppm today. This increase in greenhouse gases has already caused noticeable changes in the climate. The average global temperature has risen by approximately 1.4°F (0.8°C) over the past one hundred years, and 16 of the 17 hottest years in recorded history have occurred since 2001, according to the National Oceanic and Atmospheric Administration.

Total global greenhouse gas emissions contributing to climate change are in the tens of billions of metric tons of CO_2e (carbon dioxide equivalent) per year. The State of California alone produces about two percent of the entire world's GHG emissions with major emitting sources including fossil fuel consumption from transportation (37 percent), electricity production (20 percent), industry (24 percent), agricultural and forestry (8 percent), residential activities (6 percent), and

[2] Technically, black carbon is not a gas but is made up of solid particulates or aerosols. It is included in the discussion of greenhouse gas emissions because, like true greenhouse gases, it is an important contributor to global climate change.

commercial activities (5 percent) (ABAG, 2017). The Bay Area's contribution to the global total is approximately 85 million tons per year. Transportation sources generate approximately 40 percent of the total, with the remaining 60 percent coming from stationary and area sources (BAAQMD, 2017).

Regulatory Background

California has committed to reducing its greenhouse gas emissions to 1990 levels by 2020, to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050. This commitment was enacted in AB 32, the Global Warming Solutions Act of 2006, which adopted the 2020 target; in 2016's SB 32 (Pavley), which adopted the 2030 target; and in Executive Order S-3-05, which adopted the 2050 target. The Air District has adopted the same 80 percent reduction target for 2050 for the Bay Area's greenhouse gas emissions, in Board of Directors Resolution 2013-11.

To achieve these emission reduction goals, the California legislature has directed the California Air Resources Board (CARB) to develop a Scoping Plan setting forth regulatory measures that CARB will implement, along with other measures, to reduce the state's greenhouse gas emissions. One of the principal regulatory measures is CARB's Cap and Trade program, which requires industrial greenhouse gas sources to obtain "allowances" equal to their greenhouse gas emissions. The amount of available allowances is subject to a "cap" on total emissions statewide, which CARB will reduce each year. Regulated facilities will either have to reduce their emissions or purchase allowances on the open market, which will give them a financial incentive to reduce emissions and will ensure that total annual emissions from the industrial sector will not exceed the declining statewide cap.

California has also adopted the "Renewable Portfolio Standard" for electric power generation, which requires that at least 33 percent of the state's electric power must come from renewable sources by 2020, and at least 50 percent must come from renewables by 2030. To complement these efforts on electricity generation, the state has also committed to increasing the energy efficiency of existing buildings by 50 percent by 2050 in order to reduce energy demand.

California has adopted regulatory measures aimed at reducing greenhouse gas emissions from mobile sources. These measures include standards for motor vehicle emissions and the state's Low Carbon Fuel Standard, which set limits on the carbon intensity of transportation fuels. California has also adopted SB 375, the Sustainable Communities and Climate Protection Act of 2008, which requires regional transportation and land use planning agencies to develop coordinated plans, called "Sustainable Communities Strategies," to reduce greenhouse gas emissions from the transportation sector by promoting denser development and alternatives to driving. The current Sustainable Communities Strategy for the Bay Area is *Plan Bay Area 2040*, which was adopted by the Metropolitan Transportation Commission and the Association of Bay Area Governments in July of 2017.

The Air District has committed to reducing the Bay Area's regional greenhouse gas emissions to 80 percent below 1990 levels by 2050, as noted above. The Air District has also committed to a broad suite of specific measures to address greenhouse gases in the 2017 Clean Air Plan, *Spare the Air, Cool the Climate*. That document lays out the Air District's vision for what the Bay Area

may look like in a post-carbon year 2050 and describes policies and actions that the region needs to take in the near- to mid-term to achieve these goals.

Significance Criteria

The most recently available Air District draft CEQA guidelines established GHG thresholds for specific Projects, general plans, and regional plans. An air quality rule does not fall neatly into any of these categories. Air quality rules are typically regional in nature, as opposed to general plans, community plans and regional plans. In addition, air quality rules are usually specific to particular source types and particular pollutants.

The Air District draft CEQA Guidelines (BAAQMD, 2017) established a GHG threshold for air quality plans of "no net increase in emissions," which is appropriate for air quality plans because they include a mix of control measures with individual trade-offs. For example, one control measure may result in combustion of methane to reduce greenhouse gas emissions, while increasing criteria pollutant emissions by a small amount. Those increases from the methane measure would be offset by decreases from other measures focused on reducing criteria pollutants. In a particular rule development effort, there may not be opportunities to make these trade-offs.

The Project-level GHG threshold for stationary source Projects is 10,000 metric tons of carbon dioxide equivalent (CO_2e) emissions under the draft CEQA Guidelines. This threshold is expected to capture approximately 95 percent of all GHG emissions from new permit applications from stationary sources within the jurisdiction of the Air District. The threshold level was calculated as an average of the combined CO_2 emissions from all stationary source permit applications submitted to the Air District during the three-year analysis period (BAAQMD, 2017). The interim Project-level GHG significance threshold of 10,000 MT CO_2e will be used to evaluate the cumulative GHG impacts.

Discussion of Impacts

VII a and b. 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 carbon dioxide (CO_2). CO_2 is not a pollutant that occurs in relatively low concentrations as a by-product of the combustion process; CO_2 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.

The analysis of GHG emissions is a different analysis than for criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is typically based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects to human health, e.g., one-hour and eight-hour. Using the half-life of CO_2, 100 years, for example, the effects of GHGs are longer-term, affecting the global climate over a relatively long-time frame. GHGs do not have human health effects like criteria pollutants. Rather, it is the increased accumulation of GHGs in the atmosphere that may result in global

climate change. Due to the complexity of conditions and interactions affecting global climate change, it is not possible to predict the specific impact, if any, attributable to GHG emissions associated with a single Project. Furthermore, the GHG emissions associated with the proposed rule amendments would be small relative to total global or even state-wide GHG emissions. Thus, the significance of potential impacts from GHG emissions related to the proposed Project has been analyzed for long-term operations on a cumulative basis, as discussed below.

Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction, require additional energy or fuel, or generate GHG emissions.

CARB has designed a California Cap-and-Trade program that is enforceable and meets the requirements of AB 32. The program began on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions inventory. All refineries in the Bay Area are subject to the requirements of the AB 32 Cap-and-Trade Program and have a GHG allocation based on current GHG emissions levels. The AB 32 Cap-and-Trade Program requires that the refineries subject to the program (including all refineries in the Bay Area) to offset any GHG emissions in excess of the total allocation obtained through the program. As the emissions cap is gradually reduced over time, and as additional sources are brought under the cap to include the vast majority of emissions in the State, the program will ensure that California remains on track to continually reduce GHG emissions and meet the 2020 limit. Therefore, the refineries are subject to a plan to reduce GHG emissions. The proposed rule amendments would not require any additional equipment, construction, fuel or energy use; therefore, they would not result in any increase in GHG emissions.

Conclusion

Based upon the above considerations, significant adverse GHG impacts are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. Because the area of coverage is vast (approximately 5,600 square miles), land uses vary greatly and include commercial, industrial, residential, and agricultural uses.

Facilities and operations within the District handle and process substantial quantities of flammable materials and acutely toxic substances. 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 the public. "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 come 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 refineries affected by the proposed rule amendments are 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 Title 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.

Significance Criteria

The proposed Project impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion of Impacts

VIII a and b. The potential hazards associated with petroleum refining activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the refinery. 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: (1) toxic gas clouds; (2) torch fires, flash fires, pool fires, and vapor cloud explosions; (3) thermal radiation; and (4) explosion/overpressure. The potential for these types of events to occur currently exists at the existing refineries.

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring requirements (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed rule amendments would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. Ammonia is currently used to reduce NOx emissions at existing refineries. Rule 6-5 limited ammonia emissions from FCCUs. To comply, refineries were required to optimize the injection of ammonia or urea. Rule 6-5 did not increase the use of ammonia or urea and likely resulted in a decrease in ammonia use. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications.

Changing monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction, require the use of additional hazardous materials, generate additional hazardous materials or create new refinery hazards. Therefore, no increased hazards are expected from implementation of the proposed rule amendments.

VIII c. The proposed rule amendments would not generate hazardous emissions, handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school. Rule 6-5 limited ammonia emissions from FCCUs and resulted in a decrease in ammonia emissions. (Note that ammonia is regulated as a TAC). Proposed amendments to Rules 11-10 and 12-15 are not expected to result in an increase in TAC emissions from refineries. Therefore, no increase in TAC emissions is expected from implementation of the proposed rule amendments.

VIII d. Government Code §65962.5 requires creation of lists of facilities that may be subject to Resource Conservation and Recovery Act (RCRA) permits or site cleanup activities. The refineries affected by the proposed rules may be located on the hazardous materials sites list pursuant to Government Code §65962.5. The refineries would be required to manage any and all hazardous materials in accordance with federal, state and local regulations. Implementation of the proposed rule amendments would not interfere with site cleanup activities or create additional site contamination. As a result, the proposed Project is not expected to require any physical modifications to facilities included on a list of hazardous material sites and, therefore, would not create a significant hazard to the public or environment.

VIII e and f. The proposed rule amendments would not result in a safety hazard for people residing or working within two miles or a public airport or air strip. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments which would apply to petroleum refineries operating in the Bay Area, which are generally not located near public airports or air strips. No construction activities or additional refinery structures are required due to the proposed rule amendments. Therefore, no significant adverse impacts on an airport land use plan or on a private air strip are expected.

VIII g. No impacts on emergency response plans are anticipated from the proposed new and amended rules that would apply to existing petroleum refineries. The refineries affected by the proposed rule amendments already exist and operate within the confines of existing industrial facilities. The proposed rule amendments do not require construction activities or new structures that would impact any emergency response plan. The existing refineries affected by the proposed rule amendments already use, produce, store and transport hazards materials, so emergency response plans already include hazards associated with existing refinery operations. The proposed rule amendments would not require any changes in emergency response planning. Therefore, no significant adverse impacts on emergency response plans are expected.

VIII h. No increase in hazards associated with wildfires is anticipated from proposed rule amendments. The petroleum refineries affected by the proposed rule amendments already exist and operate within the confines of existing industrial areas. Native vegetation has been removed

from the operating portions of the affected refineries to minimize fire hazards. The proposed rule amendments would not increase the risk of hazards associated with wildland fires in general and specifically in areas with flammable materials. Therefore, the proposed Project would not expose people or structures to significant risk of loss, injury or death involving wildland fires.

Conclusion

Based upon the above considerations, significant adverse hazards and hazardous materials impacts are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY.					
Would the Project:					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☑
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)?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☑
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?	☐	☐	☐	☑
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑

j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

Setting

The Air District 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). Reservoirs and drainage streams are located throughout the area within the District's jurisdiction, and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

The San Francisco Bay estuary system is one of the largest in the country and drains approximately 40 percent of California. Water from the Sacramento and San Joaquin Rivers of the Central Valley flow into what is known as the Delta region, then into the sub-bays, Suisun Bay and San Pablo Bay, and finally into the Central Bay and out the Golden Gate strait. The Delta is a large triangle of interconnected sloughs and agricultural "islands" that forms a key link in California's water delivery system. Some of the fresh water flows through the Delta and into Bay, but much is diverted from the Bay for agricultural, residential, and industrial purposes, as well as delivery to distant cities of southern California as part of state and federal water projects (ABAG, 2017).

The two major drainages, the Sacramento and San Joaquin Rivers receive more than 90 percent of runoff during the winter and spring months from rainstorms and snow melt. San Francisco Bay encompasses approximately 1,600 square miles and is surrounded by the nine Bay Area counties of which seven border the Bay. Other surface waters flow either directly to the Bay or Pacific Ocean. The drainage basin that contributes surface water flows directly to the Bay covers a total area of 3,464 square miles. The largest watersheds include Alameda Creek (695 square miles), the Napa River (417 square miles), and Coyote Creek (353 square miles) watersheds. The San Francisco Bay estuary includes deep-water channels, tidelands, and marshlands that provide a variety of habitats for plants and animals. The salinity of the water varies widely as the landward flows of saline water and the seaward flows of fresh water converge near the Benicia Bridge. The salinity levels in the Central Bay can vary from near oceanic levels to one quarter as much, depending on the volume of freshwater runoff (ABAG 2017).

Surface waters in the Bay Area include freshwater rivers and streams, coastal waters, and estuarine waters. Estuarine waters include the San Francisco Bay Delta from the Golden Gate Bridge to the Sacramento and San Joaquin Rivers, and the lower reaches of various streams that flow directly into the Bay, such as the Napa and Petaluma Rivers in the North Bay and the Coyote and San Francisquito Creeks in the South Bay (ABAG, 2017).

The Bay Area region is divided into a total of 28 groundwater basins. The ten primary groundwater basins in the Bay Area are the Petaluma Valley, Napa-Sonoma Valley, Suisun-Fairfield Valley, San Joaquin Valley, Clayton Valley, Diablo Valley, San Ramon Valley, Livermore Valley, Sunol Valley, and Santa Clara Valley basins. Groundwater in the region is used for numerous purposes, including municipal and industrial water supply. However, groundwater use accounts for only about five percent of the total water usage (ABAG, 2017).

Together, surface water and ground water supply approximately 31 percent of Bay Area water. Surface water from local rivers and streams (including the Delta) is an important source for all Bay Area Water agencies, but particularly in the North Bay counties, where access to imported water is more limited because of infrastructure limitations. The greatest proportion of Bay Are water is imported from Sierra Nevada and Delta sources, comprising approximately 66 percent of supply. The primary Sierra Nevada sources are the Mokelumne River and Tuolumne River watersheds. Several Bay Area water agencies receive Delta water through the State and Central Valley Water Projects, which comprise a vast network of canals and aqueducts for the delivery of water throughout the Bay Area and the Central Valley (ABAG, 2017).

Recycled water in the Bay Area has come to be widely used for a number of applications, including landscape irrigation, agricultural uses, commercial and industrial purposes and as a supply to the area's wetlands. The Alameda County Water District operates the Newark Desalination Facility which supplies approximately 12.5 million gallons per day to the distribution system (ABAG, 2017).

Wastewater treatment in the Bay Area is provided by various agencies as well as individual city and town wastewater treatment systems. Some treatment plants serve individual cities while others serve multiple jurisdictions. More than 50 agencies provide wastewater treatment throughout the Bay Area. Most industrial facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of National Pollutant Discharge Elimination System (NPDES) permits.

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 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 Regional Water Quality Control Board 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.

Significance Criteria

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the Project, or the Project would use more than 263,000 gallons per day of potable water.

Water Quality:

- The Project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The Project will cause the degradation of surface water substantially affecting current or future uses.
- The Project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the Project.
- The Project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The Project results in alterations to the course or flow of floodwaters.

Discussion of Impacts

IX a and f. No increase in wastewater discharge is expected from the proposed Project so no impacts on water quality resources are anticipated from the proposed Project. The proposed Project is not expected to require any new construction or development. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed rule amendments would not require any new construction or development. Changing monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, require the use of additional water or result in additional wastewater discharges from the affected refineries. Therefore, the proposed rule amendments would not result in the violation of any water quality standards or waste discharge requirements.

IX b. No increase in water use is expected as a result of the proposed rule amendments. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the monitoring requirements (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed rule amendments would not require any new construction or development. Changing monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, require the use of additional water from the affected refineries. Therefore, the proposed Project would not deplete groundwater supplies or interfere with groundwater recharge.

IX c – e. The proposed Project does not have the potential to increase the area subject to runoff since no construction activities, new development or new structures are expected to occur. In addition, storm water drainage within refineries has been controlled and no construction activities are expected, therefore, storm water drainage within the existing refineries would not be altered. Therefore, the proposed rule amendments would not 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. Additionally, the proposed Project is not 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 contaminated runoff. Therefore, no significant adverse impacts to storm water runoff are expected as a result of the proposed Project.

IX g – j. The proposed Projects do not include the construction of new or relocation of existing housing or any other facilities and, as such, would not require the placement of housing or other structures within a 100-year flood hazard area. (See also XIII "Population and Housing"). No new construction is associated with the proposed Project at refineries. As a result, the proposed Project would not be expected to create or substantially increase risks from flooding; expose people or structures to significant risk of loss, injury or death involving flooding; or increase existing risks, if any, of inundation by seiche, tsunami, or mudflow.

Conclusion

Based upon the above considerations, significant adverse impacts to hydrology and water quality are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

Setting

The Air District 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 land uses surrounding the Bay margins tend to be more intensely developed, particularly from San Francisco south along the Peninsula to Santa Clara County, and Contra Costa County south through Alameda County to Santa Clara County. These areas also include extensive networks of open space. The counties north of the Bay (Marin, Sonoma, and Napa) are more sparsely developed with a combination of suburban development, smaller cities and towns, and agriculture defining the landscape. Other areas of the Bay Area, such as the East Bay and Solano County, tend to be more suburban in character, with heavy industry related to oil refineries dotting the landscape as well as agriculture (ABAG, 2017).

Approximately 18 percent of the region's 4.8 million acres are considered to be urban or built-up land according to the California Farmland Mapping and Monitoring Program. The remaining undeveloped area includes open space and agricultural lands as well as water bodies and parks. Approximately 29 percent of the region is identified as protected open space. The Bay Area includes 101 cities with San Jose, San Francisco, and Oakland representing the largest urbanized centers (ABAG, 2017).

Regulatory Background

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

Significance Criteria

The proposed Project impacts will be considered significant on land use and planning if the Project conflicts with the land use and zoning designations established by local jurisdictions, or any applicable habitat conservation or natural community conservation plan.

Discussion of Impacts

X a – c. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new construction, or new development. Thus, the proposed rule amendments do not include any components that would mandate physically dividing an established community or generate additional development.

All of the General Plan and land use plans for Richmond, Martinez, and Rodeo (Contra Costa County) and Benicia (Solano County) allow for and encourage the continued use of industrial areas within their respective communities. Some of the General Plans encourage the modernization of existing industrial areas, including the refineries. A summary of the land use policies that apply to industrial areas is summarized for each community that the five Bay Area refineries are located.

1. Richmond General Plan 2030 includes the following land use policies regarding industrial areas (Richmond, 2015).

    - **Action LU3.H** Industrial Lands Retention and Consolidation Ensure that industrial uses are consolidated around rail and port facilities and work with existing industrial operators, economists and commercial brokers to remain informed about the future demand for industrial land.
    - **Action LU3.I** Industrial Modernization Support heavy industry's on-going efforts to modernize and upgrade their plants to reduce energy use, increase efficiency and reduce emissions.

2. City of Martinez General Plan includes the following land use policies regarding industrial areas (Martinez, 2015).

    - **21.51** Expansion of the petroleum refining and related industries must proceed in an orderly fashion and be consistent with protection of the community's air, water, scenic and fiscal resources.

- **30.351** Adequate land for industrial growth and development should be provided. It is the policy of the City to encourage and assist existing industry to relocate away from the southern perimeter of the waterfront.
- **30.352** The City should consider further annexation to the east of the current Martinez City Limits to provide space for expansion of industry.
- **30.353** Industrial expansion accompanied by adverse environmental impact will not be permitted.
- **30.354** Acceptability of any industry shall be based upon its demonstrated ability to conform to performance standards set by the City.
- **30.355** Architecture of some merit and landscaping of building sites and parking areas should be required; according to design and landscaping criteria for industrial sites.

3. City of Benicia General Plan includes the following land use policies regarding industrial areas (Benicia, 2015).

- **POLICY 2.6.1:** Preserve industrial land for industrial purposes and certain compatible "service commercial" and ancillary on-site retail uses.
- "Compatible," as defined in the California General Plan Glossary, means "capable of existing together without conflict or detrimental effects." Compatibility will often be decided on a case-by-case basis by the Planning Commission and City Council.
- **POLICY 2.6.2:** Other land uses should not adversely affect existing industrial and commercial land uses.
- Program 2.6.A: Where General Plan amendments propose to convert industrial land to non-industrial or non-commercial uses, require the preparation of a fiscal and economic impact analysis to ensure that the conversion does not adversely affect the city's longterm economic development, or the economic vitality of existing industrial/commercial uses.
- Program 2.6.B: Develop criteria for evaluating whether a proposed non-industrial/non-commercial use would impact the viability of existing industrial/commercial uses. Use the criteria to evaluate non-industrial and non-commercial projects proposed in the Industrial Park.
- **POLICY 2.6.3:** Facilitate continued development of the Industrial Park. Especially encourage general industrial uses to locate in the basin northeast of Downtown (around Industrial Way between East Second and the freeway).
- Program 2.6.C: For lands designated limited industrial, reduce the length of time and number of steps required for development proposals to proceed, consistent with CEQA, community development policies and ordinances, and the design review process for general industrial lands.
- **POLICY 2.6.4:** Link any expansion of Industrial land use to the provision of infrastructure and public services that are to be developed and in place prior to the expansion.
- Program 2.6.D: Continue to update the overall capital improvements program and infrastructure financing plan for the Industrial Park and other major industrial areas.
- Program 2.6.E: Develop Industrial Park infrastructure and public services standards, as approved by the City Council.
- **POLICY 2.6.5:** Establish and maintain a land buffer between industrial/commercial uses and existing and future residential uses for reasons of health, safety, and quality of life.

- Program 2.6.F: Use topography, landscaping, and distance as a buffer between Industrial Park uses and residential uses.
- A buffer is "adequate" to the extent that it physically and psychologically separates uses or properties so as to shield, reduce, or block one set of properties from noise, light, or other nuisances generated on or by the other set of properties. Buffers will be determined on a case by case basis.

4. Rodeo: The Contra Costa General Plan Land Use Element identifies the following land use policies (CCC, 2015).

- **3.163.** A buffer of agricultural lands around the eastern Union Oil (currently Phillips 66) property is created in this plan to separate the viewpoint residential area from future industrial development on the property. These open space lands should remain undeveloped.

Based on a review of the applicable land use plans, the proposed rule amendments would not conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the Project. The jurisdictions with land use approval recognize and support the continued use of industrial facilities. The proposed Project has no components which would affect land use plans, policies, or regulations as no new development or refinery modifications would be expected. Habitat conservation or natural community conservation plans, agricultural resources or operations, would not be affected by the proposed Project, and divisions of existing communities would not occur. Therefore, current or planned land uses within the District will not be affected as a result of the proposed rule amendments.

Conclusion

Based upon the above considerations, significant adverse impacts to land use and planning are not expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		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?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District 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 refineries affected by the proposed Project are located in a Contra Costa and Solano Counties in 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.

Significance Criteria

The proposed Project impacts on mineral resources will be considered significant if:

- The Project 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.
- The proposed Project results 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.

Discussion of Impacts

XI a and b. 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.

Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15). The proposed Project would not require any new construction or development. Thus, 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.

Conclusion

Based upon the above considerations, no significant adverse impacts to mineral resources are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		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?	☐	☐	☐	☑
b)	Expose persons to or generate of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c)	Result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☑
d)	A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District 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 refineries affected by the proposed Project are located in Contra Costa and Solano Counties in the Bay Area.

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.

Significance Criteria

The proposed Project impacts on noise will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise ordinance is currently exceeded, Project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary.
- The proposed Project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, Project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion of Impacts

XII a, c, and d. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. No new major industrial equipment is expected to be required to be installed due to the proposed Project so that no noise impacts associated with the operation of the proposed Project are expected. Further, the refineries are regulated by local noise ordinances. Therefore, refinery operations affected by the proposed rule amendments are not expected to result in a significant adverse effect on local noise control laws or ordinances.

XII b. The proposed Projects are not expected to generate or expose people to excessive groundborne vibration or groundborne noise. No construction equipment or activities that would generate vibration (e.g., backhoes, graders, jackhammers, etc.) is required to comply with the proposed rule amendments and no modifications to refinery equipment are required. Therefore, the proposed Project is not expected to generate excessive groundborne vibration or noise.

XII e and f. If applicable, the petroleum refineries affected by the proposed rule amendments would still be expected to comply, and not interfere, with any applicable airport land use plans. The existing refineries are not located within existing airport land use plans. The proposed new and amended regulations would not locate residents or commercial buildings or other sensitive noise sources closer to airport operations. As noted in the previous item, there are no components of the proposed regulations that would increase ambient noise levels, either intermittently or permanently.

Conclusion

Based upon the above considerations, no significant adverse noise impacts are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		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)?	☐	☐	☐	☑
b)	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c)	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Setting

The Air District 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 amendments would apply to refineries located within Contra Costa and Solano Counties in the Bay Area.

Population in the Bay Area in 2015 was about 7.6 million people, which is approximately 20 percent of California's population. The population of the Bay Area is expected to grow to about 9.6 million people by 2040. Approximately 4 million people in the Bay Area were employed in 2015, and that number is expected to grow to 4.7 million jobs by 2040. There were approximately 2.8 million households in the Bay Area in 2015, and the number of households is expected to increase to 3.4 million by 2040 (ABAG, 2017).

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.

Significance Criteria

The proposed Project impacts on population and housing will be considered significant if:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed Project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion of Impacts

XIII a. According to the Association of Bay Area Governments (ABAG), population in the Bay Area is currently about 7.6 million people and is expected to grow to about 9.6 million people by 2040 (ABAG, 2017). The proposed Project is not anticipated to generate any significant effects, either directly or indirectly, on the Bay Area's population or population distribution. The proposed new and amended regulations will affect five refineries in Contra Costa and Solano counties. It is not expected that the affected refineries would need to hire additional personnel to implement the proposed rule amendments and no construction is expected to be required. Additional labor was required to monitor fugitive equipment under Rule 11-10; however, the proposed amendments Rule 11-10 will reduce the frequency of monitoring required for cooling towers. As such, adopting the proposed rule amendments are not expected to induce population growth.

XIII b and c. The proposed rule amendments would require modifications to existing refineries so that they are 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, population and housing impacts would not occur from the implementation of the proposed rule amendments.

Conclusion

Based upon the above considerations, no significant adverse impacts to population and housing are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. 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?	☐	☐	☐	☑
Police protection?	☐	☐	☐	☑
Schools?	☐	☐	☐	☑
Parks?	☐	☐	☐	☑
Other public facilities?	☐	☐	☐	☑

Setting

The Air District 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.

Public services are provided by a wide variety of local agencies. Fire protection services are managed at the local level, typically by municipalities, counties, fire protection districts, or volunteer fire companies. California Government Code §38611 states that any city organized under general law must establish a fire department unless it is included within the boundaries of an established fire protection district. State and federal lands are generally served by State and federal fire agencies, e.g., CALFIRE and National Park Service. In some cases, businesses and native Tribes manage their own fire departments. Each fire protection agency is responsible for serving its own prescribed area, but mutual aid agreements are in wide use across the region such that agencies can rely on assistance from neighboring agencies in the case of overwhelming demand (ABAG, 2017).

Police services are provided on the State, county, and local levels. Police services provide law enforcement in crime prevention, traffic and congestion control, safety management, emergency response, and homeland security. The California Highway Patrol (CHP) is responsible for police protection along the interstate highway systems and provides services for traffic management, emergency response, and protection of the highway system. Each county in the Bay Area has its own sheriff's department responsible for police protection in unincorporated areas of each county. Each incorporated city and town has a police department responsible for police protection within its own jurisdiction. Unincorporated areas and individual cities and towns also may contract with county sheriff departments for police services instead of providing their own (ABAG, 2017).

Although the California public school system is under the policy direction of the Legislature, the California Department of Education relies on local control for the management of school districts. School district governing boards and district administrators allocate resources among the schools of the district and set education priorities for their schools. Each jurisdiction in the Bay Area provides residents with local public education facilities and services, including elementary, middle, secondary, and post-secondary schools, as well as special and adult education. As of 2015-2016 school year, there were 2,018 public and charter schools in the Bay Area with 1,019,853 enrolled students and 51,702 teachers (ABAG, 2017).

Public facilities within the Air District are managed by different county, city, and special-use districts. All refineries maintain fire-fighting equipment and trained personnel with fire-fighting and emergency response experience. In addition, all affected refineries maintain on-site security personnel and systems that include fences and enclosures, as well as 24-hour guarded entrances to their facilities.

Regulatory Background

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

Significance Criteria

The proposed Project impacts on public services will be considered significant if the Project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion of Impacts

XIV a. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction.

As stated above, all refineries maintain on-site fire-fighting equipment and trained personnel with fire-fighting and emergency response experience. Refineries also maintain their own security

systems, including fencing and controlled access at manned gates. The proposed rule amendments would not require the construction or operation of any additional refinery equipment. Therefore, the proposed Project is not expected to increase the need or demand for additional services from local fire or police departments above current levels.

As noted in the "Population and Housing" discussion above, the proposed rule amendments are not expected to induce population growth because no increase in employment is expected to be required. Therefore, there will be no increase in local population and thus no impacts are expected to local schools, parks, or other government services.

Conclusion

Based upon the above considerations, no significant adverse impacts to public services are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

Setting

The Air District covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. Because the area of coverage is vast (approximately 5,600 square miles), land uses vary greatly and include commercial, industrial, residential, and agricultural uses. The Bay Area contains approximately 1.3 million acres of parks and open space areas, with Santa Clara County having the most (about 19%) followed by Sonoma County (17%), and Marin County (16%). Approximately 265,000 acres of new parkland were added to the regional's open space inventory between 2002 and 2013, representing a 26 percent increase. Additionally, approximately 200,000 acres of privately-owned land are held in permanent reserve as of 2013. While access by the general public to these reserve areas is restricted, they are important for the preservation of wildlife habitats and the protection of the environment and rural characteristics of various parts of the region (ABAG, 2017).

Parks and open space are generally categorized according to their size and amenities. Smaller parks such as pocket parks, neighborhood parks, community parks, urban forests, and community gardens serve local communities, typically are located in urbanized areas, and often include a wide range of improvements from playing fields and picnic areas to playgrounds and fitness trails. These parks are most often managed by local park districts or municipalities, which typically set minimum standards for park acreage based on their population. Larger open space areas such as regional parks, greenbelts, trails and pathways, natural and wildlife preserves, state parks and federal parks serve a broader geographic range, typically are located outside of major urbanized areas, and generally include fewer improvements. Management of these parks is divided among a range of organizations and agencies including regional park districts, State and federal government, private individuals, and non-profit land trusts.

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.

Significance Criteria

The proposed Project impacts on recreation will be considered significant if:

- The Project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The Project adversely affects existing recreational opportunities.

Discussion of Impacts

XV a – b. As discussed under "Land Use" above, there are no provisions in the proposed new and amended regulations affecting 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 rule amendments. The proposed rule amendments would not increase or redistribute population and, therefore, would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or the expansion of existing recreational facilities. Therefore, adoption of the proposed Project is not expected to have any significant adverse impacts on recreation.

Conclusion

Based upon the above considerations, no significant adverse impacts to recreation are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☑
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 b the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
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?	☐	☐	☐	☑
d) Substantially increase hazards because of a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
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?	☐	☐	☐	☑

Setting

The Air District 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. Transportation systems located within the Bay Area include railroads, airports, waterways, and highways.

The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area currently contains over 1,300 directional miles of limited-access highways, which include both interstates and state highways. These facilities provide access to major employment centers and to destinations outside of the Bay Area. In addition, the Bay Area has over 33,000 directional miles of arterials and local streets, providing localized access to individual communities. Together, these roadway facilities accommodate nearly 158 million vehicle miles each weekday. The road network also serves over 600,000 vehicles that travel into or out of the region from adjacent areas. Over half of these interregional travelers use two regional gateways: Interstate 80 connecting Solano County and Yolo County, and Interstate 580 and Interstate 205 connecting Alameda County and San Joaquin County (ABAG, 2017).

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.

There are over 11,500 transit route miles of service including heavy rail (BART), light rail (Muni Metro and Santa Clara Valley Transportation Authority or VTA Light Rail), commuter rail (Caltrain and Alameda Commuter Express or ACE), diesel and electric buses, cable cars, and ferries. This public transit system accommodates a total of almost 1.7 million passengers a day, with about 53 percent of daily passengers on Muni Metro, about 26 percent of daily passengers on BART, 11 percent on AC Transit, and nine percent on VTA. Amtrak provides long-distance passenger rail services to the Bay Area via the Capitol Corridor, San Joaquin, Coast Starlight, and California Zephyr lines (ABAG, 2017).

In addition to public transit systems and operators, private transit options have been increasing including privately-operated commuter shuttles (e.g., Apple and Google), publicly accessible private shuttles (e.g., Emery Go-Round and Chariot), and transportation network companies (e.g., Uber and Lyft) (ABAG, 2017).

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 65 percent in 2015. The portion of commuters that carpool was about 10 percent in 2015, while an additional 12 percent utilize public transit. About two percent of commuters walked to work in 2015. In addition, other modes of travel (bicycle, motorcycle, etc.), account for five percent of commuters in 2015 (ABAG, 2017).

The Bay Area is served by five seaports, which provide the opportunity for intermodal transfers to truck and railcars. The Port of Oakland is the third largest U.S. seaport on the West Coast (after the Ports of Long Beach and Los Angeles). Other seaports include the Port of San Francisco, the Port of Richmond, the Port of Benicia, and the Port of Redwood City. These seaports are supported by freight railroad services operated by Union Pacific and Burlington Northern Santa Fe.

The Bay Area is also served by three international airports: San Francisco International Airport, Oakland International Airport, and Norman Y. Mineta San Jose International Airport. Each of these airports provides mobility for people and freight nationally and internationally. The region is also served by one smaller airport with limited commercial service, Charles M. Schulz Sonoma County Airport, as well as numerous small general aviation airports.

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.

Significance Criteria

The proposed Project impacts on transportation and traffic will be considered significant if:

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.

Discussion of Impacts

XVI a, b, and f. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Projects would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. It is not expected that the affected refineries would need to hire additional personnel to implement the proposed rule amendments and no construction is expected to be required. Additional labor was required to monitor fugitive equipment under Rule 11-10; however, the proposed amendments Rule 11-10 will reduce the frequency of monitoring required for cooling towers. As such, adopting the proposed rule amendments is not expected to require any new employees or generate additional truck traffic associated with equipment/material delivery.

The proposed rule amendments would not affect the performance of mass transit or non-motorized travel to street, highways and freeways, pedestrian or bicycle paths. No conflicts with any congestion management programs, to include level of service and travel demand measures, or other standards established by county congestion management agencies for designated roads or highways are expected. No changes are expected to parking capacity at or in the vicinity of affected refineries as the proposed Project would not require additional employees. Therefore, no significant adverse impacts resulting in changes to traffic patterns or levels of service at local intersections are expected.

XVI c. The proposed rule amendments are not expected to involve the delivery of materials via air so no increase in air traffic is expected.

XVI d and e. The proposed Project is not expected to increase traffic hazards or create incompatible uses. No effect on emergency access to affected refineries would occur from adopting the proposed rule amendments as traffic is not expected to increase. The proposed Project is not expected to have a significant adverse impact on traffic hazards, create incompatible uses or emergency access.

XVI f. The proposed rule amendments affect existing refineries and would not conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks) as no increase in employees or other traffic is expected.

Conclusion

Based upon the above considerations, no significant adverse impacts to transportation and traffic are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES. Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resourced Code Section 5020.1(k), or	☐	☐	☐	☑
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe?	☐	☐	☐	☑

Setting

The Air District 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. Tribal cultural resources include site features, places, cultural landscapes and sacred places or objects which are of cultural value to a Tribe. The Carquinez Strait represents the entry point for the Sacramento and San Joaquin Rivers into the San Francisco Bay. Dense concentrations of Native American archaeological sites occur along the historic margins of San Francisco and San Pablo Bays. In addition, archaeological sites have also been identified in the following environmental settings in all Bay Area counties: near water sources, such as vernal pools and springs; along ridgetops and on midslope terraces; and at the base of hills and on alluvial flats. Native American archaeological sites have also been identified in the inland valleys of all Bay Area counties. Remains associated with a Native American archaeological site may include chert or obsidian flakes, projective points, mortars and pestles, and dark friable soil contain shell and bone dietary debris, heat-affected rock, or human burials (ABAG, 2017).

Native American populations, identified by their language, that lived within the Bay Area, included Costanoan, Eastern Miwok, Patwin, Coast Miwok, Pomo, and Wappo. Native villages and campsites were inhabited on a temporary basis and are found in several ecological niches due to the seasonal nature of their subsistence base. Remains of these early populations indicate that main villages, seldom more than 1,000 residents, were usually established along water courses and drainages. By the late 1760s, about 300,000 Native Americans lived in California (ABAG, 2013).

Regulatory Background

The State CEQA Guidelines were amended in July 2015 to include evaluation of impacts on tribal cultural resources. Tribal cultural resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe (Public Resources Code §21074).

Significance Criteria

The proposed Project impacts to tribal resources will be considered significant if:

- The Project results in the disturbance of a significant prehistoric or historic archaeological site or a property of Tribal cultural significance to a community or ethnic or social group or a California Native American Tribe.
- Unique objects with cultural value to a California Native American Tribe are present that could be disturbed by construction of the proposed Project.

Discussion of Impacts

XVII a and b. As discussed in Section V, Cultural Resources, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places unless they can be shown to be exceptionally important. The proposed amendment rules would only affect refineries and would not require the construction or operation or any additional refinery equipment. Affected refineries may have equipment or structures older than 50 years, however, this type of equipment does not meet the criteria identified in CEQA Guidelines §15064.5(a)(3), are not listed or eligible for listing in the California Register of Historic Resources or a local register of historical resources (Public Resources Code Section 5020.1(k), and are not considered to have cultural value to a California Native American Tribe.

Further, no construction activities are required to implement the proposed rule amendments at the refineries; therefore, no grading is required and the proposed Project would not require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. The proposed rule amendments would not result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources.

As part of releasing this CEQA document for public review and comment, the document is circulated to the State Clearinghouse that provides notice of the proposed Project to all California

Native American Tribes that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code § 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which Native American Tribes may respond to the notice, in writing, requesting consultation on the proposed rule amendments.

Since no construction activities are required, the proposed rule amendments would not affect historical or tribal resources as defined in Public Resources Section 5020.1(k), or 5024.1. Therefore, no impacts to tribal resources are anticipated to occur as a result of the proposed Project.

Conclusion

Based upon the above considerations, no significant adverse impacts to tribal cultural resources are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVIII.	**UTILITIES/SERVICE SYSTEMS.** Would the Project:				
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
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?	☐	☐	☐	☑
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?	☐	☐	☐	☑
d)	Have sufficient water supplies available to serve the Project from existing entitlements and resources, or would new or expanded entitlements needed?	☐	☐	☐	☑
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?	☐	☐	☐	☑
f)	Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☐	☑
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

Setting

Given the large area covered by the Air District, public utilities are provided by a wide variety of local agencies. The San Francisco Bay Hydrologic Region covers approximately 4,550 square miles and encompasses numerous individual watersheds that drain into the San Francisco Bay and directly into the Pacific Ocean. Water is supplied to affected refineries by water purveyors in the Bay Area, which include the Alameda County Water District, Contra Costa Water District, East Bay Municipal District, Marin Municipal Water District, Napa Water Department, San Francisco Public Utilities Commission, Santa Clara Valley Water District, Solano County Water Agency, Sonoma County Water Agency, and the Zone 7 Water Agency.

Solid waste includes the garbage, refuse and other discarded solid materials generated by residential, commercial, and industrial activities. Solid waste is handled through a variety of municipalities, through recycling activities and at disposal sites. The Bay Area is currently served by 16 privately operated landfills and one operated by the Sonoma County Public Works Department. The 16 landfills have a total remaining capacity of 261,889,000 cubic yards, or a total daily throughput of 41,804 tons per day (ABAG, 2017).

There are no hazardous waste disposal sites within the jurisdiction of the Air District. Hazardous waste generated at facilities, which is not recycled off-site, is required to be disposed of at a licensed 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.

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.

Significance Criteria

The proposed Project impacts on utilities/service systems will be considered significant if:

- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the Project.
- An increase in demand for utilities impacts the current capacities of the electric utilities.
- The existing water supply does not have the capacity to meet the increased demands of the Project, or the Project would use a substantial amount of potable water.
- The Project increases demand for water by more than 263,000 gallons per day.
- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion of Impacts

XVIII a, b, d, and e. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15).

The proposed Project would not require any new construction or development. Physical modifications associated with implementation of the original Rule 6-5 were limited to measures to optimize ammonia or urea injection systems on existing FCCUs. The currently proposed amendments to Rule 6-5 would not require the construction of any additional air pollution control equipment or refinery modifications. Changing the frequency of monitoring requirements (Rule

11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction. The refineries affected by the proposed new and amended rules already exist and already use water, generate wastewater, treat wastewater, and discharge wastewater under existing wastewater discharge permits. The proposed rule amendments would not require new equipment, result in an increase in water demand or an increase in wastewater discharge. As discussed in Hydrology and Water Quality (see Section IX a.), water use and wastewater impacts were determined to be less than significant.

XVIII c). Implementation of the proposed rule amendments would not require any new refinery equipment or modifications. Therefore, the proposed Project would not alter the existing drainage systems or require the construction of new storm water drainage facilities. Nor would the proposed amendments 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.

XVIII f and g. Implementation of the proposed rule amendments would not require any new refinery equipment or modifications. As such, the proposed Project is not expected to generate any increase in hazardous or solid waste. Therefore, no adverse impacts are expected to landfill capacity or compliance with federal, state and local statues and regulations related to solid waste as a result of the proposed amendments.

The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15). Changing the frequency of monitoring requirements (Rule 11-10) or reporting requirements (Rule 12-15) would not result in any physical modifications, e.g., new equipment or construction, or require additional electricity, natural gas, refinery fuel gas, or any other type of fuel.

Conclusion

Based upon the above considerations, no significant adverse impacts to utilities and service systems are expected to occur due to the proposed amendments to Rules 6-5, 11-10 or 12-15 and, therefore, will not be further evaluated in the Draft EIR.

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX.	**MANDATORY FINDINGS OF SIGNIFICANCE.**				
a)	Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
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)	☑	☐	☐	☐
c)	Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐	☐

XIX. MANDATORY FINDINGS OF SIGNIFICANCE

Discussion of Impacts

XIX a. The proposed Project does 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 Project would not require any new construction or development. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15). As discussed in Section IV - Biological Resources, Section V - Cultural Resources, and Section XVII – Tribal Cultural Resources, no significant adverse impacts are expected to biological, cultural resources, or tribal cultural resources.

XIX b and c. Rules 6-5, 11-10, and 12-15 were part of the District's focus on petroleum refinery emissions, designed to enhance reporting requirements and reduce emissions of PM, $PM_{2.5}$, ROG, NOx, SO_2 and NH_3 from stationary sources located at petroleum refineries, thus providing a beneficial air quality impact and improvement in air quality. The proposed amendments would clarify exemptions (Rules 6-5 and 11-10), change the frequency of monitoring (Rule 11-10), and clarify reporting requirements (Rule 12-15) and are not expected to require additional refinery equipment, refinery modifications, development, or additional construction.

However, the proposed amendments to Rule 11-10 that would result in monitoring weekly may potentially delay the detection of a leak under specific circumstances, and subsequently delay minimization and/or repair of the leak resulting in increased ROG emissions above the currently approved Rule 11-10 (emission reductions "foregone."). The potential emission reductions foregone have been initially estimated to be approximately 16 tons per year and could exceed the ROG significance criteria. Therefore, the potential air quality impacts associated with the ROG emission impacts will be evaluated in the Draft EIR.

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 cumulative air quality impacts of the proposed Project will also be evaluated in the Draft EIR.

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CHAPTER 3

REFERENCES

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CHAPTER 3

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APPENDIX A
DRAFT AMENDMENTS TO REFINERY RULES PROJECT
COMMENT LETTERS RECEIVED ON THE NOP/IS

The following are comments received on the NOP/IS for the Draft Amendments to Refinery Rules Project. The NOP/IS was circulated for a 30-day public review and comment period starting July 31, 2018 and ending September 8, 2018. In addition, the BAAQMD conducted a CEQA scoping meeting at the Air District Headquarters' Yerba Room on August 20, 2018 to take public comment on the proposed project.

The BAAQMD received two comment letters on the NOP/IS during the public review period and several comments at the public scoping meeting. The comments from the August 20, 2018 scoping meeting and the two comment letters that were received during the public comment period are provided below.

Memo

TO: Rule Dev Staff

Subject: Draft Amendments to Refinery Rules CEQA Initial Study – Scoping Meeting

Location: BAAQMD

Date: 8-20-2018

RE: Verbal Comments

Presentation provided by Guy Gimlen. No comments during presentation.

COMMENTS:

Attorney Keith Casto - Note: he is involved in the litigation – he has concerns paring of 12-15 with other rules – out of place with scoping session. Question to BAAQMD: What is your thinking of merging 12-15 with other ones?

Adan (BAAQMD) – 12 -15 is not merged. These refinery rules are proceeding on simultaneous tracks. They are proceeding simultaneously – per court oversight – rulemaking under administrative convenience – separate CEQA docs and separate rules and separate decisions – we (BAAQMD) want to avoid explicitly or implicitly that they are part of the same CEQA.

Shaw Lee (Chevron)– refinery ad hoc committee– will they be involved?

Victor (BAAQMD) – Yes we will present in front of ad hoc committee – date forthcoming.

Steven Yang (Chevron) – Do you show three diff types of calcs for the 16 TPY ROG from cooling towers in the staff report?

Guy (BAAQMD)– We do have a calculation in staff report on the 16 TPY – I just showed one calculation in Appendix A.

Steven Yang (Chevron) – Can you explain diff between the three calculations you mention for cooling towers? Now?

Guy (BAAQMD) – No not at this time. It will take some review of the methodologies used to provide that. Methods for estimating emission factors included in Staff Report, Appendix 4.

Guy (BAAQMD) – Any other Questions? Thank you very much for attending.

BY ELECTRONIC MAIL

16 August 2018

Jack Broadbent
Air Pollution Control Officer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Attention:
Air District Board members
Victor Douglas
Guy Gimlen

350 Bay Area
350 Marin
350 San Francisco
All Positives Possible
Asian Pacific Environmental Network
Benicians for a Safe and Healthy Community
Center for Biological Diversity
Citizen Air Monitoring Network
Communities for a Better Environment
Community Science Institute
Crockett-Rodeo United to Defend the Environment
Fresh Air Vallejo
Friends of the Earth
Greenaction for Health and Environmental Justice
Idle No More SF Bay
Interfaith Climate Action Network of Contra Costa
Oakland Climate Action Coalition
Richmond Progressive Alliance
Sierra Club – San Francisco Bay Chapter
Stand.Earth
Sunflower Alliance
System Change not Climate Change – Bay Area
The Climate Mobilization
West Berkeley Alliance for Clean Air and Safe Jobs
West Marin Standing Together

Air District-Oil Refiners Agreement Threatening Maximum Feasible cPM ($PM_{2.5}$) and Sulfur Dioxide (SO_2) Emission Cuts from Fluid Catalytic Cracking (FCC); Notice of Preparation (NOP) and Initial Study (IS) on Rule 6-5 Amendments

Air Pollution Control Officer Broadbent,

By this letter our 25 organizations call on you to stop the deadly, unjust and needless pollution from fluid catalytic cracking (FCC) that remains unabated by proven least-emitting technology at the Chevron, Marathon (formerly Tesoro), and Shell refineries. We demand that the District:

Propose an amendment to Rule 6-5 that requires FCC emissions of condensable particulate matter (cPM; a type of $PM_{2.5}$) and sulfur dioxide (SO_2; a $PM_{2.5}$ precursor) to be limited consistent with emission reductions that can be achieved by wet scrubbing.

Schedule a public hearing of the Board on Rule 6-5 to commence as soon as possible.

The NOP and IS reveal an agreement with three refiners you signed on 28 March 2017, but fail to mention that it commits you to propose and advocate changes to Rule 6-5 that could exempt refiners from using proven, least-emitting FCC wet scrubbing technology.

Fluid catalytic cracking (FCC) emits more $PM_{2.5}$ than any other process in oil refining, which emits more $PM_{2.5}$ than any other industry in your jurisdiction. Among other serious health impacts, $PM_{2.5}$ causes 90% of premature deaths associated with air pollution and kills 2,000–3,000 Bay Area residents each year. This is based on the District's own data and estimates. Peer reviewed research and independent expert opinion confirm that impacts of refinery $PM_{2.5}$ emissions are disparately severe in low-income communities of color near refineries.

continued

Proven technology can cut FCC emissions dramatically. FCC emission wet scrubbing is demonstrated in practice, notably at the Benicia refinery, where a wet scrubbing retrofit has operated for years. Publicly available District data on Benicia, Martinez, and Richmond FCC emissions suggest this proven technology can cut $PM_{2.5}$ and SO_2 emissions from the Chevron, Marathon and Shell FCCs by as much as 99%. And by replacing higher-emitting electrostatic precipitators (ESPs), wet scrubbing can eliminate the explosion hazard of ESP sparking, preventing the recurrence of disasters like the 2015 Torrance FCC explosion. This proven, least-emitting, solution is *inherently* safer for refinery workers and communities.

The agreement you signed with oil refiners in March 2017 threatens to gut a requirement that could achieve this solution. It commits you to propose and advocate an approach to amending Rule 6-5 that considers removing any obligation to establish, enforce, or comply with cPM and SO_2 emission limits achievable by the least-emitting proven control technology. Without those limits, FCC wet scrubbing would not be required.

District staff has concealed this threat from the public, and apparently, from the State Air Resources Board. Instead of revealing the substantive amendments to Rule 6-5 your 2017 agreement contemplates, your NOP and IS characterize them as only clarifications of the rule's original intent. Meanwhile, environmental justice groups are informed that the Air District has assured the Air Resources Board it need not include FCC wet scrubbing in its AB 617 Blueprint because District implementation of this measure (supposedly) is on track.

Finally—because your agreement with refiners commits you to advocate a particular set of Rule 6-5 amendments regardless of evidence yet to emerge in any public hearing, and because this is the law—our representatives on the District Board must exercise independent judgement in their decision on this rule. Our requests of you, stated above, seek your cooperation in support of the Board's independent judgment. We believe the agreement does not preclude the actions we request, that its November 1st deadline now allows barely enough time for a Board hearing process, and that further delay would be unacceptable. Lives are at stake.

Laura Neish
350 Bay Area

Richard Gray
350 Marin

John Anderson
350 San Francisco

Katherine Black
Benicians for a Safe and Healthy Community

Hollin Kretzmann
Center for Biological Diversity

Ken Szutu
Citizen Air Monitoring Network

continued

Camille Stough
Communities for a Better Environment

Denny Larson
Community Science Institute

Nancy Reiser
Crockett-Rodeo United to Defend the Environment

Peter Brooks
Fresh Air Vallejo

Marcie Keever
Friends of the Earth

Bradley Angel
Greenaction for Health and Environmental Justice

Pennie Opal Plant
Idle No More SF Bay

Rev. Will McGarvey
Interfaith Climate Action Network of Contra Costa

Colin Miller
Oakland Climate Action Coalition

Jeff Kilbreth
Richmond Progressive Alliance

David McCoard
Sierra Club – San Francisco Bay Chapter

Matt Krogh
Stand.Earth

Steve Nadel
Sunflower Alliance

David F. Gassman
System Change not Climate Change – Bay Area

Armando Davila
The Climate Mobilization

Janice Schroeder
West Berkeley Alliance for Clean Air and Safe Jobs

W. Ellen Sweet
West Marin Standing Together

Miya Yoshitani
Asian Pacific Environmental Network

LaDonna Williams
All Positives Possible

August 8, 2018

Victor Douglas
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Also sent via e-mail: vdouglas@baaqmd.gov

RE: SCH# 2018082001, Amendments to Refinery Rules (6-5, 11-10, 12-15) Project; Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties, California

Dear Mr. Douglas:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for Draft Environmental Impact Report for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd. (a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws**.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   - **a.** A brief description of the project.
   - **b.** The lead agency contact information.
   - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
   - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
   - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   - **a.** Alternatives to the project**.**
   - **b.** Recommended mitigation measures**.**
   - **c.** Significant effects**.** (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   - **a.** Type of environmental review necessary.
   - **b.** Significance of the tribal cultural resources.
   - **c.** Significance of the project's impacts on tribal cultural resources.
   - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
   - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
- **a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
- **b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
- **a.** Avoidance and preservation of the resources in place, including, but not limited to**:**
  - **i.** Planning and construction to avoid the resources and protect the cultural and natural context.
  - **ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- **b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - **i.** Protecting the cultural character and integrity of the resource.
  - **ii.** Protecting the traditional use of the resource.
  - **iii.** Protecting the confidentiality of the resource.
- **c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- **d.** Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
- **e.** Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
- **f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- **a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
- **b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
- **c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
- **a.** A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
- **b.** A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
- **a.** Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
- **b.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
- **c.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., Ph.D.
Associate Governmental Program Analyst
(916) 373-3714

cc: State Clearinghouse