California Environmental Quality Act

Notice of Preparation of Draft Environmental Impact Report and Scoping Meeting for Draft Regulation 13: Climate Pollutants, Rule 5: Petroleum Refinery Hydrogen Plants

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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: Jacob Finkle, Senior Air Quality Specialist **Phone: (415) 749-8435**

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND SCOPING MEETING

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: Draft Regulation 13: Climate Pollutants, Rule 5: Petroleum Refinery Hydrogen Plants

Project Location: The project would apply within the Bay Area Air Quality Management District ("Air District"), 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: Draft Regulation 13: Climate Pollutants, Rule 5: Petroleum Refinery Hydrogen Plants would limit vented emissions of total organic compounds (including both methane and other organic compounds) from hydrogen production, hydrogen carrying systems, and hydrogen end users such as process units at petroleum refineries. The Air District has a policy goal of reducing Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. Methane is a potent and short-lived climate pollutant with a global warming potential 86 times greater than that of carbon dioxide, when compared on a 20-year time horizon. The intent of draft Rule 13-5 is to minimize both methane and other organic compound emissions, which can be vented from atmospheric vents at petroleum refinery hydrogen plants during normal operating conditions, startups, shutdowns, malfunctions, upsets, and emergencies.

Scoping Meeting: 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 using Zoom 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 project. Information to access the virtual scoping meeting on Tuesday, July 27, 2021, from 10:00 a.m. to noon, is described below. Scoping meeting materials are available on the Air District's Regulation 13, Rule 5 web page: https://www.baaqmd.gov/rules-and-compliance/rules/reg-13-rule5-petroleum-refinery-hydrogen-plants

Tuesday, July 27, 2021
10:00 a.m. – 12:00 p.m.
To join via web browser:
https://us02web.zoom.us/j/87633923230?pwd=QStZTjNlV0xTQ1BZSmxlTGxjZnA1UT09
To join via phone: +1 669 900 6833
Meeting ID: 876 3392 3230
Passcode: 677707

- For language interpretation, contact Aneesh Rana at arana@baaqmd.gov, or 415-749-4914 at least 72 hours before the meeting.
- Para información en español, llame al 415-749-4609

- 中文聯絡電話 415-749-4609
- Nói Tiếng Việt xin gọi 415-749-4609.

NOTICE: The Air District is taking steps to ensure Bay Area air quality and public health are protected while public health orders in San Francisco and other Bay Area counties are in place. This includes closing our 375 Beale Street office in San Francisco until further notice. For more information, please visit our website: https://www.baaqmd.gov/news-and-events/page-resources/2020-news/air-district-operations

Potential Environmental Effects: The Initial Study is attached to this Notice of Preparation. The Initial Study identifies and evaluates potential environmental effects. It is available for review at the Air District headquarters, on the Air District's website at http://www.baaqmd.gov/rules-and-compliance/rules/reg-13-rule-5-petroleum-refinery-hydrogen-plants, or by request. Requests for copies of the NOP/IS should be directed to Jacob Finkle (jfinkle@baaqmd.gov) at (415) 749-8435.

Comment Procedure: Comments relating to the environmental analysis in the NOP/IS should be addressed to Jacob Finkle, Bay Area Air Quality Management District, 375 Beale Street, Suite 600, San Francisco, CA 94105. Comments may also be sent by e-mail to jfinkle@baaqmd.gov. Comments on the NOP/IS will be accepted until Friday, July 30, 2021, at 5:00 p.m.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Initial Study for

Regulation 13: Climate Pollutants
Rule 5: Petroleum Refinery Hydrogen Plants

Prepared by:

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

Contact: Jacob Finkle
(415) 749-8435

June 2021

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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

The Bay Area Air Quality Management District (BAAQMD, District or Air District) is currently developing a new draft Regulation 13: Climate Pollutants, Rule 5, Petroleum Refinery Hydrogen Plants (Rule 13-5). Draft Rule 13-5 would limit vented emissions of total organic compounds from petroleum refineries' hydrogen production, hydrogen carrying systems, and hydrogen end users such as process units. Total organic compounds include organic compounds and methane. The State of California made the reduction of greenhouse gas emissions a priority. In September 2016, Governor Brown signed Senate Bill 32 (Chapter 249, Statutes of 2016), which mandated a greenhouse gas emissions reduction target of 40 percent below 1990 emission levels by 2030. Senate Bill 605 (Chapter 523, Statutes of 2014) requires the California Air Resources Board to develop a plan to reduce emissions of short-lived climate pollutants, and Senate Bill 1383 (Chapter 249, Statutes of 2016) requires the California Air Resources Board to approve and implement a plan by January 2018 to achieve these reductions. Senate Bill 1383 also sets a target for the reduction of methane emissions of 40 percent below 2013 levels by 2030. Pursuant to Senate Bill 605 and Senate Bill 1383, the California Air Resources Board subsequently developed the Short-Lived Climate Pollutant Reduction Strategy, adopted in March 2017.

The Air District has a policy goal of reducing Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. Methane is a potent and short-lived climate pollutant; its global warming potential is 86 times greater than that of carbon dioxide, when compared on a 20-year time horizon.[1] Methane represents the second largest emissions of greenhouse gases in the region, after carbon dioxide. In 2015, all methane sources located within the Air District emitted an estimated 10 million metric tons of carbon dioxide equivalent, about 10 percent of the Bay Area's greenhouse gas inventory. The sources of methane emissions include stationary sources such as landfills, wastewater treatment facilities, refineries, natural gas production and distribution systems; mobile sources such as cars and trucks; and natural sources such as wetlands. Reducing emissions of short-lived climate pollutants, including methane, can have a dramatic effect on climate change in the near term as their atmospheric lifetime is much less than longer-lived greenhouse gases, such as carbon dioxide. Given the importance of controlling methane, the Air District developed a comprehensive Basin-wide Methane Strategy as part of its 2017 Clean Air Plan (BAAQMD, 2017). The Methane Strategy is an agency-wide effort to better quantify and reduce the region's methane emissions. Draft Rule 13-5 is one of the first rules developed as part of this Strategy. Other source-specific methane rules are under development to address emissions from specific operations.

New draft Rule 13-5 is being developed because hydrogen plants at petroleum refineries are one the largest sources of methane at petroleum refineries. The intent of draft Rule 13-5 is to minimize both methane (a greenhouse gas (GHG)) and other organic compound emissions (together defined as "total organic compound emissions), normally vented from atmospheric vents at petroleum refinery hydrogen plants during normal operating conditions, startups, shutdowns, malfunctions,

[1] Based on the 20-year global warming potential reported for methane in the Intergovernmental Panel on Climate Change Fifth Assessment report.

upsets and emergencies. The reduction in total organic compound emissions would be achieved by providing hydrogen system operators the flexibility to use any gas control technology that is appropriate for minimizing total organic compound emissions in accordance with the requirements in Rule 13-5. Typically, hydrogen plant operations either capture and reuse hydrogen gases containing methane and other constituents, including organic compounds, for incorporation into refinery gas fuel systems or they use flares to burn the mixture of hydrogen gas, methane, and other constituents. Capturing hydrogen and other gases and reusing them in the refinery system could control total organic compound emissions up to nearly 100 percent. If flares are used to control total organic compound emissions from hydrogen plants, the hydrogen gases containing total organic compounds routed directly to a flare would have to meet a 98 percent control efficiency to comply with federal standards for refinery flares.

1.2 OBJECTIVES

The overall objective of the proposed new draft rule is the minimization of total organic compound emissions from hydrogen plants in the Bay Area. Specifically, the objectives of the Draft Rule 13-5 are to:

- Minimize total organic compound emissions that include methane and organic compound emissions from refinery hydrogen plants.
- Assist the District in meeting its policy goal of reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030.

1.3 PROJECT LOCATION

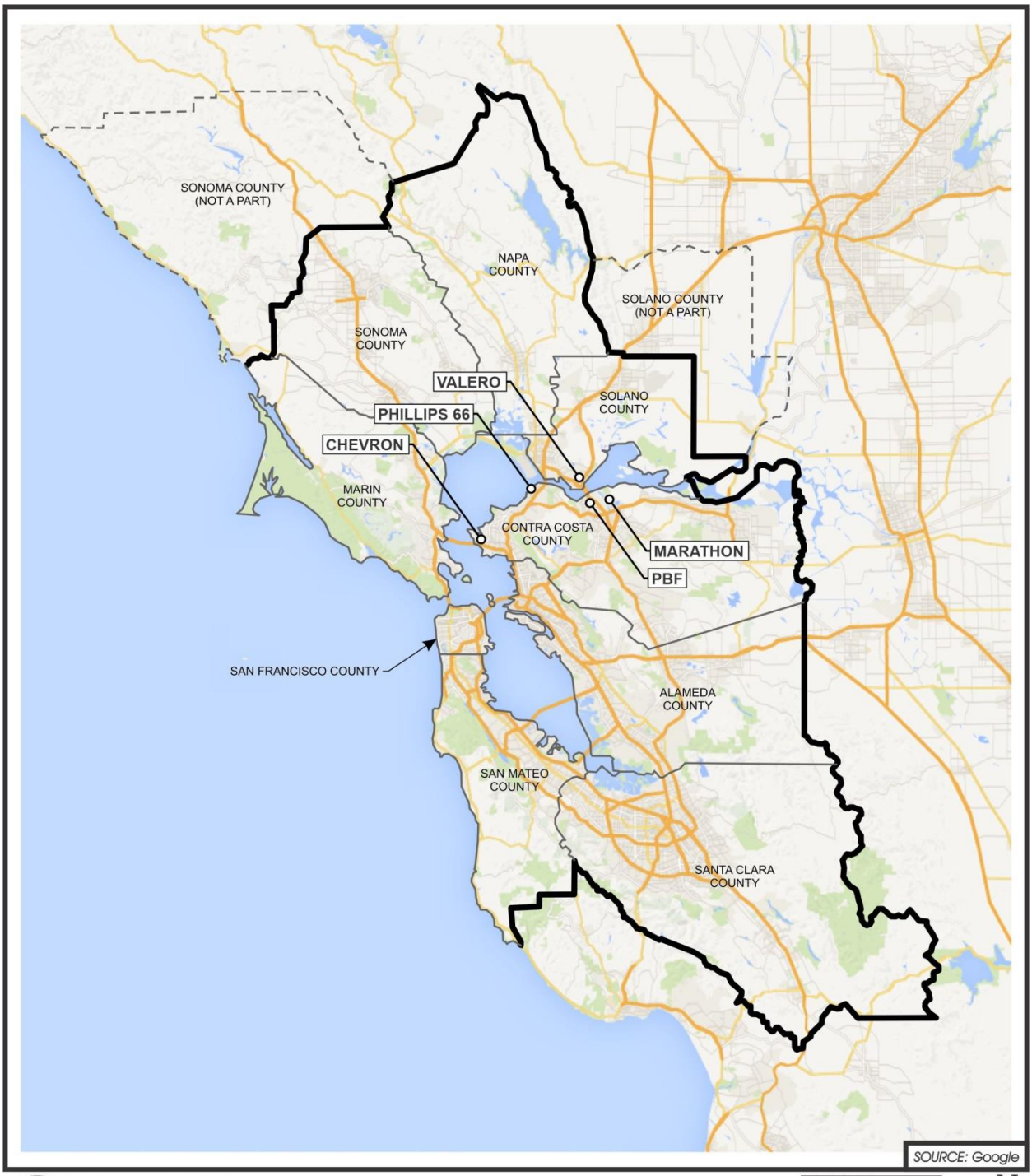
The Air District has jurisdiction of an area encompassing 5,600 square miles. The Air District includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties, and portions of southwestern Solano and southern Sonoma counties. The San Francisco Bay Area is characterized 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). The proposed Rule 13-5 would apply to hydrogen plants at the refineries within the Bay Area, the locations of which are shown on Figure 1. Two refineries are expected to need additional control technology to comply with Draft Rule 13-5, Valero in Benicia and the hydrogen plants that provide hydrogen to PBF in Martinez.

The PBF Martinez Refinery is located in north-central Contra Costa County, adjacent to the community of Martinez. The primary processing area of the Refinery is between Pacheco Boulevard and Marina Vista, and the wastewater treatment plant and wharf operations are between Marina Vista and the Carquinez Strait. Approximately 20 percent of the Refinery is located within the corporate limits of the City of Martinez. The remainder of the Refinery is in an unincorporated area of the County.

The PBF Martinez Refinery is located in a heavy industrial area, which allows for the manufacturing and processing of petroleum chemicals, fertilizers, and gas, as well as numerous other industrial and manufacturing uses. The Refinery is bordered to the north by heavy industrial land use and the Carquinez Strait water way. To the east of the PBF Martinez Refinery is Highway 680, public lands, and wetland areas that are designated as open space. Along the southern border of the Refinery is land designated as commercial, multiple family residential (light), and single family residential (heavy). The area west of the Refinery is similar in mix to the land use along the southern area, however, the central Martinez downtown area is located directly west of the Refinery.

The Valero Benicia Refinery is located at 3400 East Second Street, within an industrial area (Benicia Industrial Park) in the eastern portion of the City of Benicia, west of Interstate 680. The Refinery is located along the northern edge of the Suisun Bay below a low range of coastal hills. The Refinery occupies approximately 330 acres of the 880-acre Valero Benicia property; the remaining portion of which is undeveloped. The Refinery is designated as General Industrial by the City of Benicia General Plan and Zoning Ordinance.

The Valero Benicia Refinery is immediately bordered by approximately 550 acres of mostly undeveloped Valero property to the south and west, and general industrial uses to the north and east. Industrial uses in the Benicia Industrial Park are located east of the Refinery. This area consists largely of single-level warehouse and manufacturing buildings interspersed with parking areas and materials storage yards. Residential uses are located approximately 3,000 feet to the south and west of the Refinery, and approximately 2,100 feet to the northwest. This neighborhood is separated from the Valero Benicia Refinery site by undeveloped hills, including areas owned by Valero.



REFINERIES WITHIN THE
BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Project No. 3185 Figure 1

N:\3185\SiteLocMap.cdr

1.4 PROJECT BACKGROUND

1.4.1 REFINERY HYDROGEN USE

In the petroleum refining industry, hydrogen is used extensively in the processing of crude oil into refined fuels such as gasoline and diesel. Hydrogen is consumed in desulfurization units to remove contaminants from fuels and feedstocks. Additionally, hydrogen is used in the refinery fuel system. As petroleum refinery product specifications become more stringent to meet environmental requirements, refinery demand for hydrogen has continually increased to supply the refinery hydrogen consumers (process units). The two primary hydrogen consumers in Bay Area petroleum refineries are processes known as hydrotreating and hydrocracking

Hydrotreating is a process whereby hydrogen is added to a hydrocarbon gas (often referred to as a feedstock) stream over a bed of catalysts typically containing molybdenum with nickel or cobalt. The purpose of hydrotreating is to remove sulfur and other undesirable compounds, such as unsaturated hydrocarbons and nitrogen, from the hydrocarbon stream. Sulfur will poison (shorten the lifespan of) catalysts used in hydrocarbon processing applications so refineries take measures to protect catalysts to extend their operating longevity as long as possible. During hydrotreating, sulfur compounds react with hydrogen to form hydrogen sulfide, while nitrogen compounds react to form ammonia. Aromatics and olefins are saturated by the hydrogen and lighter products are created. The final result of the hydrotreating process is the substantial reduction of sulfur and other contaminants from the original feedstock.

Hydrocracking is a refinery process that produces lighter hydrocarbon molecules with higher value for diesel, aviation fuel and petrol fuel from long-chain hydrocarbons. In this process, heavy gas oils, heavy residues or similar boiling-range heavy distillates are reacted with hydrogen in the presence of a catalyst at high temperature and pressure. The heavy feedstocks molecules are broken (or "cracked") into light or middle distillate products—for example, naphtha, kerosene and diesel—or base stocks for lubricants. For some refineries, the hydrocracker unit is the top hydrogen consumer. Hydrogen is the key component that enables the hydrocracking process to reduce the product boiling range appreciably by converting the majority of the feedstock to lower-boiling, more desirable products.

1.4.2 REFINERY HYDROGEN PRODUCTION

The production, distribution and use of hydrogen within petroleum refineries is all part of an integrated system that is referred to as a "Refinery Hydrogen Plant" for the purposes of draft Rule 13-5. A petroleum refinery may incorporate one or more hydrogen plants into its hydrogen distribution network that delivers hydrogen to various refinery units that use hydrogen. A secondary method of producing hydrogen in petroleum refineries is known as "catalytic reforming" or "naphtha reforming units." However, the majority of hydrogen is produced in hydrogen plant steam methane reforming processes. The heart of the plant consists of a steam methane reformer and additional hydrogen purification steps that are integrated with all the processes in need of hydrogen throughout the refinery.

Hydrogen production via steam methane reforming generally includes four steps: 1) the purification of the feed gas (usually natural gas or refinery fuel gas, although other gases may be used); 2) steam and methane are reformed in the box to convert most of the methane gas to hydrogen via the chemical reaction $CH_4 + H_2O \rightleftharpoons CO + 3\ H_2$; 3) temperature shift reaction to convert some of the remaining methane to hydrogen; and 4) final product purification step. Hydrogen gas containing total organic compounds including methane may be vented to atmosphere at various locations throughout the plant.

Refinery hydrogen plants consist of two types, those with pressure swing adsorption and those without. Pressure swing absorption produces a purer hydrogen stream required by certain refinery applications. Prior to distributing hydrogen into the refinery hydrogen network, most hydrogen plants use a pressure swing adsorption process for the final purification step at the back end of the steam methane reforming operation to produce an ultra-pure hydrogen with a minimum purity of 99.99 percent concentration in the gas stream from what was previously a concentration ranging between 95 percent to 97 percent. A by-product of the pressure swing adsorption process, referred to as "tail gas" is impure hydrogen gas that does not meet specifications for refinery hydrogen consumers that is routed back to the steam methane reformer as fuel and can contain methane concentrations ranging between 15 and 20 percent.

By contrast, a hydrogen plant that does not use a pressure swing adsorption process produces a less pure hydrogen stream that contains a higher amount of total organic compounds, including methane—generally between four and six percent.

Methane emissions occur when impure hydrogen gases containing total organic compounds are purposely vented from atmospheric vents (sometimes referred to as process vents) located at various junctures throughout the hydrogen plant. With one exception, most atmospheric venting of impure hydrogen gas in Bay Area refineries occurs within the hydrogen plant steam methane reforming processes. For most facilities, hydrogen gas is not vented to atmosphere as a matter of course, it is only vented when necessary, usually for safety-related reasons such as refinery startups, shutdowns, emergencies, malfunctions, trips or process upsets. A total of nine operational hydrogen plants are associated with Bay Area refineries; four hydrogen plants—one at the Valero refinery and the other three, owned and operated by Air Products at the PBF refinery—regularly vent hydrogen gas from certain atmospheric vents during normal operations. Air Products is a third-party operator that supplies hydrogen to the PBF refinery. Most hydrogen plants typically have three to four atmospheric vents located in the steam methane reforming process unit. Each vent is used to release impure hydrogen gas under specific operational conditions.

1.5 PROPOSED PROJECT DESCRIPTION

The requirements in draft Rule 13-5 would apply to petroleum refinery hydrogen plants, including third-party operators that produce hydrogen in hydrogen plants and other parts of the refinery that integrate the hydrogen into refinery processes. Draft Rule 13-5 would address total organic compound emissions from hydrogen plants as follows:

Section 13-5-301, Emission Limits for Petroleum Refinery Hydrogen Plants, would prohibit the owner or operator of existing petroleum refinery hydrogen plants from venting to atmosphere hydrogen waste streams containing total organic compounds in excess of 15 pounds per day and containing a concentration of more of than 300 parts per million on a dry basis.

Draft Rule 13-5 includes a limited exemption for atmospheric vents for both deaerators and carbon dioxide scrubbers. These two types of vents may emit methane and possibly other organic compounds, however, more investigation is required to ascertain the extent of emissions associated with them. Thus, deaerator vents and carbon dioxide scrubbing vents will be exempted from Rule 13-5 emission limits. However, the owners or operators of these two source types will be required to install flowmeters and to monitor the total organic compound emissions on a periodic basis to verify total organic compound emission rates.

1.6 POTENTIAL EMISSION CONTROL TECHNIQUES AND TECHNOLOGIES

Implementation of draft Rule 13-5 would impose requirements that may result in the modifications to Hydrogen Plants and/or installation of new emission control equipment. The potential modifications and control equipment that may be used to comply are outlined in this section.

Because vented methane emissions from petroleum refinery hydrogen plants are not currently subject to emission limits, such emissions are usually uncontrolled unless the methane is a constituent of a gaseous stream that includes other air pollutants, such as volatile organic compounds, which are subject to emission limit requirements of other Air District regulation. However, not all volatile organic compound abatement technology will capture or control methane emissions. For example, activated carbon is commonly used to extract volatile organic compounds from gaseous streams via an adsorption process that traps organic molecules onto the surface of carbon molecules while the remainder of the gaseous stream continues to flow through the carbon bed. However, methane is not typically captured by activated carbon so it flows through unabated.

Flares are primarily used as a safety, not a control, device to reduce refinery gases that often may include a mixture of gases including volatile organic compounds, toxic air contaminants, oxides of nitrogen, sulfur oxides and methane. However, one Bay Area refinery and one third-party operator use flares dedicated specifically to control hydrogen gas emissions, and thus, methane emissions and any associated organic compound emissions. These particular types of flares destroy total organic compound emissions at a minimum 98 percent control efficiency.

Thermal oxidizers are another example of control technology used to thermally destroy industrial vapor streams. They are commonly used in refineries and chemical plants to control hydrocarbon-based vapors. Typically, thermal oxidizers are available in four different types depending on a variety of operational factors: direct-fired, recuperative, catalytic and regenerative thermal oxidizers. Thermal oxidizers can be used for planned atmospheric venting occurrences such as startups and some shutdowns; however, they generally cannot be used for unplanned events such as malfunctions, upsets, and emergencies.

A third method of controlling total organic compound emissions already employed at two local refineries is the use of a closed loop system, via flare headers, that captures hydrogen system gas streams, sometimes vented at other refineries, and reintroduces the captured gas into the refinery's fuel gas system. Only a small amount of captured total organic compound gas is vented to atmosphere because the gas recovery system only sends recovered gas to the flare for combustion for safety-related reasons such as emergencies, malfunctions, unplanned shutdowns, and upsets in the refinery system. The balance of captured gas is used in the gas recovery system. Less than two percent of flare header gas is emitted to the atmosphere post combustion. Flare headers, a collection system for refinery waste vapor streams, contains a mixture of refinery gases, including hydrogen gas.

The use of pressure swing adsorption can significantly reduce methane and other organic compound emissions, although they are not technically considered a control technology. Pressure swing adsorption purification is a method of separating one or more gas species from a gaseous stream containing additional (desirable) gas species. Pressure swing adsorption is used in hydrogen production as a final purification step to separate hydrogen gas molecules from other (impure) gas molecules, such as methane, carbon monoxide and carbon dioxide. An adsorbent material targets gas with dissimilar adsorption properties as an effective way of extracting very pure hydrogen. Tail-gas, a byproduct of the pressure swing adsorption process containing the removed impurities, is then sent back to the steam methane reformer as fuel for the steam methane reforming process. Normally, pressure swing adsorption purification removes methane molecules from the hydrogen gas stream only at the back end of the steam methane reforming process unit. Atmospheric venting prior to the pressure swing adsorption step contains methane and other air contaminants.

Two refineries are expected to need additional control technology to comply with Draft Rule 13-5: Valero in Benicia and the hydrogen plants that provide hydrogen to PBF in Martinez. It is expected that both facilities would install refinery flare technology to control total organic compound emissions. Air District staff estimate that flare systems at these refineries would result in a reduction of over 2,000 tons per year of methane, assuming a flare control efficiency of 98 percent.

CHAPTER 2

EVALUATION OF ENVIRONMENTAL IMPACTS

Introduction

General Information Form

Summary Checklist:
Environmental Factors Potentially Affected

Determination

Detailed Checklist and Discussion:
Evaluation of Environmental Impacts

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CHAPTER 2
Evaluation of Environmental Impacts

INTRODUCTION

The Initial Study is required to identify and evaluate the proposed project's environmental effects. The California Natural Resources Agency has published a standard checklist for lead agencies to use in doing so, in Appendix G of the CEQA Guidelines. The Appendix G environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. The Guidelines specifically authorize and encourage the use of Appendix G to satisfy the legal requirements for sufficiency of the Initial Study. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Initial Study for Proposed New Regulation 13, Rule 5, Petroleum Refinery Hydrogen Plants.
Lead Agency Name:	Bay Area Air Quality Management District 375 Beale Street, Suite 600 San Francisco, California 94105
Contact Person:	Jacob Finkle
Contact Phone Number:	415-749-8435
Project Location:	Proposed Rule 13-5 would apply to Petroleum Refinery Hydrogen Plants 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 County and southern Sonoma County.
Project Sponsor's Name:	Bay Area Air Quality Management District
Project Sponsor's Address:	375 Beale Street, Suite 600 San Francisco, California 94105
General Plan Designation:	Rule 13-5 would apply to the area within the jurisdiction of the Bay Area Air Quality Management. Hydrogen Plants are located within heavy industrial areas.
Zoning:	Rule 13-5 would apply to the area within the jurisdiction of the Bay Area Air Quality Management. Hydrogen Plants are located within heavy industrial areas.
Description of Project:	See Chapter 1.
Surrounding Land Uses and Setting:	See "Project Location" in Chapter 1 and Land Use Section XI of the checklist.
Have California Native American tribes traditionally	No tribes have requested consultation.

and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

☑ Aesthetics	☐ Agriculture and Forestry Resources	☑ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology & Soils	☑ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology & Water Quality	☐ Land Use & Planning	☐ Mineral Resources
☐ Noise	☐ Population & Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities & Services Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION

On the basis of this initial evaluation:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☑ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

6/30/2021

Signature: Date:

Victor Douglas, Rule Development Manager BAAQMD

Name:

Filing prepared by: Laura Cackette, BAAQMD

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 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 is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL CHECKLIST AND DISCUSSION

		Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS**. Except as provided in PRC §21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☑	☐	☐	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☑	☐
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.	☐	☐	☐	☑
d)	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☑	☐

Environmental 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 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 Pacific Ocean, 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). Because of the variety of visual resources, scenic highways or corridors are located throughout the Bay Area and include 15 routes that have been designated as scenic highways and 29 routes eligible for designation as scenic highways (ABAG, 2017).

The Carquinez Strait forms a visually distinct, relatively narrow channel that connects San Pablo Bay to Suisun Bay. The approximately six-mile strait lies between two major bridges: the Carquinez Bridge, from Crockett to Vallejo; and the Benicia-Martinez Bridge, from Benicia to Martinez. Both bridges are visually distinct features in a landscape characterized by gently rolling terrain. The Carquinez Strait and Suisun Bay are characterized by a visual mix of industrial uses, small towns, and open areas of undeveloped land.

Industrial uses in the area are numerous, and include: terminals, including the Amorco Marine Terminal, Avon Marine Terminal, and TransMontaigne terminal; refineries, including the Tesoro Martinez Refinery, PBF (formerly Shell) Martinez Refinery, Valero Benicia Refinery, and Phillips 66 San Francisco Refinery (in Rodeo); the port of Benicia; C&H Sugar in Crockett; and other industrial uses in Benicia and Martinez. From I-680 to the Point Edith Wildlife Area on the east, the visual setting is open space, characterized by views of the marsh and shoreline. The marshland includes wetland grasses, low-level shrubs, and small ponds.

As discussed in the Project Description above (Section 1.5), the proposed Rule 13-5 will affect hydrogen plants in the Bay Area and hydrogen plants at two refineries, one in Contra Costa County (PBF Martinez Refinery), and one in Solano County (Valero Benicia Refinery), are expected to require the installation of new flare systems. These facilities are located within heavy industrial areas, which generally do not have scenic resources.

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- 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 surroundings.
- 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

1. a. Potentially Significant. A scenic vista is a location that offers a high quality and visually interesting view. Regional, county, and city policies address aesthetic issues in the area. These policies include the general plans of both Contra Costa and Solano counties, and of the cities of Martinez and Benicia. Three highways within Contra Costa County have been designated as scenic highways: Route 4 from Route 160 near Antioch to Route 84 near Brentwood; Route 24 from the Caldecott Tunnel to I-680 near Walnut Creek; and Route 680 from Alameda County line to Route 24. Two highways have been designated as scenic in Solano County: Highway 29 from Route 37 near Vallejo to Route 211 near Napa; and Highway 128 from Route 1 near Mendocino to Route 505. While no designated State Scenic Highways are located in the vicinity of the refineries (Caltrans 2020), the City of Benicia has identified Interstate 680 north of the Benicia-Martinez bridge as a scenic route. Although it is not a State Scenic Highway, the San Francisco Bay Conservation and Development Commission's (BCDC) San Francisco Bay Plan Map 2 (2020) designates the Benicia-Martinez Bridge as a scenic drive (BCDC, 2020).

The existing refineries are located in heavy industrial areas of Contra Costa and Solano Counties and near a number of other industrial facilities in Martinez and Benicia. New unit construction activities would be expected to occur near the operating portions of existing refineries and/or hydrogen plants. Several new flare systems are expected to be constructed and potentially visible because of their height (75 to 120 feet), although the views of the refineries and industrial areas would remain essentially unchanged and continue to include views of heavy industrial equipment. However, flares would be visible to the surrounding public and potentially residential areas. The flares may also be visible from the scenic vistas on the Benicia-Martinez Bridge. Therefore, the potential impacts to scenic vistas resulting from the installation and operation of additional flares are potentially significant and will be evaluated in the EIR.

1. b) Less than Significant. Construction activities and subsequent operations of flare systems, if implemented, will occur within the operating portions of the existing refineries or adjacent industrial areas. While Proposed Rule 13-5 could result in the construction and operation of several new flare systems, it would not result in changes or modifications to trees, rock outcroppings, or historic buildings located along scenic highways. The views of the refineries/hydrogen plants would remain essentially unchanged and continue to include views of heavy industrial equipment. Thus, the Proposed Rule 13-5 would not damage or degrade existing scenic resources.

1. c) No Impact. Under Proposed Rule 13-5, new flare systems are expected to be constructed within the confines of two existing operating refineries or adjacent to existing hydrogen plants. Thus, the project would not result in any changes in the visual quality or character of the site or the surrounding communities. The existing hydrogen plants are in heavy industrialized areas that are urbanized. The construction of flare systems within heavy industrialized areas are expected to be compatible with existing zoning and other regulations governing scenic quality. Therefore, the proposed project would have no impact on the visual character or quality of the area or result in significant adverse aesthetic impacts.

1. d) Less than Significant. The refineries and hydrogen plants typically operate 24 hours per day and the sites are lighted for nighttime work activities. The proposed project would result in the construction of two new flares systems. The new equipment would be installed in the operating portions of the refinery or adjacent to hydrogen plants, which are already lighted for nighttime operations and would not be expected to change the overall lighting of the existing facilities. Therefore, the proposed project is not expected to result in any significant light or glare impacts or have any adverse aesthetic impacts to the surrounding community.

Conclusion

Based upon these considerations, there could be a potentially substantial adverse impact on a scenic vista, which will be evaluated in the Environmental Impact Report. Other aesthetic impacts are expected to be either less than significant or are not expected to have an environmental impact.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**AGRICULTURE and FORESTRY 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?

Environmental 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.

Proposed Rule 13-5 is expected to require installation of flare systems at hydrogen plants that serve the Valero Benicia, and PBF Martinez refineries. The land adjacent to the Carquinez Strait and Suisun Bay are characterized by a mix of industrial uses, small towns, and open areas of undeveloped land. The closest agricultural area to these refineries is the Briones Hills Agricultural Preservation Area located approximate 8 miles southwest of the PBF Martinez Refinery. The area includes open space, characterized by views of the marsh and shoreline. The marshland includes wetland grasses, low-level shrubs, and small ponds. Forest lands and agricultural lands are not located in the vicinity of the refineries.

Significance Criteria

Project-related impacts on agriculture 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

2. a) and b) No Impact. Land designated by the California Resources Agency as Prime Farmland, Unique Farmland or Farmland of Statewide Importance are considered Farmland for CEQA purposes. The Martinez and Benicia communities are urbanized and there are no designated Farmlands within the community. The area in the vicinity of the refineries and surrounding areas are developed and are designated as Urban and Built-Up Land by the California Department of Conservation. Further, the area is urbanized and not zoned for agricultural use so no Williamson Act contracts are located within the Martinez or Benicia areas.[2] Construction activities would be within industrial areas and no agricultural lands would be impacted. Therefore, the project would not conflict with existing zoning for agricultural use or with a Williamson Act contracts and would not convert agricultural lands to non-agricultural lands.

2. c) and d) No Impact. The Martinez and Benicia communities are urbanized areas and there are no forest land or timberland resources in the community or vicinity of the refineries. The construction activities would be within industrial areas and no forest land or timberland resources would be impacted. Therefore, the proposed project would not conflict with existing zoning for, or cause re-zoning of forest land, and would not result in the loss of forest land or conversion of forest land to non-forest use or impact timberland zoned as Timberland Production.

2. e) No Impact. Implementation of the Proposed Rule 13-5 would not 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, since agricultural and forest land resources are not located within or adjacent to the PBF Martinez and Valero Benicia refineries.

Conclusion

Based upon these considerations, no significant adverse impacts to agricultural and forest resources are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse agricultural and forest land resources were identified, no further evaluation of agricultural and forest land resources will be required in the EIR.

[2] California Department of Conservation, Farmland Mapping and Monitoring Program. Available at https://maps.conservation.ca.gov/DLRP/CIFF/.

		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)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area for an applicable federal or state ambient air quality standard?	☑	☐	☐	☐
c)	Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐	☐
d)	Result in other emissions (such as those leading to odors adversely affecting substantial number of people?)	☐	☐	☐	☑

Environmental Setting

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 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 ambient air quality standards (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. The increase of severity and frequency of wildfire smoke episodes since 2017 has led to an increase in levels of annual particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and particulate matter less than 10 microns in diameter (PM_{10}) and indicates the need for continued reductions. The San Francisco Bay Area is in attainment of the State AAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). However, the Bay Area is not in attainment of the State 24-hour PM_{10} standard, annual PM_{10} standard, and annual $PM_{2.5}$ standard. The Air District is designated

unclassifiable/attainment for the federal CO, NO_2, SO_2, lead, PM_{10} and 2013 annual $PM_{2.5}$ standards. A designation of unclassifiable/attainment means that the U.S. EPA has determined to have sufficient evidence to find the area either is attaining or likely attaining the NAAQS.

Based on the 2020 air quality data from the Air District monitoring stations, no monitoring stations measured an exceedance of any of State or federal AAQS for CO or NO_2. There was one exceedance of the federal 1-hour SO_2 standard in 2020 at the Crockett station, and one exceedance of the federal PM_{10} standard in 2020 at the Concord station. The State 24-hour PM_{10} standard was exceeded at one or more Bay Area stations on eleven days in 2020.

The Bay Area is designated as a non-attainment area for the federal and State eight-hour ozone standard and the federal 2006 24-hour $PM_{2.5}$ standard. The State and federal eight-hour ozone standards were exceeded at one site or more in the Air District on ten and nine days in 2020, respectively; most frequently in the Eastern District, the Santa Clara Valley, and the South Central Bay zones. The federal 24-hour $PM_{2.5}$ standard was exceeded at one or more Bay Area stations on 25 days in 2020 throughout the Air District.

Significance Criteria

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 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, 2017a

Operational Emissions

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. These thresholds are based on the federal offset requirements for ozone precursors for

which the Bay Area is designated as 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 non-attainment for federal $PM_{2.5}$, the Federal NSR significant emission rate annual limits of 15 and 10 tons per year, respectively, are the thresholds established by the Air District, as the Air 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 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 (BAAQMD, 2017a). To provide a conservative air quality analysis, the air quality impacts analysis will use the project-specific thresholds (see Table 2-2) recommended in the revised 2017 CEQA Guidelines (BAAQMD, 2017a).

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, 2017a

For air toxics concerns, the threshold for a significant air quality impact is a lifetime cancer risk of ten additional cancers per million people exposed or a non-cancer (i.e., chronic or acute) risk greater than 1.0 hazard index (BAAQMD, 2017a).

Discussion of Impacts

3. a) No Impact. Proposed Rule 13-5 is not expected to conflict with or obstruct implementation of the applicable air quality plan. The applicable air quality plan is the Air District's 2017 Clean Air Plan, *Spare the Air, Cool the Climate* ("Plan"). The Plan outlines a strategy for achieving the Bay Area's clean air goals by reducing emissions of ozone precursors, particulate matter, TACs and other pollutants in the region (BAAQMD, 2017b). The proposed project would support the Air District's objectives of reducing VOC and GHG emissions and related climate change impacts. Therefore, the proposed project will not conflict with or obstruct implementation of the 2017 Clean Air Plan.

3. b) and c) Potentially Significant. The existing refineries include the operation of numerous units and equipment. Two refineries are expected to need additional control technology to comply with Draft Rule 13-5: the Valero Benicia Refinery and the hydrogen plants that provide hydrogen to the PBF Martinez Refinery.

At hydrogen plants, flares use oxidation to burn combustible components, mostly hydrogen and hydrocarbons. In combustion, gaseous hydrocarbons react with atmospheric oxygen to form carbon dioxide and water. Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume, meaning that hydrocarbon emissions amount to less than two percent of the hydrocarbons in the gas stream (U.S. EPA, 2018). Emissions from flaring may include carbon particles (soot), hydrocarbons, carbon monoxide, nitrogen oxides, and sulfur oxides. However, flaring events are expected to be sporadic and not predictable because flaring would only occur when the produced hydrogen is found to be off specification or during upset conditions. While Proposed Rule 13-5 would result in a reduction in organic emissions, it can also result in an increase in particulate matter, carbon monoxide, volatile organic, and nitrogen oxide emissions due to the combustion of gases. Therefore, flare operational emissions associated with Proposed Rule 13-5, including the potential for toxic air contaminants and cumulative impacts, will be evaluated in the EIR.

3. d) No Impact. The proposed Rule 13-5 is expected to reduce total organic emissions from hydrogen plants. Hydrogen plants are not typically sources of odors because their feedstocks include natural gas and the products they produce (primarily hydrogen) is not odorous. Since the proposed rule would reduce total organic emissions, the rule is not expected to result in an increase in odor impacts.

Conclusion

Based on the above considerations, operation of new flare systems may result in additional emissions of non-attainment criteria pollutants and will be evaluated in the EIR. No significant adverse impacts to the applicable attainment plan and odor emissions are expected so these items will not be further evaluated in the 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 state or federally protected wetlands (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?	☐	☐	☐	☑

Environmental 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 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).

Both refineries are located adjacent to Suisun Bay. Suisun Bay is a shallow estuarine bay bounded by Chipps Island on the east and the Benicia-Martinez Bridge on the west. Suisun Marsh, the largest brackish water marsh in the United States and the largest wetland in California, forms its northern boundary. Tidal marshes are also found adjacent to the Suisun Bay in both Martinez (e.g, Point Edith Wildlife Management Area) and Benicia.

Proposed Rule 13-5 will affect hydrogen plants in the Bay Area. These facilities are located within heavy industrialized where native vegetation and biological resources have been removed.

Significance Criteria

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

- The project has 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.
- The project has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.
- The project has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- The project interferes 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.
- The project conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Discussion of Impacts

4 a, b, c and d). No Impact Proposed Rule 13-5 is designed to reduce total hydrocarbon emissions from hydrogen plants. Modifications may be required to install air pollution control equipment, e.g., flare systems. Construction activities associated with the proposed project are expected to occur in heavy industrial areas adjacent to the existing hydrogen plants that serve the Valero Benicia and PBF Martinez refineries, where native biological resources have been removed and are non-existent. Thus, the proposed project is not expected to result in any impacts to biological resources and would not be expected to impact riparian, wetlands, or other sensitive communities.

4 e and f). No Impact Proposed Rule 13-5 is not expected to affect land use plans, local policies or ordinances, or regulations protecting biological resources such as a tree preservation policy or ordinances for the reasons described above. Land use and other planning considerations are determined by local governments and land use or planning requirements are not expected to be altered by the proposed project. Similarly, Proposed Rule 13-5 is not expected to affect any habitat conservation or natural community conservation plans, biological resources or operations, and would not create divisions in any existing communities, as construction activities would be limited to existing industrial facilities that have already been developed, graded, and native vegetation has been removed.

Conclusion

Based upon these considerations, no significant adverse impacts to biological resources are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse biological resources were identified, no further evaluation of biological resources will be required in the 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 pursuant to § 15064.5?	☐	☐	☑	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☑	☐
c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☑	☐

Environmental 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.

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).

Proposed Rule 13-5 will affect hydrogen plants in the Bay Area. These facilities are located within heavy industrial areas which have been graded and developed. Cultural resources are not usually located in industrial areas.

Significance Criteria

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

- The project results in a substantial adverse change in the significance of historical resources as defined in CEQA Guidelines §15064.5. A substantial adverse change includes physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance of the historical resources would be materially impaired.
- Cause a substantial adverse change in the significance of an archaeological resources pursuant to CEQA Guidelines §15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

Discussion of Impacts

5 a, b, and c). Less than Significant. CEQA Guidelines state that generally, a resource shall be considered "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources including the following:

A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B. Is associated with the lives of persons important in our past;

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

D. Has yielded or may be likely to yield information important in prehistory or history (CEQA Guidelines §15064.5).

Generally, 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. Proposed Rule 13-5 is designed to minimize total hydrocarbon emissions from hydrogen plant operations. Modifications may be required to install air pollution control equipment, e.g., flare systems. The construction of air pollution control equipment would occur in existing heavy industrial areas. The refineries may have equipment or structures older than 50 years. However, this type of equipment usually does not meet the criteria identified in CEQA Guidelines §15064.5(a)(3) as historic resources.

Further, construction activities associated with Proposed Rule 13-5 would occur at existing hydrogen plants that are located in heavy industrial areas. These areas have already been graded and developed, and no substantial grading is expected to be required to install flare systems at the existing facilities. Thus, the proposed new rule would not adversely affect historical or archaeological resources as defined in CEQA Guidelines §15064.5, or disturb human remains interred outside formal cemeteries. Therefore, impacts to cultural resources are expected to be less than significant, as a result of the proposed project as no major construction activities are required.

Conclusion

Based upon these considerations, no significant adverse impacts to cultural resources are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse cultural resources were identified, no further evaluation of cultural resources will be required in the EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:				
a)	Result in potentially significant environmental impact due to wasteful, inefficient or unnecessary consumption of energy resources, during project construction or operations?	☐	☐	☑	☐
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☑	☐

Environmental Setting

Pacific Gas and Electric Company (PG&E) supplies electricity to over five million customers in central and northern California. The counties within the Air District (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma) used over 54,866 gigawatt/hours (millions of kilowatt/hours) in 2018.[3] Residential electricity use accounts for approximately 29 percent of the electrical use and non-residential use accounts for approximately 71 percent. PG&E's electricity is supplied by natural gas power plants, nuclear generation, large hydroelectric facilities, and renewable sources (e.g., wind, geothermal, biomass, and small hydroelectric power).

In 2018, in California, about 35 percent of electricity was generated by natural gas, 31 percent was generated by renewables, 11 percent was generated by hydroelectric facilities, 9 percent was generated by nuclear, and 3 percent was generated by coal.[4]

In 2019, the counties within the Air District used approximately 2,850 million therms of natural gas.[5] Solano County used 236 million therms of natural gas, with non-residential use accounting for 75 percent of the natural gas consumption and residential use accounting for 25 percent of the consumption. Contra Costa County used approximately 1,205 million therms of natural gas with non-residential use accounting for approximately 85 percent of natural gas consumption and residential use accounting for approximately 15 percent of natural gas consumption.

[3] California Energy Commission, Electricity Consumption by County. Available at https://ecdms.energy.ca.gov/elecbycounty.aspx

[4] California Energy Commission, Total System Electric Generation. Available at: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

[5] California Energy Commission, Gas Consumption by County. Available at: http://www.ecdms.energy.ca.gov/gasbycounty.aspx

Significance Criteria

The impacts to energy will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

Discussion of Impacts

6. a and b) Less Than Significant. Proposed Rule 13-5 is expected to result in the construction of flares at hydrogen plants that serve two refineries. While flares combust waste gas, they also require the use of natural gas to operate the pilot lights which keeps the flares in stand-by state so they are available to operate, when needed. The amount of natural gas needed to operate the pilot light for the flare burners is not known as the new flare systems have not been designed. Based on a review of fuel use reported to the Air District by other similar facilities, the estimated increase in natural gas use for the pilot lights for two flares systems is expected to be 12 to 15 million standard cubic feet (scf) per year (0.12 to 0.15 million therms). The current use of natural gas in Contra Costa and Solano Counties is an estimated 1,441 million therms per year. Therefore, Proposed Rule 13-5 would result in an increase in natural gas use of 0.008 to 0.01 percent increase in natural gas, a small fraction of the natural gas currently used. Proposed Rule 13-5 is not expected to result in a significant increase in electricity.

The natural gas use for Proposed Rule 13-5 is not expected to use energy in a wasteful, inefficient or unnecessary manner as it would be used to control total organic compound emissions, including GHG emissions. Further, the additional use of natural gas is not expected to conflict with an energy conservation or renewable energy plan and the state will continue to move toward the increased use of renewable energy sources, reducing GHG emissions statewide. For example, California has adopted the "Renewable Portfolio Standard" for electric power which requires that at least 33 percent of the state's electric power come from renewable sources by 2020, and at least 50 percent must come from renewables by 2030. Proposed Rule 13-5 would not be expected to interfere or impact compliance with these state requirements.

Conclusion

Based upon these considerations, no significant adverse energy impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse energy resources were identified, no further evaluation of energy impacts will be required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY / SOILS. Would the project:				
a) Directly or indirectly cause 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 California Building Code, creating substantial direct or indirect 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?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	☐	☐	☑	☐

Environmental Setting

Most of the Bay Area is located within the natural region of California known as the Coast Ranges geomorphic province. 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. 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 (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 San Francisco Bay Area is a seismically active region, that lies along the San Andreas Fault, which forms the boundary between the Pacific and North American tectonic plates. Movement between the plates has created several other active faults parallel to the San Andreas, including the Hayward, Concord-Green-Valley, Greenville, Rodgers Creek and San Gregorio Faults. The existing refineries are located near the Concord-Green Valley Fault, the West Napa and Rodgers Creek Faults, the Hayward Fault, and the Calaveras Fault to the south (CSLC, 2015). The Concord-Green Valley fault is the closest fault to refineries in Benicia and Martinez and estimated to generate a magnitude 6.9 earthquake (ABAG, 2017). A major seismic event on any of these active faults could cause significant ground shaking and potential surface fault rupture. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

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 year 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 (ABAG, 2017).

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

7 a, c, and d). Less Than Significant. Proposed Rule 13-5 is designed to minimize total organic emissions from hydrogen plants. Modifications may be required to install air pollution control equipment, e.g., flare systems. Construction activities associated with installation of air pollution control equipment would occur in existing heavy industrial areas that have already been graded and developed and are not expected to have any impacts on geology and soils.

New construction requires compliance with the California Building Code. 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. The California Building Code basis seismic design on minimum lateral seismic forces ("ground shaking"). The California Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the California Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site. Compliance with the California Building Code would minimize the impacts associated with existing geological hazards.

7 b). Less Than Significant. Construction associated with Proposed Rule 13-5 would include new flare systems at existing hydrogen plants. All construction activities would take place at already existing heavy industrial facilities that have been previously graded. Thus, proposed Rule 13-5 is not expected to result in substantial soil erosion or the loss of topsoil as construction activities are expected to be limited to existing industrial areas that have been previously graded and developed.

7 e). No Impact. Septic tanks or other similar alternative wastewater disposal systems are typically associated with small residential projects in remote areas. Proposed Rule 13-5 would affect existing hydrogen plants that have existing wastewater treatment systems or connected to appropriate wastewater facilities. Flare systems do not generate wastewater and would not rely on septic tanks or similar alternative wastewater disposal systems. Based on these considerations, septic tanks or other alternative wastewater disposal systems would not be impacted by the Proposed Rule 13-5.

7 f). Less Than Significant. Construction activities associated with the Rule 13-5 would occur at existing hydrogen plants that are located in industrial areas. These areas have already been graded and developed, and no substantial grading is expected to be required to implement Rule 13-5. Thus, Proposed Rule 13-5 would not be expected to adversely affect paleontological resources.

Therefore, no significant impacts to paleontological resources are anticipated to occur as a result of the proposed project as no major construction activities are expected to be required.

Conclusion

Based upon these considerations, no significant adverse impacts to geology and soils are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts to geology and soils were identified, no further evaluation of geology and soils will be required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. 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?	☐	☐	☑	☐

Environmental 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.[6] 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 GHGs. 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 GHGs 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.

The Bay Area's contribution to the global total is approximately 85 million tons per year of GHG emissions (measured as carbon dioxide equivalent emissions or CO_2e). Transportation sources

[6] 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.

generate approximately 40 percent of the total, with the remaining 60 percent coming from stationary sources and area sources (BAAQMD, 2017b).

Significance Criteria

The Air District's May 2017 CEQA Air Quality Guidelines (BAAQMD, 2017a) indicate that a project-level significance threshold for emissions is appropriate. The project level GHG threshold for stationary source projects is 10,000 metric tons of carbon dioxide equivalent (CO_2e) emissions under the Air District 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, 2017a). The project-level GHG significance thresholds of 10,000 MT CO_2eq will be used to evaluate the cumulative GHG impacts associated with proposed Rule 13-5.

Discussion of Impacts

8 a). Potentially Significant. The analysis of GHG emissions is a different analysis than for criteria pollutants for the following reasons. For criteria pollutant, 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 timeframe. 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 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.

The overall objective of Proposed Rule 13-5 is to reduce total organic compound emissions, including methane (GHG) emissions from hydrogen plants. The Proposed Rule 13-5 will reduce emissions by requiring hydrogen plants to control total organic compound (which includes methane) emissions to specific levels, which is expected to result in the construction and operation of flare systems at hydrogen plants that serve the Valero Benicia and PBF Martinez refineries. Overall, Proposed Rule 13-5 is expected to result in a significant decrease in GHG emissions due to the control of methane emissions from hydrogen plant vents, however, flares can also generate GHG emissions from the combustion of fuel (e.g., natural gas). The GHG emissions from these new sources, as well as the decrease in GHG emissions from the control of emissions from hydrogen plants vents, will need to be evaluated. Therefore, GHG emissions associated with Proposed Rule 13-5 will be evaluated in the EIR.

8 b) Less Than Significant. Proposed Rule 13-5 will not conflict with any plans, policies, or regulations addressing climate change. California has committed to reducing its GHG emissions to 1990 levels by 2020, to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050 through a number of legislative and regulatory requirements, plans and policies. This commitment is enshrined 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.

To achieve these emission reduction goals, California has adopted regulatory measures aimed at reducing GHG emissions from mobile sources. These measures include standards for motor vehicle emissions, sometimes called the Pavley regulations, 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 GHG 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 (ABAG, 2017).

The Air District's 2017 Clean Air Plan, *Spare the Air, Cool the Climate* outlines a strategy for achieving the Bay Area's clean air goals by reducing emissions of ozone precursors, particulate matter, TACs and other pollutants in the region. The Proposed Rule 13-5 would support the Air District's objectives of reducing GHG emissions and related climate change impacts.

Contra Costa County adopted a Climate Action Plan on December 15, 2015 (CCC, 2015) which presents a GHG target consistent with AB32 and the AB32 Scoping Plan of reducing community-wide emissions 15% below 2005 levels by 2020. Solano County has also adopted a Climate Action Plan which presents a GHG target of 20% below 2005 baseline emissions by 2020 (County of Solano, 2011).

As discussed above, applicable plans, policies and regulations are aimed at limiting global climate change and at reducing regional and state-wide emissions to 80 percent below 1990 levels by 2050 in order to achieve that goal. Proposed Rule 13-5 will not conflict with the Bay Area's progress towards achieving that emission reduction target. In fact, it would implement portions of the 2017 Clean Air Plan that are aimed at reducing GHG emissions. Therefore, Proposed Rule 13-5 would not conflict with any regulatory efforts to achieve the state and regional GHG emission reduction goals under CARB's Scoping Plan, the District's 2017 Clean Air Plan, *Plan Bay Area 2040*, or any other local climate action plan.

Conclusion

Based on the above considerations, operation of new flare systems will control methane emissions from hydrogen plants but may result in additional GHG emissions from combustion, therefore, GHG emissions will be evaluated in the EIR. No significant adverse impacts to the applicable

attainment plan, policies or regulations that apply to GHG emission reductions are expected so this issue will not be further evaluated in the EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	**HAZARDS & 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)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Environmental Setting

The PBF Martinez and Valero Benicia refineries and surrounding areas contains a mix of industrial, commercial, transportation, and residential uses. Many ongoing industrial operations use, store or transport hazards materials, or generate hazardous waste. Industrial sites that are contaminated or have contaminated groundwater remain in the area, posing a potential hazard to human health and the environment. Industrial uses in the area are numerous and include: terminals, including the Amorco Marine Terminal, Avon Marine Terminal, and TransMontaigne terminal; refineries, including the Marathon Martinez Refinery, PBF Martinez (formerly Shell) Martinez Refinery, Valero Benicia Refinery, and Phillips 66 San Francisco Refinery (in Crockett); the port of Benicia; C&H Sugar in Crockett; and other industrial uses in Benicia and Martinez.

Hazards at a facility can occur due to natural events, such as earthquake, and non-natural events, such as mechanical failure or human error. A hazard analysis generally considers compounds or physical forces that can migrate off-site and result in acute health effects to individuals outside of the proposed project site. The risk associated with a facility is defined by the probability of an event and the consequence (or hazards) should the event occur.

The major types of public safety risks at refineries and industrial facilities consist of risk from accidental releases of regulated substances and from major fires and explosions. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment. The regulated substances currently handled by refineries include chlorine, sulfuric acid, hydrogen sulfide, and ammonia. The refineries also handle petroleum products including propane, butane, isobutane, gasoline, fuel oils, diesel, and other products, which pose a risk of fire and explosion.

A hazard analysis generally considers the compounds or physical forces that can migrate off-site and result in acute health effects to individuals outside of the refinery boundaries. It should be noted that hazards exist to workers on-site. However, the workers are trained in fire and emergency response procedures, wear protective clothing, have access to respiratory protection, and so forth. Therefore, workers could be exposed to hazards and still be protected because of training and personal protective equipment. The general public does not typically have access to these safety measures and, therefore, could be adversely affected if a hazard situation results in impacts to areas off-site.

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

> **Exposure to Toxic Gas Clouds:** Toxic gas clouds, (gases, e.g., hydrogen sulfide), could form a dense cloud and migrate off-site, thus, exposing individuals to toxic materials. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate as a dense cloud rather than disperse.

Exposure to Flame Radiation: Flame (thermal) radiation is the heat generated by a fire and the potential impacts associated with exposure to it. 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.

Thermal radiation can be caused by pool fire (fire of spilled material), torch fire (rupture of line followed by ignition), boiling liquid-expanding vapor explosion (BLEVE) of a pressurized storage vessel and/or flash fires (ignition of slow-moving flammable vapors).

Exposure to Explosion Overpressure: Process vessels containing flammable explosive vapors and potential ignition sources are present at the refineries. Explosions may occur if the flammable/explosive vapors come into contact with an ignition source. The greatest threat to off-site receptors could occur from a vapor cloud explosion (release, dispersion, and explosion of a flammable vapor cloud), or a confined explosion (ignition and explosion of flammable vapors within a building or confined area). An explosion could cause impacts to individuals and structures in the area due to overpressure.

Exposure to Contaminated Water: An upset condition and spill has the potential to adversely affect ground water and water quality. A spill of hazardous materials could occur under upset conditions, e.g., earthquake, tank rupture, and tank overflow. In the event of a spill, materials could migrate off-site if secondary containment and appropriate spill control measures are not in place.

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 with National Fire Protection Association standards.
- Non-conformance with 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.
- Be located on a site which 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
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Discussion of Impacts

9 a – b) Less Than Significant. Proposed Rule 13-5 is designed to minimize total organic compound and methane emissions from hydrogen plant operations. Modifications may be required to install air pollution control equipment, which is expected to include flare systems at two refineries. Construction activities associated with the flare systems would occur in industrial areas and would not introduce any new hazards or require the use of hazardous materials during either construction or operational activities.

The refineries and hydrogen plants currently combust natural gas and refinery fuel gas as fuel sources in heaters, boilers, hydrogen plants, flares, etc., in the course of doing business. While flares combust waste gas, they also require the use of natural gas or refinery fuel gas to operate the pilot lights which keeps the flares in a stand-by state so they are available to operate, when needed. Natural gas is flammable under certain conditions. Since the refineries and hydrogen plant already use natural gas, the installation of a new flare system will not introduce any new hazards to the facilities. Further, the use of a flare system would minimize total organic emissions from being discharged directly to the atmosphere, thus minimizing the release of potentially flammable materials.

Health and Safety Code §25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. Business emergency response plans generally require the following:

- Types of hazardous materials used and their locations;
- Training programs for employees including safe handling of hazardous materials and emergency response procedures and resources.
- Procedures for emergency response notification;
- Proper use of emergency equipment;
- Procedures to mitigate a release or threatened release of hazardous materials and measures to minimize potential harm or damage to individuals, property, or the environment; and
- Evacuation plans and procedures.

Hazardous materials at existing facilities would continue to be used in compliance with established OSHA or Cal/OSHA regulations and procedures, including providing adequate ventilation, using recommended personal protective equipment and clothing, posting appropriate signs and warnings, and providing adequate worker health and safety training. The exposure of employees is regulated by Cal-OSHA in Title 8 of the CCR. Specifically, 8 CCR 5155 establishes permissible exposure levels (PELs) and short-term exposure levels (STELs) for various chemicals. These requirements apply to all employees. The PELs and STELs establish levels below which no adverse health effects are expected. These requirements protect the health and safety of the workers, as well as the nearby population including sensitive receptors.

In general, all local jurisdictions and all facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the

possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification, mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area.

The above regulations provide comprehensive measures to reduce hazards of explosive or otherwise hazardous materials. Compliance with these and other federal, state and local regulations and proper operation and maintenance of equipment should ensure the potential for accidental releases of hazardous materials is not significant. Therefore, the Proposed Rule 13-5 is not expected to create a significant hazard to the public or environment.

9. c) No Impact. The Valero Benicia Refinery and the PBF Martinez Refinery are not located within a quarter mile of an existing school site. Proposed Rule 13-5 would not result in any physical changes or modifications that would generate hazardous emissions or result in the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, no increase in hazardous emissions that impact a school site is expected due to the proposed project.

9. d) Less Than Significant. 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 Water Quality Control Board's GeoTracker reports that the Valero Benicia Refinery is subject to a Cleanup and Abatement Order to address groundwater impacts, which include aviation fuels, benzene, MTBE, diesel, gasoline, kerosene, mercury, toluene, waste oil, xylene, and other metals and hydrocarbons. The facility is currently in the process of remediation that includes pumping and treating contaminated groundwater, soil vapor extraction, and enhanced bioremediation (SWRCB, 2020a).

The Water Quality Control Board's GeoTracker reports that releases to groundwater have occurred associated with the PBF (formerly Shell Oil Co.) Martinez Refinery. Releases include crude oil, diesel, gasoline, other petroleum products, waste oil, polycyclic aromatic hydrocarbons, metals, and volatile organic compounds. The facility is required to complete site investigations and cleanup of discharges that impact the waters of the State (SWRCB, 2020b).

Proposed Rule 13-5 would have no impact on these cleanup actions or otherwise adversely affect the existing Cleanup and Abatement Orders. The Orders will remain in effect and continue to establish requirements for site monitoring and cleanup of existing contamination. As a result, the Proposed Rule 13-5 may require new flare systems at these refineries, but it would not have any impact on these cleanup actions or create any additional hazards to the public or the environment associated with cleanup activities.

9. e) Less Than Significant. The Valero Benicia Refinery and the PBF Martinez Refinery are not located within 2 miles of an airport. The PBF Martinez Refinery is located approximately 38 miles northwest from Buchanan Field airport, an airport in the City of Concord. Airport Influence

Areas are used in land use planning to identify areas commonly overflown by aircraft as they approach and depart an airport, or as they fly within established airport traffic patterns. The Buchanan Field Airport Influence Area is defined as the area within 14,000 feet of the ends of the primary surfaces for runways. The Contra Costa County *Airport Land Use Compatibility Plan* Countywide Policy 4.3.5 requires FAA review and approval of any structure over 200 feet in height. Proposed Rule 13-5 may require construction of new flare systems; however, the flares are not expected to be higher than existing structures at the refineries and are not expected to exceed 200 feet in height. Therefore, the project is not expected to result in any additional safety risk associated with operations at the Buchanan Field Airport.

9 f). Less Than Significant. Proposed Rule 13-5 would not require modifications that would impair implementation or physically interfere with any emergency response plan or emergency evacuation plan. Under Rule 13-5, modifications may be required to install air pollution control equipment at hydrogen plants that provide hydrogen to two existing refineries. All construction activities would occur within the confines of the existing industrial areas so no emergency response plans at other facilities would be impacted. The existing refineries have prepared, adopted, and implemented emergency response plans. The emergency response plans may need to be updated following completion of construction activities. However, new control equipment required by Rule 13-5 would not be expected to alter the route that employees would take to evacuate the site, as the evacuation routes generally direct employees outside of the main operating portions of the facility. Therefore, implementation of Proposed Rule 13-5 would not be expected to impair implementation of interfere with an adopted emergency response plan or emergency evacuation plan.

9. g) No Impact. The California Department of Forestry and Fire Protection (CalFIRE) maps areas of significant fire hazard based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, determine the requirements for special building codes designed to reduce the potential impacts of wildland fires on urban structures. The Valero Benicia Refinery and PBF Martinez Refinery are located within a non-Very High Fire Hazard Severity Zone, as the area is urbanized, is located adjacent to the Bay and marshlands, and not located adjacent to wildland areas. The land in the northwestern, southern, and eastern areas of Contra Costa County, including the western portions of the City of Martinez are classified as very high fire hazard zones by CalFIRE. The hills approximately one mile north of the Valero Benicia Refinery are considered moderate and high Fire Hazard Severity Zones. Nonetheless, the refineries are located well outside Very High Fire Hazard Zone, which indicates that it is not subject to significant wildfire hazard. Implementation of Proposed Rule 13-5 would require additional equipment at these refineries/hydrogen plants, but they would be located within heavy industrial areas and would not be expected to have an impact related to wildland fires.

Conclusion

Based upon these considerations, no significant adverse impacts to hazards and hazardous materials are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts to hazards and hazardous materials were identified, no further evaluation of hazards and hazardous materials are required in the EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	**HYDROLOGY / WATER QUALITY.** Would the project:				
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☑	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
	i) result in substantial erosion or siltation onsite or offsite;	☐	☐	☑	☐
	ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☑	☐
	iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;	☐	☐	☑	☐
	iv) impede or redirect flood flows?	☐	☐	☑	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☑
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☑	☐

Environmental Setting

Both the Valero Benicia and PBF Martinez refineries are located adjacent to the Suisun Bay. The Suisun Bay is located in the eastern portion of the San Francisco Bay Estuary and is a major

drainage basin for the Sacramento and San Joaquin River delta system. Creeks drain from land areas surrounding the refineries into the Suisun Bay.

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. 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).

Of the water segments that make up the San Francisco Bay Estuary, Suisun Bay is the first water body that receives flows from the Sacramento and San Joaquin watershed. Much of the land surrounding the Sacramento and San Joaquin watershed is devoted to agricultural and forestry land uses, with some major urban centers that contribute discharges into the rivers. Pollutants produced by these activities reach Suisun Bay through discharge from wastewater treatment plants, storm water runoff, and agricultural drain water, and disposal of dredged material. According to the Regional Water Quality Control Board, the Suisun Bay is on the Clean Water Act Section 303(d) list as an impaired water body because of low dissolved oxygen and methyl mercury contamination (SWRCB, 2020).[7] Water quality problems in Suisun Bay have been attributed to legacy contamination from point and non-point source pollution, and include declines in fish population, elevated contaminated fish tissue levels, and elevated contaminated shellfish tissue levels.

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 Area 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).

Wastewater treatment in the Bay Area is provided by various agencies as well as individual city and towns 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. Both the Valero Benicia and PBF Martinez refineries have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of National Pollutant Discharge Elimination System (NPDES) permits.

[7] California Regional Water quality Control Board, Suisun March TMDLs. Available at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/suisunmarshtmdl.html

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

10 a). Less Than Significant. Process wastewater, sanitary sewage, and most of the storm water runoff from the refineries are collected and managed in the existing wastewater treatment systems that are regulated by an NPDES permit. Proposed Rule 13-5 is designed to minimize total organic and methane emissions from hydrogen plant operations and is expected to require the installation of new flare systems at existing hydrogen plants, which are located within developed, existing industrial areas. Construction activities associated with the proposed rule could require the use of water to minimize dust associated with dirt moving activities. Water would be misted to keep soil moist, thus minimizing fugitive dust. Water would not be sprayed in sufficient quantities to generate water runoff that could potentially result in waste discharge or water quality impacts.

Proposed Rule 13-5 are expected to result in the installation of flare systems, which generally do not require water to use. Some flares can use high velocity steam injection nozzles to increase gas turbulence in the flame boundary zones, drawing in more combustion air and improving mixing. These systems help to minimize smoke from flares. While steam may be used in the flare systems, they are not expected to generate a significant amount of wastewater. A small amount of water may be collected in a knockout vessel. Any collected water would be expected to be treated in existing wastewater treatment facilities, prior to discharge. Therefore, Proposed Rule 13-5 is not expected to result in any significant increase in water runoff, wastewater discharge, would not be expected to result in water quality impacts, and would not result in the degradation of surface water. Proposed Rule 13-5 is not expected to result in any violation of NPDES permits.

10 b and e) Less Than Significant. Proposed Rule 13-5 is designed to minimize total organic compound emissions from the operation of hydrogen plants. No grading or extensive site preparation is expected to be required to construct foundations. Site preparation is expected to be limited to the construction of foundations for flares, thus requiring little or no water for fugitive dust control. Therefore, little or no water for dust suppression purposes is expected to be needed for construction activities under the proposed new rule and rule amendments.

Modifications may be required to install flare systems, which are not major users of water. Water demand impacts are limited to the use of water needed to make steam, if steam is used for smoke suppression. Refineries and hydrogen plant are fairly large users of water. The potential increase in steam is expected to be within the range of water use for the existing facilities and not result in a substantial increase in water use. Therefore, Proposed Rule 13-5 will not significantly impact water demand or interfere with groundwater recharge or cause any notable change in the groundwater table level.

10 c) Less Than Significant. The proposed modifications required to comply with Proposed Rule 13-5 would be located within the operating portions of existing refineries and/or hydrogen plants. The project modifications are not expected to result in the construction of additional impervious surfaces. The area where the flare systems would be located are developed and urbanized. There are no streams, rivers or other natural drainage within the confines of the existing refineries or hydrogen plants that would be expected to be impacted by a new flare system. Most rainwater and surface runoff within the existing industrial areas are controlled, collected, and treated within the existing wastewater treatment plants. Additionally, the project modifications are not expected to result in an increase in surface water or impact storm water drainage facilities, as little new paved area will be required. Therefore, no significant adverse impacts to storm water runoff or existing drainage patterns are expected as a result of Proposed Rule 13-5.

10 d) Less Than Significant. As mapped on the National Flood Insurance Program Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency, the operating portions of the PBF Martinez Refinery and Valero Benicia Refinery are designated Zone X, which means that it is an area determined to be an area of minimal flood hazard (outside the 0.2 percent annual chance floodplain) (FEMA, 2020). The Valero Benicia Tank Farm is located adjacent to Sulphur Springs Creek which is designated a regulatory floodway, with the potential flood hazard adjacent to the east side of the creek and not within the Valero Benicia Refinery. Proposed Rule 13-5 would be expected to require a flare adjacent to the hydrogen plants, which are not located in flood hazard zones. Therefore, Proposed Rule 13-5 would not create or substantially increase risks from flooding or expose people or structures to significant risk of loss, injury or death involving flooding.

A seiche is a tidal change in an enclosed or semi-enclosed water body caused by sustained high winds or an earthquake. Tsunamis are seismically induced sea waves that, upon entering shallow near-shore waters, may reach heights capable of causing widespread damage to coastal areas. The waterfront area adjacent to the Suisan Bay is at risk of inundation from tsunamis that could be generated in the Pacific Ocean, San Francisco Bay, or Carquinez Strait. The area that is at risk of inundation from tsunamis along the waterfront is mostly marshland. The operating portions of both the PBF Martinez and Valero Benicia refineries are located outside of these inundation areas

because of their elevations. Based on the above, the proposed project is not expected to result in increased risk of inundation by seiche, tsunami, or mudflow.

Conclusion

Based upon these considerations, no significant adverse impacts to hydrology and water quality are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts to hydrology and water quality were identified, no further evaluation of hydrology and water quality are required in the EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**LAND USE / PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☑
b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Environmental Setting

The PBF Martinez Refinery is located in north-central Contra Costa County, approximately 25 miles east of San Francisco, adjacent to the community of Martinez. The primary processing area of the Refinery is between Pacheco Boulevard and Marina Vista, and the wastewater treatment plant and wharf operations are between Marina Vista and the Carquinez Strait. Approximately 20 percent of the Refinery is located within the corporate limits of the City of Martinez. The remainder of the Refinery is in an unincorporated area of the County.

The PBF Martinez Refinery is located in a heavy industrial area, which allows for the manufacturing and processing of petroleum chemicals, fertilizers, gas, as well as numerous other industrial and manufacturing uses. The Refinery is bordered to the north by heavy industrial land use and the Carquinez Strait water way. To the east of the PBF Martinez Refinery is Highway 680, public lands, and wetland areas that are designated as open space. Along the southern border of the Refinery is land designated as commercial, multiple family residential (light), and single family residential (heavy). The area west of the Refinery is similar in mix to the land use along the southern area, however, the central Martinez downtown area is located directly west of the Refinery.

The Valero Benicia Refinery is located at 3400 East Second Street, within an industrial area (Benicia Industrial Park) in the eastern portion of the City of Benicia, west of Interstate 680. The Refinery is located along the northern edge of the Suisun Bay below a low range of coastal hills. The Refinery occupies approximately 330 acres of the 880-acre Valero Benicia property; the remaining portion of which is undeveloped. The Refinery is designated as General Industrial by the City of Benicia General Plan and Zoning Ordinance.

The Valero Benicia Refinery is immediately bordered by approximately 550 acres of mostly undeveloped Valero property to the south and west, and general industrial uses to the north and east. Industrial uses in the Benicia Industrial Park are located east of the Refinery. This area consists largely of single-level warehouse and manufacturing buildings interspersed with parking areas and materials storage yards. Residential uses are located approximately 3,000 feet to the

south and west of the Refinery, and approximately 2,100 feet to the northwest. This neighborhood is separated from the Valero Benicia Refinery site by undeveloped hills, including areas owned by Valero.

In 1965, the McAteer-Petris Act (California Government Code, Section 66600 et seq.) established the San Francisco Bay Conservation and Development Commission to regulate development on and adjacent to the San Francisco Bay. The mandate of this Commission is to protect the Bay and the quality of its waters; to maximize public access to the Bay; to allow planned, controlled development along the Bay, particularly water-oriented land uses; to restrict uncoordinated and haphazard filling of the Bay; and to maintain salt ponds and managed wetlands along the Bay. The Commission developed the San Francisco Bay Plan (BCDC, 2020). as a comprehensive and enforceable plan for fulfilling its legislated mandate.

The Bay Plan identifies five high priority uses of the Bay and shoreline for which shoreline areas should be reserved. These "priority uses" are ports, water-related industry, airports, wildlife refuges, and water-related recreation. The San Francisco Bay Plan (BCDC, 2020) designates the refineries as a water-related industry, which is defined as an industry that requires "a waterfront location on navigable, deep water to receive raw materials and distribute finished products by ship, thereby gaining a significant transportation cost advantage."

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

11 a and b) No Impact. The Proposed Rule 13-5 is designed to minimize total organic compound emissions from the operation of hydrogen plants. Modifications may be required to install flare systems at the hydrogen plants of two existing refineries. Construction of these flare systems as a result of Proposed Rule 13-5 would be located in existing industrial areas and, thus, are not expected to affect land use and planning. All construction would take place at already existing facilities that have been previously graded. Thus, the proposed project would not result in impacts that would physically divide an established community.

Land uses surrounding the refineries are primarily industrial. The General Plans and land use plans for areas with industrial land uses, such as Contra Costa County, allow for and encourage the continued use of industrial land uses within their respective communities. Proposed Rule 13-5 would not conflict with any applicable land use plan, policy or regulation of an agency, because new equipment would be located within the confines of existing industrial facilities. The jurisdictions with land use approval recognize and support the continued use of industrial facilities and Proposed Rule 13-5 would not interfere with those land use policies or objectives.

Conclusion

Based upon these considerations, no significant adverse impacts to land use and planning are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts to land use and planning were identified, no further evaluation of land use and zoning are required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. 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?	☐	☐	☐	☑

Environmental Setting

According to the California Department of Conservation Division of Mines and Geology's Aggregate Resources Map, two Aggregate Resource areas are located in the Bay Area. North San Francisco has 492 million tons of permitted aggregate reserves sector and South San Francisco has 1,320 million tons of permitted reserves. Other smaller aggregate production areas in the Bay Area include Fremont, Pleasanton, Santa Clara, Santa Cruz, among others (California Geological Survey, 2018).

According to the California Department of Conservation Division of Mines and Geology's Aggregate Resources Map, Contra Costa and Solano Counties are not currently considered an Aggregate Resource sector. Areas with this designation are judged to be of prime importance in meeting future mineral needs in the region, and land use decisions must consider the importance of these resources to the region as a whole. No such areas are located in Solano or Contra Costa County.

The Contra Costa General Plan identified three regionally significant areas of mineral resources in the County: (1) a deposit of diabase (igneous rock used for roadbase and rip-rap) located in the Mt. Zion area near Concord and Clayton; (2) a geological deposit of sandstone (used to trench backfill and for the manufacture of heat resistant glass), located just south of Camino Diablo and east of Vasco Road; and (3) mining and brick production near Port Costa. These resource areas are designated for protection in the General Plan (Contra Costa, 2005).

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

12 a-b) No Impact. Proposed Rule 13-5 is 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. The proposed modifications to the refineries/hydrogen plants would continue to be located within the existing industrial areas. These sites do not contain any known mineral resources including sand, gravel, timber resources, or oil or natural gas reserves. No known locally important mineral resources occur at the site. As a result, no significant adverse impacts on available mineral resources are anticipated.

Conclusion

Based upon these considerations, no significant adverse impacts to mineral resources are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts to mineral resources were identified, no further evaluation of mineral resources are required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☑	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☑

Environmental Setting

The ambient noise environment in the urban areas of the Bay Area is defined by a wide variety of noise sources, with the predominant noise source being traffic. Traffic noise exposure is primarily a function of the volume of vehicles per day, the speed of those vehicles, the type of ground surface, the number of those vehicles represented by medium and heavy trucks, the distribution of those vehicles during daytime and nighttime hours, and the proximity of noise-sensitive receptors to the roadway. Existing average traffic noise exposure ranges from 52.1 decibels (dBA) (next to collector and small roads) to a as high as 75.9 dBA (next to freeways). Bus transit also contributes to roadway noise levels. In San Francisco, a large portion of the transit bus fleet is electrified and, consequently, the contribution of bus transit to localized roadway noise levels is decreased (ABAG, 2013).

The Valero Benicia Refinery complex is bordered by approximately 470 acres of mostly undeveloped Valero property to the south and west, and general industrial uses to the north and east. Residential uses are located to the south (Hillcrest neighborhood) and west (Southampton neighborhood) of the Valero buffer land boundaries. The closest sensitive receptors to the Valero Benicia Refinery are residences off Lansing Circle, approximately 0.5 mile northwest of the Refinery The buffer lands separating the neighborhoods from the Refinery are designated for non-noise sensitive uses by the Benicia General Plan - designated as General Industrial, Limited

Industrial, and General Open Space (City of Benicia, 1999). Areas to the northeast and southeast of the Refinery are also non-noise sensitive land uses, consisting of Interstate 680 and the Benicia Industrial Park.

The dominant existing sources of both noise and vibration within the vicinity of the PBF Martinez Refinery include the refinery operations and traffic on the major roadways and nearby rail lines. Major roadways in the vicinity of the PBF Martinez Refinery include Pacheco Boulevard, Shell Avenue, Marina Vista Way, and Interstate 680 (I-680). Also, a rail line used by the Union Pacific Railroad Company (UPRR) and Amtrak to ferry passengers and freight, passes within approximately 50 feet north of the PBF Martinez Refinery. The closest airport to the PBF Martinez Refinery is Buchanan Field in Concord, approximately three miles to the southeast.

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 closest off-site receptor.
- 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

13 a) Less Than Significant. Under Proposed Rule 13-5, new flare systems would be constructed within the confines of two existing refineries or adjacent to existing hydrogen plants.

Construction Noise Impacts

Construction activities associated with the proposed rule may generate some noise associated with temporary construction equipment and construction-related traffic. Construction would likely require truck trips to deliver equipment, a construction crew of up to about 20 workers, and a few pieces of construction equipment (e.g., air compressors, cranes, forklift, generators, aerial lifts, rollers, welders, and hand tools). Table 2-3 presents typical noise levels associated with construction equipment.

TABLE 2-3

Construction Equipment Noise Levels

Equipment	Typical Noise Level 50 ft from Source (dBA)
Backhoe	80
Crane	83
Welder	80
Air Compressor	80
Compactor	82
Forklift	78
Concrete Pump	82
Concrete Saw	76
Generator	82
Man Lift	80
Truck	84

Source: U.S. FTA, 2018.

Construction activities would occur at existing refineries in heavy industrial areas. Noise from construction activities would diminish rapidly with distance from a construction site, generally at a rate of six decibels per doubling of distance. For example, a noise level of 86 decibels measured at 50 feet from the noise source would decrease to 80 decibels at 100 feet, 74 decibels at 200 feet, 68 decibels at 400 feet, 62 decibels at 800 feet, and 56 decibels at 1,600 feet. The closest residents to the Valero Benicia Refinery are approximately 0.5 mile (2,640 feet). Residents are located closer to portions of the PBF Martinez Refinery, although most of them are located over 1,000 feet from the operating refinery units. Therefore, construction noise levels would be 56-62 decibels at the closest residential areas.

Most local cities and counties limit construction activities to daytime hours (e.g., between 7:00 am and 7:00 pm Monday through Friday). Compliance with local noise requirements would limit noise activities to daytime hours during weekdays and avoid construction during the more sensitive nighttime hours. Further, construction activities are expected to be limited to industrial areas and would be temporary. Therefore, noise impacts associated with construction activities are expected to be less than significant.

Operational Noise Impacts

The existing noise environment at each of the affected refineries is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, trucks entering and exiting the refinery premises and adjacent businesses, noise from other businesses in the area, and rail traffic. Flares are generally not major sources of continuous noise at industrial facilities. A flare requires a pilot light (similar to a pilot on a gas stove) for continuous operation so that the flare is in standby condition and can operate immediately, when needed. The flare in stand-by operation is not a major noise sources and does not generate noise. A flare can be a source of noise when there is a flaring event. However, flaring events are expected to be sporadic, not predictable

because flaring would only occur when the produced hydrogen is found to be off specification or during upset or emergency conditions and, therefore, the related noise impacts are considered speculative. In addition, as discussed above, a noise level of 85 decibels measured at 50 feet from the noise source would decrease to 79 decibels at 100 feet, 73 decibels at 200 feet, 67 decibels at 400 feet, and 61 decibels at 800 feet, which is generally less than noise in most industrial/commercial areas. All noise producing equipment must comply with local noise ordnances and applicable OSHA and Cal/OSHA noise requirements. Compliance with these noise requirements would apply to the affected facilities and would be expected to limit noise activities to acceptable levels.

13 b). Less Than Significant. The proposed project is not expected to generate or expose people to excessive ground borne vibration or ground borne noise. No substantial grading is required because the affected facilities have already been graded and are level. Construction activities would include the use of construction equipment to develop footings/foundation for the flare but no large equipment that would generate substantial vibration is expected to be required, because the sites are already graded and developed. Further, construction activities are temporary and occur during the daylight hours, in compliance with local noise standards and ordinances. Therefore, Proposed Rule 13-5 is not expected to generate excessive ground borne vibration or noise.

13 c). No Impacts. The closest airport to either the PBF Martinez Refinery or the Valero Benicia Refinery is the Buchanan Field Airport, an airport in the City of Concord. The Airport is located approximately 3 miles from the PBF Martinez Refinery and over 6 miles from the Valero Benicia Refinery. As discussed above, flares would be placed in existing industrial areas. Proposed Rule 13-5 would not result in an increase in noise or place residential or occupational receptors closer to the Buchanan Field Airport. Therefore, Proposed Rule 13-5 would not expose people residing or working in the project area to excessive noise levels associated with airports.

Conclusion

Based upon these considerations, no significant adverse noise impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse noise impacts were identified, no further evaluation of noise impacts are required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION / HOUSING. Would the project:				
a) Induce substantial unplanned 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 people or housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Environmental Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles), so that land uses vary greatly and include commercial, industrial, residential, agricultural, and open space uses. Proposed Rule 13-5 would apply to facilities which are typically located within industrial or commercial areas.

Population in the Bay Area in 2015 was about 7.6 million people which is about 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).

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.
- The project displaces substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere in excess of that contained in a City or County Housing Element.

Discussion of Impacts

14 a). No Impact. Proposed Rule 13-5 is not anticipated to generate any significant effects, either directly or indirectly, on the Bay Area's population or population distribution.

It is expected that the existing labor pool would accommodate the labor requirements for the construction of two new flare systems, as the existing labor pool of 7.6 million people in the Bay Area can accommodate the estimated 20 construction workers per facility. In addition, it is not expected that the affected facilities would need to hire additional permanent personnel to operate the new equipment. As such, implementing Proposed Rule 13-5 is not expected to induce substantial population growth.

14 b). No Impact. Because the project modifications will occur within existing industrial facilities located in a highly urbanized area, no housing units will be displaced. Because the labor force is not expected to increase over historical levels, no additional housing will be necessary to accommodate the labor force. Substantial housing growth in the area will not occur as a result of the project modifications. Therefore, no significant adverse population or housing impacts are expected due to implementation of Proposed Rule 13-5.

Conclusion

Based upon these considerations, no significant adverse population and housing impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse population and housing impacts were identified, no further evaluation of population and housing impacts are required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES.				
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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?	☐	☐	☐	☑

Environmental Setting

Fire Protection

The Contra Costa County Fire Protection District (CONFIRE), provides fire and emergency medical services to nine cities (including Martinez), and the unincorporated areas, serving a population of 600,000 across a 254 square mile area with 25 fire stations. The CONFIRE is a well-equipped full-service fire agency, which provides service to business, residents, and industry, including several petroleum refineries and chemical manufacturing plants. CONFIRE serves many area communities including: Walnut Creek, Pleasant Hill, Concord, Pacheco, Martinez, Clayton, Lafayette, Clyde, Briones, El Sobrante, San Pablo, Antioch, Pittsburg, and Bay Point.

Two fire stations are located within approximately three miles of the PBF Martinez Refinery: (1) Fire Station 12, located at 1240 Shell Avenue, Martinez, approximately 0.25 mile southwest of the Refinery; and (2) Fire Station 11, located at 209 Center Street, Martinez, approximately 2.8 miles southeast of the Refinery.

The Benicia Fire Department provides fire protection and emergency services in the City of Benicia. Two fire stations are located within approximately two miles of the Valero Benicia Refinery: (1) Fire Station located at 150 Military West Benicia, is approximately 1.3 miles

southwest of the Valero Benicia Refinery; and (2) Benicia Fire Department Station 12 located at 601 Hastings Dr., Benicia, approximately 1.7 miles west of the Refinery.

Police Protection

Public protection services are provided in Contra Costa County by various city police departments and the County Sheriff. The PBF Martinez Refinery is served by the Contra Costa County Sheriff's Office and the California Highway Patrol. The County Sheriff's Office employs over 1,100 sworn personnel and professional employees and responds to over 600,000 calls per year. The Sheriffs' Patrol Division provides uniformed law enforcement services to the residents who either live in Contra Costa's 715 square miles of unincorporated land, a contract city or a special district.

The California Highway Patrol also provides public protection to the Martinez area, and the station closest to the PBF Martinez Refinery is the Contra Costa County Station, located on 5001 Blum Road in Martinez approximately 2 miles southeast of the Refinery. In addition to the police protection services provided by the County's Sheriff's Office, the Refinery maintains a 24-hour security force to provide on-site security. Refinery site access is controlled by an extensive security program including a perimeter fence serving as a physical barrier to prevent unknowing and unauthorized entry. All entry gates are staffed with 24-hr security personnel for surveillance.

The Benicia Police Department provides public protection services in Benicia. The Benicia Police Department is staffed with 32 sworn officers, 20 non-sworn employees, and 35 citizen volunteers. The closest station to the Valero Benicia Refinery is located 200 E. L St., Benicia, approximately 1.3 miles south west of the Refinery. In addition to the police protection services provided by the County's Sheriff's Office, the Refinery maintains a 24-hour security force to provide on-site security. Refinery site access is controlled by an extensive security program including a perimeter fence serving as a physical barrier to prevent unknowing and unauthorized entry. All entry gates are staffed with 24-hr security personnel for surveillance.

Schools

The Martinez Unified School District (MUSD) provides public school services to the Martinez area. There are four elementary schools in the MUSD including: (1) Las Juntas Elementary School, located at 4105 Pacheco Boulevard, Martinez; (2) John Muir Elementary School, located at 205 Vista Way, Martinez; (3) John Swett Elementary School, located at 4855 Alhambra Valley Road, Martinez; and (4) Morello Park Elementary School, located at 1200 Morello Park Drive. Two secondary schools are located in the MUSD including: (1) Martinez Junior High, located at 1600 Court Street, Martinez; and (2) Alhambra High School, located at 150 E Street. Two alternative and independent study schools are also located in the MUSD including Vicente Martinez High School, located at 614 F Street, Martinez; and (2) Briones School 925 Susana Street, Martinez.[8] The MUSD serves over 4,000 students in grades K-12.[9]
The Benicia Unified School District (BUSD) provides public school services in the Benicia area. There are four elementary schools, including: (1) Joe Henderson Elementary School, located at

[8] Martinez Unified School District. Available at: https://www.martinezusd.net/schools

[9] California Department of Education, Ed Data. Available at: http://www.ed-data.org/district/Contra-Costa/Martinez-Unified

650 Hastings Drive, Benicia; (2) Mary Farmer Elementary School, located at 901 Military West, Benicia; (3) Matthew Turner Elementary School, located at 540 Rose Drive, Benicia; and (4) Robert Semple Elementary School, located at 2015 E. 3rd Street, Benicia. One middle school is located in the BUSD, Benicia Middle School, located at 1100 Southampton Road, Benicia. Finally, two high schools are located in the BUSD, including: (1) Benicia High School, located at 1101 Military West, Benicia; and (2) Liberty High School, located at 351 East J Street, Benicia. The Benicia Unified School District services over 4,000 students in grades K through 12.[10]

Parks and Other Public Facilities

Parks in the Martinez areas include Cappy Rick's Park, a one-acre park located approximately 0.25 mile southwest of the PBF Martinez Refinery and Waterfront Park, a 150-acre park located approximately 0.25 mile northwest of the PBF Martinez Refinery. The Martinez Public Library is a branch of the Contra Costa County Library system and is located on the corner of Court and Ward Streets. The Martinez Senior Center is located at 818 Green Street and provides services for senior citizens, including activities, tours, and special events.

There are six parks within about 2 miles of the Valero Benicia Refinery: Waters End Park, Frank Skillman Park, Southampton Park, Francesca Terrace, Duncan Graham Park, and Overlook Park.

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

15. a) No Impact. New flares associated with Proposed Rule 13-5 would be located within the existing refineries/hydrogen plants. The existing refineries maintain personnel and equipment on-site for fire suppression efforts. Fire hydrants are located throughout the refineries that provide additional fire water flow in the event of an emergency. It is not expected that the refinery modifications will require an increase in the level of fire protection service needed to protect and serve the facility because there will be no new flammable materials stored on-site. Proposed Rule 13-5 would require the installation of flare systems at two refineries which use natural gas, a flammable material already used at the refineries. It is expected that the refineries will maintain equipment and fire response staffing as part of the existing refinery operations.

Compliance with State and local fire codes is expected to minimize the need for additional fire protection services. Both refineries have their own emergency response team, along with the local fire department and other emergency services. The addition of a flare to the refineries is not expected to increase the requirements for additional or altered fire protection.

[10] California Department of Education data, available at http://www.ed-data.org/district/Solano/Benicia-Unified.

Entry and exit at the existing refineries are currently monitored and no additional or altered police protection is expected. The Valero Benicia and PBF Martinez refineries are existing facilities with 24-hour security forces. All project modifications will occur within the confines of the existing refineries/industrial facilities which already have security measures in place. Therefore, no impacts to the local police department are expected related to the project modifications.

As noted in the "Population and Housing" discussion above, proposed Rule 13-5 is not expected to induce population growth because the existing local labor pool (e.g., workforce) is expected to be sufficient to accommodate the expected temporary construction work force of up to 20 workers per facility. No increase in permanent workers is expected to be required to operate the new flare systems. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

Installation of the new flare systems would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. The facilities affected by the Proposed Rule 13-5 are existing refineries/hydrogen plants for which public services are already required and no increase in the need for such services is expected. There will be no increase in population as a result of the adoption of the proposed new rule, therefore, no need for physically altered government facilities.

Conclusion

Based upon these considerations, no significant adverse impacts on public services are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts on public services were identified, no further evaluation of impacts to public services is required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. 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?	☐	☐	☐	☑

Environmental Setting

The Bay Area contains over one million acres of parks and open space areas. Approximately 265,000 acres of new parkland were added to the region'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 (ABAG, 2017).

Regional parks and major open space areas provide places where people can enjoy active and passive recreation activities. These activities typically include nature studies, camping, hiking, and similar activities. Regional parks and major open space areas often encompass hundreds or even thousands of acres and are typically established in order to protect uniquely valuable natural resources. Therefore, each regional park and open space area itself is unique and offers specific recreational opportunities that are not otherwise available in the immediate vicinity of most Bay Area residents. Within Contra Costa County, regional parks and open spaces are owned and managed by federal and state governments, the East Bay Regional Parks District, and municipalities. Regional parks and open space areas within ten miles of the Martinez area include the Carquinez Strait Regional Shoreline Park, the Martinez Regional Shoreline, Crockett Hills Regional Park, Sobrante Ridge Regional Park, John Muir National Historic Park, Briones Regional Park, Acalanes Ridge Open Space, Lime Ridge Open Space, and the Waterbird Regional Preserve (Contra Costa County, 2011).

There are six parks within about 2 miles of the Valero Benicia Refinery: Waters End Park, Frank Skillman Park, Southampton Park, Francesca Terrace, Duncan Graham Park, and Overlook Park.

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

16 a-b) No Impact. As discussed under "Land Use" (Section XI), there are no provisions in Proposed Rule 13-5 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 Proposed Rule 13-5. Construction associated with Proposed Rule 13-5 is expected to be limited to two new flare systems that may require up to 20 temporary construction workers each. Further, no increase in permanent workers is expected. All construction would take place within existing refineries/industrial areas that have been previously graded and developed. Thus, there would be no impacts on recreation facilities due to construction activities that could impact them or from increased use.

Proposed Rule 13-5 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 Proposed Rule 13-5 is not expected to have any significant adverse impacts on recreation.

Conclusion

Based upon these considerations, no significant adverse recreation impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse recreation impacts were identified, no further evaluation of recreation impacts is required in the EIR.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.	**TRANSPORTATION** Would the project:				
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b)	Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3 subdivision(b)?	☐	☐	☑	☐
c)	Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
d)	Result in inadequate emergency access?	☐	☐	☐	☑

Environmental Setting

The Bay Area currently contains over 1,300 directional miles of limited-access highways, which include both interstates and state highways. In addition, the Bay Area has over 33,000 directional miles of arterials and local streets, providing more localized access to individual communities. Together, these roadway facilities accommodate nearly 21 million vehicle trips a day. There are over 11,500 transit route miles of service including heavy rail (BART), light rail (Muni Metro and VTA Light Rail), commuter rail (Caltrain and Alameda Commuter Express or ACE), diesel and electric buses, cable cars, and ferries. Cars, buses, and commercial vehicles travel about 158 million miles a day (2015) on the Bay Area freeways and local roads. Transit serves about 2.3 million riders on the average weekday (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.

The PBF Martinez Refinery is located in central Contra Costa County, just south of the Carquinez Strait, immediately west of I-680, south of Marina Vista Avenue/Waterfront Road. The PBF Martinez Refinery is bounded by Marina Vista Avenue to the north, I-680 to the east, and various streets including Pacheco Blvd to the south. Regional access is provided by the Marina Vista interchange on I-680 and the Arnold/Solano interchange on Route 4.

Interstate 680 (I-680) is a six-lane north-south freeway in the Martinez/Benicia area and connects Contra Costa County to Solano County via the Benicia Bridge. A full-access interchange with State Route 4 (SR-4) is located just southwest of the Project site. I-680 is a major commute route, connecting Solano County and points north with the Diablo Valley, San Jose and the greater East Bay.

State Route 4 is a four-lane east-west divided freeway in the Martinez area. It connects Interstate 80 to the west with Pittsburg and Stockton to the east. According to Caltrans 2003 traffic volumes, average daily traffic on SR-4 are 89,000 ADT west of I-680; 83,000 ADT east of I-680; and 80,000 ADT east of Solano Way.

Waterfront Road is a two-lane, east-west roadway which runs along Suisun Bay. An interchange with I-680 is provided to the east of the PBF Martinez Refinery, with lighted signals controlling access to the northbound and southbound ramps, respectively. West of I-680, the roadway name changes to Marina Vista, and it provides a direct route into downtown Martinez.

Regional access to the Valero Benicia Refinery is provided primarily from I-680, with local access provided via Park Road, Bayshore Road, and Industrial Way.

Bayshore Road is a two-lane road that connects the Valero Benicia Refinery to the industrial port area along the southeastern edge of the City of Benicia, following the Suisun Bay shoreline; a partial interchange with I-680 provides access to and from the south.

Park Road is a two-lane road that connects the industrial port area long the southeastern edge of the City of Benicia to the industrial areas to the northeast. Park Road serves as the connection between the split interchange ramps at Industrial Way (southbound off-ramp and northbound on-ramp) and Bayshore road (southbound on-ramp and northbound off-ramp).

Industrial Way is a two-lane road that loops through the industrial area where the Valero Benicia Refinery is situated, providing access to numerous industrial parcels either directly or via connections with local streets; a partial interchange with I-680 provides access to and from the north.

Existing transit service is provided by the Central Contra Costa Transit Authority (CCCTA), which is the primary bus service provider in central Contra Costa County. Three CCCTA bus routes

operate near the PBF Martinez Refinery (99 Express, 27 and 17). The nearest bus stop to the Refinery is along Imhoff Drive. A Bay Area Rapid Transit (BART) light rail station is located in the North Concord/Martinez area.

Fairfield and Suisun Transit (FAST) operates an express intercity route—Route 40—that connects the City of Vacaville to the Bay Area Rapid Transit (BART) station in the City of Walnut Creek. Route 40 has one stop in each direction at the intersection of Park Road and Industrial Way, near the southern boundary of the Valero Benicia Refinery. From here, the northbound route continues via I-680 to the City of Fairfield, and the southbound route continues via I-680 to the Pleasant Hill BART Station; both utilize the bus hub at the intersection of Park Road and Industrial Way in Benicia.

Significance Criteria

The proposed project impacts on transportation will be considered significant if:

- The project would conflict with a program, plan, ordinance, or policy addressing the circulation system.
- The project conflicts with or is inconsistent with CEQA Guidelines § 15064.3 subdivision(b).
- 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 due to geometric design features or incompatible uses.
- The project would result in inadequate emergency access.

Discussion of Impacts

17. a and b) Less Than Significant. Proposed Rule 13-5 is expected to require the installation of flare systems at hydrogen plants that serve two refineries. Additional trucks would be required to deliver new air pollution control equipment as part of the construction phase. This would be a one-time delivery of equipment with no increase in peak hour truck traffic. Temporary construction workers (estimated to be a maximum of 20 workers per facility) would be required to install new air pollution control equipment, however, construction activities are not expected to be extensive or require a substantial increase in workers or related traffic. Further, construction workers would be temporary and the traffic would cease once construction activities are complete.

Following construction activities, the flare systems would not be expected to generate a substantial increase in traffic, either workers or trucks. As discussed in XIV - Population and Housing, it is not expected that the affected facilities would need to hire additional personnel to operate new equipment at existing facilities, so no increase in permanent worker or truck traffic would be expected. Proposed Rule 13-5 would not result in a conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Therefore, the project would not conflict or be inconsistent with CEQA Guidelines §

15064.3 subdivision(b), as no increase in traffic is expected to occur, following the completion of construction activities.

17. c and d) No Impact. The proposed project would not increase traffic hazards or create incompatible uses. Proposed Rule 13-5 would not require the construction of any roadways or other transportation design features, so no changes to current roadway designs that would increase traffic hazards are expected. Since changes to the roadway system are not expected, no impacts to emergency access would be expected. Emergency access at the affected refineries is not expected to be impacted, as no modifications that effect traffic or access are expected to be required. Based on the above, Proposed Rule 13-5 is not expected to increase vehicle trips or to alter the existing long-term circulation patterns, thus creating traffic hazards or impacting emergency access.

Conclusion

Based upon these considerations, no significant adverse transportation impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse transportation impacts were identified, no further evaluation of transportation impacts is required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES.				
a) 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:				
i) 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	☐	☐	☑	☐
ii) 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?	☐	☐	☑	☐

Environmental Setting

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 centuries given their abundant natural resources and moderate climate. The arrival of Native Americans into the Bay Area is associated with documented cultural resources from about 5,500 years ago (ABAG, 2017).

Six different groups of Native American population, identified by their language, lived within the Bay Area, including 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, 2017).

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

The State CEQA Guidelines were amended in July 2015 to include evaluation of impacts on tribal cultural resources, which include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe. Assembly Bill (AB) 52 specifies that a project that may cause a substantial adverse change to a tribal cultural resource may result in a significant effect on the environment. AB52 requires tribes interested in development projects within a traditionally and culturally affiliated geographic area to notify a lead agency of such interest and to request notification of future projects subject to CEQA prior to determining if a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. The lead agency is then required to notify the tribe within 14 days of deeming a development application subject to CEQA complete to notify the requesting tribe as an invitation to consult on the project. AB52 identifies examples of mitigation measures that will avoid or minimize impacts to a tribal cultural resources and applies to projects that have a notice of preparation or a notice of intent to adopt a negative declaration/mitigated negative declaration circulated on or after July 1, 2015.

18. a and b). Less Than Significant. As discussed under Cultural Resources (Section V), the Bay Area has locations that were historically used by Native Americans. Thus, there is the potential for the presence of unrecorded tribal cultural resources to be buried throughout the District. Under Proposed Rule 13-5, modifications are expected at two existing refineries to install new flare systems. The installation of a flare system is not expected to require the demolition of existing equipment. If refinery equipment older than 50 years is required to be removed, such equipment does not typically meet the criteria identified in Public Resources Code 5020.1(k) for listing in 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, construction activities occur at existing refineries/industrial areas that have been previously graded and developed. Because construction will be limited to existing refineries/industrial facilities that have been graded and developed, Proposed Rule 13-5 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California

Native American Tribe. Furthermore, Proposed Rule 13-5 is not expected to 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. Proposed Rule 13-5 is not expected to require extensive construction or grading activities, therefore, impacts on historical and tribal resources as defined in Public Resources Section 5020.1(k), or 5024.1. Therefore, less than significant impacts to tribal resources are anticipated to occur as a result of Proposed Rule 13-5.

Conclusion

Based upon these considerations, no significant adverse tribal cultural resource impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse tribal cultural resource impacts were identified, no further evaluation of tribal cultural resource impacts is required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIX. UTILITIES / SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
c) 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?	☐	☐	☐	☑
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☑
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☑

Environmental Setting

Water Demand

The Contra Costa Water District (CCWD) is the principal utility that provides water to the Martinez area and the primary source of CCWD water is the Sacramento-San Joaquin Delta. The water is transported in the 48-mile Contra Costa Canal, which starts at Rock Slough, then stretches west to Clyde, south to Walnut Creek and north to Martinez. CCWD supplies about 250,000 residents in Brentwood, Clayton, Clyde, Concord, Pacheco, Port Costa, Bay Point and parts of

Pleasant Hill, Martinez, and Walnut Creek. CCWD also sells untreated water (raw water) from the canal to the cities of Antioch, Martinez and Pittsburg, and the Diablo Water District (Oakley). These five agencies treat, and distribute water serving an additional 250,000 people. CCWD sold 85,223 acre feet of water in 2019.[11] The Bollman Water Treatment Plant is CCWD's primary water treatment facility providing treated water to their service area.

The Valero Benicia Refinery receives water under existing contract with the City of Benicia. The City of Benicia receives water from the State Water project, under an agreement with the City of Vallejo, the Mojave Water Agency, and water from the State. The Benicia Water Treatment Plant has a treatment capacity of 12 million gallons per day. The transmission system consists of two pump stations and approximately 18 miles of pipeline. The distribution system consists of three pump stations, 8 pressure-reducing stations, and approximately 150 miles of pipelines. The storage system consists of 5 treated water reservoirs and Lake Herman with a capacity of 1,800 acre-feet.[12]

Given the large area covered by the Air District, public utilities are provided by a wide variety of local agencies. Most public wastewater treatment plants and industrial facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of NPDES permits. Water is supplied to affected facilities by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities, and at disposal sites.

Wastewater/Stormwater

Wastewater produced at the refineries is treated in existing wastewater treatment plants and discharged into the Carquinez Straits via a wastewater effluent outfalls. Both the PBF Martinez and Valero Benicia refineries operate under an NPDES permit administered by the San Francisco Bay Regional Water Quality Control Board RWQCB. As discussed in Section 10, Hydrology and Water Quality, stormwater runoff would continue to be discharged through stormwater outfalls permitted under existing NPDES permits, which set discharge limits and monitoring requirements. Stormwater discharges and water quality at the storm water outfalls are managed through application of an existing Storm Water Pollution Prevention Plan (SWPPP), which incorporates the NPDES discharge limits and monitoring requirements as well as incorporates procedures, pollution prevention strategies, and best management practices (BMPs) used to meet these discharge limits.

Solid Waste

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.

[11] CCWD, 2020 https://www.ccwater.com/365/The-Source-of-Your-Water

[12] City of Benicia, 2020 https://www.ci.benicia.ca.us/?SEC=A652B7E1-9EED-44DC-BD21-3D563D7E483B

Contra Costa County has one Class II landfill, the Keller Canyon Landfill and West Contra Costa Landfill. The Keller Canyon Landfill has a maximum permitted daily disposal of 3,500 tons/day with a remaining capacity of 63,408,410 tons and an anticipated closure date of December 31, 2030.[13] Other landfills in the Bay Area include the Altamont Landfill in Alameda County, Forward Landfill in San Joaquin County; Potrero Hills Landfill in Solano County, and the Vasco Road Landfill in Alameda County.

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

19 a and b) Less Than Significant Impacts. The potential water use and wastewater impacts associated with implementation of the Proposed Rule 13-5 were discussed under Hydrology and Water Quality (see Section X). Proposed Rule 13-5 would result in the installation of flare system, which generally does not require water to use. While steam may be used in the flare systems, they are not expected to result in any measurable increase in water use or generate a significant amount of wastewater. A small amount of water may be collected in a knockout vessel. Any collected water would be expected to be treated in existing refinery wastewater treatment facilities, prior to discharge. Therefore, Proposed Rule 13-5 is not expected to result in any significant increase in water use or wastewater discharge.

The potential increase in energy consumption associated with proposed project was discussed under Energy (see Section VI). Proposed Rule 13-5 is not expected to require any significant increase in electricity or natural gas use and would not require any additional telecommunications facilities.

19 c). No Impact. The Proposed Rule 13-5 is not expected to result in the construction of new equipment that results in a substantial increase in wastewater generation. The refineries treat wastewater generated onsite and will continue to do so in the future. Therefore, Proposed Rule 13-5 would not impact or require additional capacity from any public wastewater treatment provider.

[13] Calrecycle, 2020, SWIS Facility/Sit Activity Details, Keller Canyon Landfill https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228

19 d and e) No Impact. Construction of flare systems as a result of Proposed Rule 13-5 will not significantly increase solid or hazards wastes generated by the affected existing facilities. No significant impacts on waste generation are expected due to implementation of Proposed Rule 13-5. The flare systems combust organic material but do not generate wastes, so no increase in waste generation is expected due to implementation of Proposed Rule 13-5. Therefore, no significant impacts to hazardous or solid waste disposal facilities are expected due to implementation of Proposed Rule 13-5. The affected refineries are expected to continue to comply with all applicable federal, state, and local statutes and regulations related to solid and hazardous wastes.

Conclusion

Based upon these considerations, no significant adverse impacts on utilities and service systems are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse impacts on utilities and service systems were identified, no further evaluation of utilities and service system impacts is required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evaluation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread or a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

Environmental Setting

Wildland fires are a natural part of the California landscape and the number of fires and their impact vary from year to year. 2019 was considered a mild fire year by the California Department of Forestry and Fire Protection (CalFire), who reported that 259,823 acres of land burned because of 7,860 incidents, resulting in 3 fatalities and 732 structures damaged or destroyed.[14] In comparison, CalFire reported that 3,627,010 acres of land burned as of the end of September 2020, because of 7,982 incidents, resulting in 25 fatalities and 7,517 structures damaged or destroyed.[15]

[14] CalFire Incident Reports https://www.fire.ca.gov/incidents/2019/

[15] CalFire Incident Reports https://www.fire.ca.gov/incidents/2020/

The California Department of Forestry and Fire Protection (CalFire) maps areas identify significant fire hazard based on fuels, terrain, weather, and other relevant factors. These zones, referred to as a Fire Hazard Severity Zones, then determine the requirements for special building codes designed to reduce the ignition potential of buildings.

Significance Criteria

- The impacts to wildfires will be considered significant if:
- The project results in new structures located within or adjacent to lands classified as very high fire hazard severity zones
- The project adversely effects emergency response or emergency evacuation plans.

Discussion of Impacts

20. a), b), c), and d) No Impact. CalFIRE maps areas of significant fire hazard based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, determine the requirements for special building codes designed to reduce the potential impacts of wildland fires on urban structures. The Valero Benicia Refinery and PBF Martinez Refinery are located within a non-Very High Fire Hazard Severity Zone, as the refineries are urbanized, are located adjacent to the Bay and marshlands, and are not located adjacent to wildland areas. The land in the northwestern, southern, and eastern areas of Contra Costa County, including the western portions of the City of Martinez are classified as very high fire hazard zones by CalFIRE. The hills approximately one mile north of the Valero Benicia Refinery are considered moderate and high Fire Hazard Severity Zones. Nonetheless, the refineries are located well outside Very High Fire Hazard Zone, which indicates that they would not be subject to significant wildfire hazard. Implementation of Proposed Rule 13-5 would require additional equipment at these refineries, but they would be located within heavy industrial areas and would not be expected to have an impact related to wildland fires.

Conclusion

Based upon these considerations, no significant adverse wildfire impacts are expected due to implementation of Proposed Rule 13-5. Since no potentially significant adverse wildfire impacts were identified, no further evaluation of wildfire impacts is required in the EIR.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially 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, substantially 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?	☑	☐	☐	☐

Discussion of Impacts

21 a. Proposed Rule 13-5 is expected to require the installation of flare systems at two existing refineries. Construction activities associated with the proposed project are expected to occur in heavy industrial areas, where native biological resources have been removed and are non-existent. Thus, the proposed project is not expected to result in any impacts to biological resources and would not be expected to impact riparian, wetlands, or other sensitive communities.

The construction of air pollution control equipment would occur in existing heavy industrial areas. The refineries may have equipment or structures older than 50 years. However, this type of equipment usually does not meet the criteria identified in CEQA Guidelines §15064.5(a)(3) as historic resources. Further, the refineries have already been graded and developed, and no

substantial grading is expected to be required to install flare systems at the existing facilities. Thus, Proposed Rule 13-5 would not adversely affect historical or archaeological resources as defined in CEQA Guidelines §15064.5, or disturb human remains interred outside formal cemeteries. Therefore, no impacts to cultural resources are anticipated to occur as a result of the Proposed Rule 13-5 as no major construction activities are required.

Proposed Rule 13-5 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. As discussed in Section IV - Biological Resources, Section V - Cultural Resources, and Section XVIII – Tribal Cultural Resources, no significant adverse impacts are expected to biological, cultural or tribal cultural resources.

21 b-c) Potentially Significant. The existing refineries include the operation of numerous units and equipment. Two refineries are expected to need additional flare systems technology to comply with Proposed Rule 13-5, the Valero Benicia Refinery and the hydrogen plants that provide hydrogen to the PBF Martinez Refinery.

Flares use high-temperature oxidation to burn combustible components, mostly hydrocarbons, or waste gases from various types of industrial operations. In combustion, gaseous hydrocarbons react with atmospheric oxygen to form carbon dioxide and water. Properly operated flares achieve at least 98 percent destruction efficiency in the flare plume, meaning that hydrocarbon emissions amount to less than two percent of the hydrocarbons in the gas stream (U.S. EPA, 2018). Emissions from flaring may include carbon particles (soot), hydrocarbons, carbon monoxide, nitrogen oxides, sulfur oxides, and greenhouse gas emissions. While Proposed Rule 13-5 will result in a reduction in organic emissions, it can also result in an increase in particulate matter, carbon monoxide, volatile organic compounds, and nitrogen oxide emissions. Therefore, flare operational emissions associated with Proposed Rule 13-5, including the potential for toxic air contaminants, GHGs, and cumulative impacts, will be evaluated in the EIR.

CHAPTER 3

REFERENCES

References

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CHAPTER 3

References

Association of Bay Area Governments (ABAG), 2017. Plan Bay Area 2040. Final Environmental Impact Report. June 2017. SCH#2016052041

Bay Area Air Quality Management District (BAAQMD), 2017a. California Environmental Quality Act, Air Quality Guidelines, May 2017. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

BAAQMD, 2017b. FEIR for the Draft 2017 Clean Air Plan: Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Accessed August, 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en

BAAQMD, 2020. Preliminary Staff Report, Regulaiton 13, Climate Pollutants: Rule 5, Petroleum Refinery Hydrogen Plants, June 2020. +

BCDC, 2020. San Francisco Bay Plan, May 2020. Available at: https://www.bcdc.ca.gov/pdf/bayplan/bayplan.pdf

Benicia, City of, 1999. City of Benicia General Plan. Available at: https://www.ci.benicia.ca.us/vertical/sites/%7BF991A639-AAED-4E1A-9735-86EA195E2C8D%7D/uploads/Pages_1-110_from_General_Plan_-_Reduced_-_Updated_2016.pdf

California Department of Conservation, 2020. Farmland Mapping and Monitoring Program. Available at https://maps.conservation.ca.gov/DLRP/CIFF/.

California Department of Transportation, 2020. List of eligible and Officially Designated State Scenic Highways. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

California Energy Commission (CEC), 2020. 2018 Electricity Consumption by County. Available at https://ecdms.energy.ca.gov/elecbycounty.aspx

CEC, 2020b. 2018 Total System Electric Generation. Available at: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

CEC, 2020c. 2019 Gas Consumption by County. Available at: http://www.ecdms.energy.ca.gov/gasbycounty.aspx

California Geological Survey, 2018. Aggregate Sustainability in California, Map 52 and Map Sheet 52. California Department of Conservation.

Contra Costa, County, 2015. Contra Costa County Climate Action Plan. Approved December 15, 2015. Available at: https://www.contracosta.ca.gov/DocumentCenter/View/39791/Contra-Costa-County-Climate-Action-Plan

Contra Costa, County, 2011. Shell Crude Tank Replacement Project, Draft EIR, SCH 2010022034. July 2011

Contra Costa, County, 2005. Contra Costa County General Plan, 2005-2020. January 18, 2005. Available at: https://www.contracosta.ca.gov/4732/General-Plan

Federal Emergency Management Agency (FEMA), 2020 Flood Hazard Maps. Available at: https://msc.fema.gov/portal/search?AddressQuery=150%20Solano%20Way%2C%20Martinez%2C%20California#searchresultsanchor

Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment, September 2018. FTA Report No.l 0123. Available at: - https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdfVA-90-1003-06

Solano, County of, 2011. Climate Action Plan. Adopted June 7, 2011. Available at: https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=10080

State Water Resources Control Board, 2020a. Geotracker Information for the Valero Benicia Refinery. Available at: https://geotracker.waterboards.ca.gov/case_summary?global_id=SL18238656

State Water Resources Control Board, 2020b. Geotracker Information for the Shell Martinez Refinery. Available at: https://geotracker.waterboards.ca.gov/profile_report?global_id=SL18237655

U.S. EPA, 2018. U.S. EPA AP-42, Chapter 13.5 Industrial Flares, Final Section. February 2018. Available at: https://www3.epa.gov/ttn/chief/ap42/ch13/index.html#13.5