

## **APPENDIX A**

---

### **NOTICE OF PREPARATION AND INITIAL STUDY**





**Response:** This notice provides information on the above project and provides you an opportunity to submit comments on potential environmental effects that should be considered in the EIR. If the proposed project has no bearing on you or your agency, no action on your part is necessary. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 30 days*** after receipt of this notice. If you or your agency wishes to submit comments, they may be sent to Alex Ezersky, via the contact information below.

**Alex Ezersky, Principal Air Quality Specialist**  
**Bay Area Air Quality Management District**  
939 Ellis Street  
San Francisco, CA 94109  
Phone: (415) 749-4650 Fax: (415) 749-4741  
Email: [aezersky@baaqmd.gov](mailto:aezersky@baaqmd.gov)  
Date: March 28, 2005

## Chapter 3 Environmental Checklist

### ENVIRONMENTAL CHECKLIST FORM

- |  |  |
|--|--|
| <b>1. Project Title:</b>                                     | Bay Area Air Quality Management District (BAAQMD)<br>Proposed New Regulation 12, "Miscellaneous Standards of Performance," Rule 12, "Flares at Petroleum Refineries"   |
| <b>2. Lead Agency Name and Address:</b>                      | Bay Area Air Quality Management District<br>939 Ellis Street<br>San Francisco, California 94109  |
| <b>3. Contact Person and Phone Number:</b>                   | Alex Ezersky, Planning and Research Division,<br>415/749-4650 or aezersky@baaqmd.gov   |
| <b>4. Project Location:</b>                                  | This rule applies to the area within the jurisdiction of the Bay Area Air Quality Management District, which encompasses all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The refineries affected by the rule are located in Contra Costa County and Solano County. |
| <b>5. Project Sponsor's Name and Address:</b>                | (same as above)  |
| <b>6. General Plan Designation:</b>                          | N/A  |
| <b>7. Zoning:</b>  | N/A  |
| <b>8. Description of Project:</b>                            | See "Background" in Chapter 2  |
| <b>9. Surrounding Land Uses and Setting:</b>                 | See "Affected Area" in Chapter 2   |
| <b>10. Other Public Agencies Whose Approval Is Required:</b> | None   |

**Environmental Factors Potentially Affected:**

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a “Potentially Significant Impact”, “Less Than Significant With Mitigation Incorporated”, or “Less-than-Significant Impact”), as indicated by the checklist on the following pages.

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

**Determination:**

On the basis of this initial evaluation:

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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

\_\_\_\_\_  
For

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

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. In terms of physiography, the Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges. Because the area of coverage is so vast (approximately 5,600 square miles), land uses vary greatly and include commercial, industrial, residential, and agricultural uses.

## Discussion of Impacts

- a-c. Some equipment may have to be installed to comply with the proposed rule, but would be installed within existing refineries.. No alterations to the refineries that could affect scenic resources or degrade the visual character or quality of a site are anticipated. There is no impact.
- d. No additional sources of light would be required for the facilities under the proposed rule. The proposed rule would not alter existing lighting requirements in any way. Existing light sources are expected to be sufficient. There is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>II. AGRICULTURAL RESOURCES.</b>				
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

As described under “Aesthetics,” land uses within the jurisdiction of the BAAQMD vary greatly and include agricultural lands. Some of these agricultural lands are under Williamson Act contracts.

## Discussion of Impacts

a–c. The proposed rule would not require conversion of existing agricultural land to other uses. The proposed rule would not conflict with existing agriculture-related zoning designations or Williamson Act contracts. Williamson Act lands within the boundaries of the BAAQMD would not be affected. No effects on agricultural resources are expected because the proposed rule would apply to existing refinery operations. Because no changes in refinery locations are expected, there is no potential for conversion of farmland or conflicts related to agricultural uses or land under a Williamson Act contract. There is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact	
<b>III. AIR QUALITY.</b>					
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:					
a.	Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

### Existing Conditions

The pollutants of greatest concern in the BAAQMD are various components of photochemical smog (ozone and other pollutants) and particulate matter less than or equal to 10 microns in diameter (PM10). Ozone, a criteria pollutant, is formed from a reaction of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of ultraviolet light (sunlight).

As discussed in Chapter 2 (“Affected Area”), the Bay Area is classified as a nonattainment area for both the California and federal ozone standards. Though the Bay Area currently has an attainment record for the federal standard, it has not applied for redesignation to attainment and is still subject to occasional exceedances of the federal standard. Violations of the California standard occur with greater frequency because of the greater stringency of that standard.

The precursor chemicals that form ozone are volatile organic compounds (VOCs) and nitrogen oxides (NOx). Some of these volatile organic compounds are toxic compounds and some are known carcinogens. The BAAQMD maintains a network of monitoring stations to monitor certain toxic compounds in ambient air. In addition, the California Air Resources Board (CARB) maintains several monitoring stations in the Bay Area as part of a statewide toxics monitoring effort. All of the stations monitor for benzene, carbon tetrachloride, chloroform, ethylene dibromide, ethylene dichloride, methyl tert butyl ether (MTBE), methylene chloride, perchloroethylene, toluene, trichloroethane, trichloroethylene, and vinyl chloride. The CARB monitoring covers several additional gaseous compounds (1,3-butadiene, acetaldehyde, and formaldehyde) and several particulate toxics (chromium, nickel, PAHs, and lead). The BAAQMD has calculated the cancer risks associated with exposure to Bay Area average ambient levels in 2000 for these gaseous and particulate toxics to be 167 in one million. The total lifetime risk of cancer from all causes is generally regarded as 300,000 to 400,000 in one million.

There is increasing evidence that exposure to emissions from diesel-fueled engines may exceed the risks attributed to the toxics monitored by the BAAQMD and CARB networks. Based on CARB estimates of population-weighted average ambient diesel PM concentration for the Bay Area in 2000, and the best-estimate cancer potency factor adopted by the California Office of Environmental Health Hazard Assessment (OEHHA), the average cancer risk associated with exposure to diesel particulate matter is 450 in one million.

The mean ambient levels of monitored toxics are listed in the table below and compared to the mean ambient levels for 3 monitoring stations in Contra Costa County. The Richmond station is located on 7th Street downwind from the ChevronTexaco refinery and the Richmond Parkway in Richmond. The Crockett station is located at the end of Kendall Avenue generally downwind of the ConocoPhillips refinery. There are two Concord stations, and the values listed here are for the station on Treat Boulevard, downwind of Highways 680 and 4. The only notable differences in values are for toluene, for which ambient levels are higher than the Bay Area mean for the Concord and Richmond stations. Toluene emissions are generally associated with motor vehicle traffic. The higher mean ambient levels for toluene for these two stations are similar to those found at two other stations near roadways with heavy traffic in San Francisco, San Jose, and San Rafael. Benzene emissions, which are associated with motor vehicle traffic and with refining operations, are higher than the Bay Area mean only at the Concord station.

<b>Compound</b>	<b>Bay Area Mean Conc. (ppb)</b>	<b>Concord Mean Conc. (ppb)</b>	<b>Crockett Mean Conc. (ppb)</b>	<b>Richmond Mean Conc. (ppb)</b>
Benzene	0.46	0.54	0.20	0.35
Chloroform	0.01	<0.02	<0.02	0.01
Carbon tetrachloride	0.10	0.11	0.11	0.01
Ethylene dibromide	0.01	<0.02	<0.02	<0.02
Ethylene dichloride	0.05	<0.10	<0.10	<0.10
MTBE	0.73	0.54	0.67	0.69
Methylene chloride	0.36	0.26	0.30	0.26

Compound	Bay Area Mean Conc. (ppb)	Concord Mean Conc. (ppb)	Crockett Mean Conc. (ppb)	Richmond Mean Conc. (ppb)
Perchloroethylene	0.06	0.04	0.02	0.06
Toluene	1.24	2.32	0.35	1.92
1,1,1-Trichloroethane	0.12	0.06	0.12	0.02
Trichloroethylene	0.05	0.04	<0.08	0.03
Vinyl chloride	0.15	<0.30	<0.30	<0.30

In addition to ozone, two other pollutants for which there are health-based ambient air quality standards are sulfur dioxide and hydrogen sulfide. Sulfur dioxide is created when fossil fuels like petroleum or coal are burned, and the sulfur in the fuel is oxidized to form sulfur oxides. There are California and federal standards for sulfur dioxide, and no Bay Area exceedance of these standards has been recorded for over 25 years. Hydrogen sulfide is a colorless gas with a strong “rotten egg” odor for which California has established an ambient air quality standard. There is no federal standard. Although the State of California has designated one small area in the State as nonattainment for this standard, most areas, including the Bay Area, have not been classified.

The primary purpose of Regulation 12, Rule 12 is to minimize the frequency and duration of flaring at the Bay Area petroleum refineries. This minimization is intended to reduce emissions of VOCs that contribute to ozone formation and of sulfur compounds that may cause odor problems and lung irritation. In addition, emissions of oxides of nitrogen, particulate matter and carbon monoxide will be reduced. Although ozone problems arise primarily from vehicle traffic associated with urban development, stationary sources like refineries contribute to the inventory of ozone precursor emissions.

The nature and level of emissions from flares vary widely, depending upon the volumetric flow rate of gas sent to the flare, the total volume of gas flared, the composition of the gas, the design and operation of the flare, and other variables like wind speed. Over the past several years, refineries have taken steps to reduce flaring, which has resulted in a reduction of emissions from this activity. The annualized average total organic compound (organic compounds including methane) emissions for 2004 were estimated at 2 tons per day. The daily total organic emission range was from 0 (zero) tons per day to 12 tons per day. The annualized average sulfur dioxide emissions for 2004 were estimated at approximately 4 tons per day. The daily sulfur dioxide emission range was from 0 (zero) tons per day to 61 tons per day.

Sensitive land uses, including residences, hospitals, schools, and motels/hotels may adjoin refineries. These land uses are considered sensitive to air pollutants because people are often situated in these areas for extended periods of time.

## **Regulatory Setting**

At the federal level, the federal Clean Air Act (CAA) Amendments of 1990 give EPA additional authority to require states to reduce emissions of ozone precursors and PM10 in nonattainment areas. The amendments set new attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a more local level, California's air districts (e.g., BAAQMD) are responsible for addressing air pollution caused by stationary sources. To meet this responsibility, the District adopts stationary source control measures and issues permits to regulate these sources. In support of these activities, the District develops emissions inventories and maintains a comprehensive monitoring network to assess air quality within the District.

## **Bay Area Air Quality Management District**

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

A number of BAAQMD regulations already regulate emissions from flares. Specifically, Regulation 6 contains limitations on visible emissions (opacity) that may be exceeded if a flare produces smoke rather than burning waste gases cleanly. Regulation 9, Rule 1 and Regulation 9, Rule 2 regulate emissions of sulfur dioxide and hydrogen sulfide, respectively, and flares may be identified as the sources of emissions of these compounds by monitors at the edge of the refining property. Finally, Regulation 1, Section 301 prohibits emissions from sources that cause a public nuisance.

The BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, is preparing the 2005 Bay Area Ozone Strategy. The Ozone Strategy will address national and state air quality planning requirements. Part of the strategy is to adopt control measures. Proposed Regulation 12, Rule 12 is included as a draft control measure, SS-6. It is derived from further study measure FS-8 in the 2001 Ozone Plan.

Regulation 12, Rule 12 will prohibit routine flaring, defined as flaring that is not associated with a startup, shutdown or malfunction. Also, each refinery will have to submit plans to reduce flaring in all circumstances and adhere to those plans when approved by the District. In addition, each refinery will have to notify the District of flaring events, conduct a causal analysis of flaring events, and provide an annual report on flaring at low flow rates. Plans will have to be updated annually and whenever a refinery

makes a major modification of equipment covered by the plan. Water seal levels in flare systems will have to be monitored and recorded.

## Discussion of Impacts

a Regulation 12, Rule 12 is being proposed as part of a slate of control measures in the Ozone Strategy currently being developed. Other control measures focus on refineries, but also on commercial and industrial activities for control of organic compound emissions, combustion sources for control of emissions of oxides of nitrogen and mobile and transportation control measures for control of both. The rule is one of 38 measures that, collectively, will reduce emissions of ozone precursors and ensure progress towards meeting the applicable state air quality standards. The measures are not contingent on each other. Consequently, the rule is part of, and will not interfere with the implementation of the air quality plan.

b,c The emissions from flares, on an annualized basis, were approximately 2 tons per day of total organic compounds (organic compounds including methane) in 2004. This is a significant reduction in emissions from emissions estimates made from data obtained in earlier years. However, the usage of flares in refineries, and the resultant emissions, is quite variable. Emissions from a single flaring event have been estimated to be as high as 55 tons of organic compounds, approximately one tenth of the total daily anthropogenic organic compound emissions in the Bay Area. This amount of emissions could, under the right atmospheric conditions, contribute to or cause an air quality excess. While the proposed rule is intended to prevent routine flaring, a flaring event of this magnitude would likely be the result of a significant process upset in the refinery, such as a sudden, unforeseen, widespread electrical outage. The proposed rule would not have an impact on a process upset of this magnitude, and, should such an event occur, would allow flaring to process gases that could not otherwise be contained. Consequently, the proposed rule would have no impact on the potential for a flaring event to violate an air quality standard. The purpose of the rule is to further reduce emissions from flares, by focusing on an overall reduction of flaring, through management of the flare systems, installation of new equipment and developing operating procedures to minimize and utilize waste gases. Consequently, the rule will not result in a cumulatively considerable net increase in any criteria pollutant.

d,e Flares serve as a fundamental component of each refinery's safety relief system allowing gases generated during emergency events to be burned rather than released directly to the atmosphere. These events may be caused by power and equipment failures, process upsets or accidents. They also occur during startup and shutdown activities and during maintenance activities when gases that would normally be burned to heat refinery process vessels must be flared instead because the process vessels have been taken out of service, are not yet up to operating temperature, or are being maintained. To a lesser extent, flares serve as a control device for gases that cannot be recovered and used in the refinery fuel gas system. This may occur when the heating value of the gas stream is insufficient for such use, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs. Flaring of gases under all of these circumstances prevents their direct release to the atmosphere and reduces the environmental impact of the gases.

The rule, in part, prohibits routine flaring. As discussed in the Hazards and Hazardous Materials section of this checklist, concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that the rule may affect a refinery operator's decision to flare or not, and that this impact on the decision making process may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. Should hazardous materials be released, there is the potential that there would be an impact to sensitive receptors or that the release would create objectionable odors. The rule has been developed to mitigate safety concerns; language has been included that requires priority be given to the safe operation of the refinery. Although the scenario as stated could result in a significant impact, existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Consequently, the potential that the rule will expose sensitive receptors to pollution or create objectionable odors is less than significant. However, in order to explore these topics more fully, they will be further evaluated in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>IV. BIOLOGICAL RESOURCES.</b>				
Would the project:				
a.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?				
d.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				
f.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?				

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares at five petroleum refineries located in Contra Costa County and Solano County. These refineries are located in areas zoned for

industrial or commercial land use. Typically, these facilities are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plans which could result in the installation of additional equipment within the refineries.

## **Discussion of Impacts**

- a-f No impacts on biological resources are anticipated from the proposed flare rule that would apply to existing refinery operations. The flares to be regulated as part of this new rule already exist and are located within the confines of existing refineries. The proposed flare rule does not directly require additional equipment but flare plans may ultimately result in additional equipment at the refineries. Any additional equipment would be constructed within the confines of the existing refineries. No sensitive biological resources are located within the confines of the existing refineries. Therefore, the proposed flare rule neither requires nor is likely to result in activities that would affect sensitive biological resources. Therefore, no significant adverse impacts on biological resources are expected.

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

## Setting

Cultural resources are defined as buildings, sites, structures, or objects that might have historical, architectural, archaeological, cultural, or scientific importance. The State CEQA Guidelines define a significant cultural resource as a “resource listed or eligible for listing on the California Register of Historical Resources” (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the CRHR or in a local register or survey that meets the requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g).

The affected refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the amount of gases directed to each flare subject to the rule.

## Discussion of Impacts

- a.-d. No effect on cultural resources is expected because the proposed rule would apply to existing refining operations. The flares already exist, and only minor construction inside the refineries is expected. No construction outside of the

refineries is expected. The proposed rule neither requires nor is likely to result in activities that would affect cultural resources. Therefore, there is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>VI. GEOLOGY AND SOILS.</b>				
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic groundshaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Setting**

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

residential, agricultural, and open space uses. The refineries affected by the proposed rule amendments are located in the industrial portions of Contra Costa and Solano Counties.

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

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

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

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

## **Regulatory Background**

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

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

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-trigger landslides and/or potential liquefaction prior to

permitting most urban developments. The act directs cities, counties and state agencies to use the maps in their land use planning and permitting processes.

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

## Discussion of Impacts

VI a – e. No impacts on geology and soils are anticipated from the proposed flare rule that would apply to existing refinery operations. The flares to be regulated as part of this new rule already exist and are located within the confines of existing refineries. The proposed flare rule does not directly require additional equipment but flare plans may ultimately result in additional equipment at the refineries.

New structures at each site must be designed to comply with the Uniform Building Code Zone 4 requirements since the Bay Area is located in a seismically active area. The local cities or counties are responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Any new structures at the refineries will be required to obtain building permits, as applicable, for all new structures at the site. The refineries must receive approval of all building plans and building permits to assure compliance with the latest Building Code prior to commencing construction activities. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the project will be required to comply with the Uniform Building Codes. No major construction activities are expected from the proposed flare rule. Therefore, no significant adverse impacts on geology and soils are expected.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact	
<b>VII. HAZARDS AND HAZARDOUS MATERIALS.</b>					
Would the project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

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

Fires can expose the public or workers to heat. The heat decreases rapidly with distance from the flame and therefore poses a greater risk to refinery workers than to the public. Explosions can generate a shock wave, but the risks from explosion also decrease with distance. Airborne releases of hazardous materials may affect workers or the public, and the risks depend upon the location of the release, the hazards associated with the material, the winds at the time of the release, and the proximity of receptors.

For all refineries, risks to the public are reduced if there is a buffer zone between process units and residences or if prevailing winds blow away from residences. Thus, the risks posed by operations at a given refinery are unique and determined by a variety of factors.

## Regulatory Setting

Refineries and other facilities that handle hazardous materials are heavily regulated to reduce risks to workers and to the public. The following summarizes the primary laws and regulations that apply.

### Federal Regulations

Two key federal regulations that focus on the risks from hazardous materials are described below.

#### U.S. Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) Rule

The Process Safety Management (PSM) of Highly Hazardous Chemicals (HHC's) standard (29 CFR 1910.119) is intended to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable or explosive chemicals from a process. The PSM rule requires compilation of written process safety information, including hazard information on HHC's, technology information and equipment information on covered processes. The rule specifies that process hazard analyses must be conducted for each covered process. Operating procedures must be in writing and must provide clear instructions for safely conducting activities. The procedures must include steps for each operating phase, operating limits, safety and health considerations, and a description of safety systems and their functions. The procedures must be readily accessible to employees who work on or maintain a covered process, and must be reviewed as often as necessary to assure they reflect current operating practice. The procedures must address

safe work practices for special circumstances such as lockout/tagout and confined space entry.

## **U.S. EPA Accidental Release Prevention/Risk Management Plan (RMP) Rule**

Clean Air Act section 112(r) is intended to prevent accidental releases of regulated substances and other extremely hazardous substances to the air and to minimize the consequences of such releases if they do occur by emphasizing preventative measures for those chemicals which are believed to pose the greatest risk. The Accidental Release Prevention Program rule that implements section 112(r) focuses on accident prevention efforts primarily at the local level with a goal of government and the public working with industry to reduce risk. The rule requires the identification of hazards within a facility which could result in a release, use of design and maintenance practices to ensure safety, and the development of response actions to be taken in the event of a release. Sources subject to the rule must submit a risk management plan (RMP) which includes an offsite consequence analysis, a five-year accident history, and a compliance certification.

## **Department of Transportation/Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements**

This part lists and classifies those materials which the Department has designated as hazardous materials for purposes of transportation and prescribes the requirements for shipping papers, package marking, labeling, and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

## **State Regulations**

The primary California laws that apply to chemical hazards are listed below.

### **The California Accidental Release Prevention (CalARP) Program**

The California Accidental Release Prevention (CalARP) Program is a merging of the federal and state programs for the prevention of accidental release of regulated toxic and flammable substances. Pursuant to Health and Safety Code sections 25531 to 25543.3, the California Office of Emergency Services (OES) adopted implementing regulations and sought delegation of the federal RMP program. The OES regulations incorporate elements of the federal Risk Management Program into state regulations and eliminate the need for separate federal and California chemical risk management programs.

## The California OSHA Injury and Illness Prevention Program

Every California employer must establish, implement and maintain a written Injury and Illness Prevention (IIP) Program, and a copy must be maintained at each workplace or at a central worksite. The requirements for establishing, implementing, and maintaining an effective program are found in Title 8 of the California Code of Regulations, beginning at section 3203. The regulations require that a program include these elements:

- Identification of the person or persons with responsibility for implementing the program.
- A system for identifying and evaluating workplace hazards, including scheduled, periodic inspections and unscheduled inspections to identify unsafe conditions and work practices.
- Methods and procedures to correct unsafe or unhealthy conditions and work practices.
- An occupational health and safety training program to instruct employees in general safety practices and in practices to address the hazards unique to each employee's job assignment.
- A system for communicating with employees on occupational health and safety matters.
- A strategy for ensuring that employees employ safe and healthy work practices.

## Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including the U.S. Environmental Protection Agency, the California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

## Local Regulations - Contra Costa County Industrial Safety Ordinance

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

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

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

## Discussion of Impacts

a. The proposed rule requires each facility to develop a flare management plan for each flare subject to the rule. The intent is for each facility to identify the most feasible means to minimize flaring. The rule specifies elements that must be included in the plan, but is not prescriptive in the means to accomplish minimization. A facility might choose to minimize the amount of sulfur in the vent gas so that it may be used as fuel throughout the refinery. This approach may lead to an increase in the amount of molten sulfur that is transported off-site. It is not anticipated that facilities are likely to choose this option, however if used, the impacts would be mitigated by adhering to Department of Transportation Regulations.

b,c. Flares serve as a fundamental component of each refinery's safety relief system and serve to burn gases generated during emergency events, such as power and equipment failures, and during process upsets or accidents. They are also used during startup and shutdown activities and during maintenance activities when gases that would normally be burned to heat refinery process vessels must be flared instead because the process vessels have been taken out of service, are not yet up to operating temperature, or are being maintained. To a lesser extent, flares serve as a control device for gases that cannot be recovered and used in the refinery fuel gas system. This may occur when the heating value of the gas stream is insufficient for such use, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs. Flaring of gases under all of these circumstances prevents their direct release to the atmosphere and reduces the environmental impact of the gases.

The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that an impact could occur during the refinery operator's decision process, when making the choice to flare or an alternative decision that may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous

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

## Discussion of Impacts

a. The proposed rule requires each facility to develop a flare management plan for each flare subject to the rule. The intent is for each facility to identify the most feasible means to minimize flaring. The rule specifies elements that must be included in the plan, but is not prescriptive in the means to accomplish minimization. A facility might choose to minimize the amount of sulfur in the vent gas so that it may be used as fuel throughout the refinery. This approach may lead to an increase in the amount of molten sulfur that is transported off-site. It is not anticipated that facilities are likely to choose this option, however if used, the impacts would be mitigated by adhering to Department of Transportation Regulations.

b,c. Flares serve as a fundamental component of each refinery's safety relief system and serve to burn gases generated during emergency events, such as power and equipment failures, and during process upsets or accidents. They are also used during startup and shutdown activities and during maintenance activities when gases that would normally be burned to heat refinery process vessels must be flared instead because the process vessels have been taken out of service, are not yet up to operating temperature, or are being maintained. To a lesser extent, flares serve as a control device for gases that cannot be recovered and used in the refinery fuel gas system. This may occur when the heating value of the gas stream is insufficient for such use, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs. Flaring of gases under all of these circumstances prevents their direct release to the atmosphere and reduces the environmental impact of the gases.

The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that an impact could occur during the refinery operator's decision process, when making the choice to flare or an alternative decision that may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>VIII. HYDROLOGY AND WATER QUALITY.</b>				
Would the project:				
a.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
j. Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

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

The refineries affected by the proposed rule amendments are located in the industrial portions of Contra Costa and Solano Counties and are generally surrounded by other commercial and industrial facilities. The refineries are located within rolling, low elevation hills along the shores of the San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay. ChevronTexaco is bordered by the San Francisco and San Pablo Bays on the western border of the refinery. The ConocoPhillips refinery is bounded on the north and west by San Pablo Bay. The Valero, Shell, and Tesoro refineries are located adjacent to Suisun Bay along the Carquinez Straits.

Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located near the refineries.

The refineries are located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs (CWDR 2002).

## Discussion of Impacts

a – j. No impacts on hydrology/water quality resources are anticipated from the proposed rule that would apply to existing refinery operations. The refineries affected by the proposed rule are required to treat and monitor wastewater discharges from their facilities. The flares that are subject to the proposed rule and

are located within the confines of existing refineries. The requirement to prepare a flare minimization plan will have no impact on wastewater discharges, alter drainage patterns, create additional water runoff, place any additional structures within 100-year flood zones or other areas subject to flooding, or contribute to inundation by seiche, tsunami or mudflow. No major construction activities are expected from the proposed rule and no new structures are required. Therefore, no significant adverse impacts on hydrology/water quality are expected.

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

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

## Discussion of Impacts

a–c. The flares to be regulated as part of the proposed rule already exist and are located within the confines of existing refineries within industrial areas. The proposed rule neither requires nor is likely to result in construction outside of the existing refinery facilities. Preparation of the Flare Minimization Plan may result in the decision that new equipment would be required at a refinery. The equipment would be constructed within the confines of existing refineries. Therefore, no land use impacts are expected.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>X. MINERAL RESOURCES.</b>				
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plan, which may lead to the installation of additional equipment within the refineries.

## Discussion of Impacts

- a-b. The proposed rule 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 rule is not expected to result in construction outside any existing facility. Therefore, there is no impact.

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

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

## Discussion of Impacts

a-d.

The flares to be regulated as part of the proposed rule already exist and are located within the confines of existing refineries within industrial areas. Preparation of the Flare Minimization Plan may result in the decision that new equipment would be required at a refinery. The equipment would be constructed within the confines of existing refineries. The allowable noise levels within industrial areas are generally higher in industrial areas (about 70 decibels) than commercial or residential areas. As compared to the existing operating refineries, equipment that generates significant noise levels is not expected to be required. A reduction in the number of flaring events at the refineries would be expected to reduce noise at the refineries. Therefore, no noise impacts are expected.

- e-f. The refineries are not located within an airport land use plan. The preparation of flare minimization plans may result in the installation of additional equipment within the confines of the existing refineries. Additional equipment would not be located near any public or private airports. The proposed new rule is not expected to generate significant noise impacts.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XII. POPULATION AND HOUSING.</b>					
Would the project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

## Discussion of Impacts

- a-c. The proposed rule is not expected to result in the construction of new facilities or the displacement of housing or people. Implementation of the proposed rule will result in very minor modifications at refineries. These modifications would not induce growth or displace housing or people in any way. The proposed rule will not induce population growth or related housing development. There is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XIII. PUBLIC SERVICES.</b>				
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

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

## Discussion of Impacts

- a. The facilities affected by the proposed rule are not expected to require any new or additional public services. No effects on the need for public services such as police, schools, or public roadway maintenance are expected. There is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XIV. RECREATION.</b>				
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

Given the large area covered by the BAAQMD, there are many recreation areas and districts within the affected area.

## Discussion of Impacts

- a–b. No effect on recreation is expected because the proposed rule applies to existing operations in refineries. No construction outside of these facilities is expected. The proposed rule neither requires nor is likely to result in activities that would affect recreation. There is no impact.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XV. TRANSPORTATION/TRAFFIC.</b>				
Would the project:				
a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

Transportation infrastructure within the BAAQMD ranges from single-lane roadways to multilane interstate highways. Transportation systems between major hubs are located within and outside the BAAQMD, including railroads, airports, waterways, and highways. Localized modes of travel include personal vehicles, busses, bicycles, and walking. Transportation to and from the facilities subject to the proposed rule varies by facility location.

Interstate 80 is a major east-west freeway link providing access between Richmond and Oakland/San Francisco to the south and west and Sacramento to the east. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. The ConocoPhillips

Refinery is bisected by Interstate 80, south of the Carquinez Bridge, near the interchange with State Route 4.

The ChevronTexaco Refinery is located north and adjacent to Interstate 580. Interstate 580 is a six-lane freeway and connects Interstate 80 east of the ChevronTexaco Refinery with U.S. 101 in Marin County via the Richmond-San Rafael Bridge.

The Shell Martinez Refinery is located north of State Route 4 and west of Interstate 680, south of the Benicia-Martinez Bridge. The Tesoro Avon Refinery is located north of State Route 4 and east of Interstate 680, south of the Benicia-Martinez Bridge and several miles east of the Shell Martinez Refinery.

The Valero Benicia Refinery is also located near Interstate 680. Interstate 680 is a four-lane, north-south freeway near the Valero, Tesoro, and Shell refineries. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Caltrans constructed a second freeway bridge adjacent and east of the existing Benicia-Martinez Bridge. The new bridge consists of five northbound traffic lanes. The existing bridge was restriped to accommodate four lanes for southbound traffic.

Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

## Discussion of Impacts

- a–b. Additional traffic or significant increases of staffing at existing facilities that would result in changes to traffic patterns or levels is not expected. The proposed rule would not involve any activities that would alter air traffic patterns; substantially increase hazards caused by design features; result in inadequate parking capacity; or conflict with adopted policies, plans, or programs supporting alternative transportation. Additional traffic at the existing facilities that would result in changes to traffic patterns or levels of service at local intersections is not expected. No impacts are expected.
- c. The proposed rule includes minor modifications to the operation of existing facilities. The project will not involve the delivery of materials via air so no increase in air traffic is expected.
- d - e. The proposed rule is not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. Emergency access is provided at the refinery sites, will continue to be maintained at the refinery sites, and will not be impacted by the proposed rule.
- f. Construction activities are expected to be minor, so parking for construction workers if expected to be handled within the confines of the existing refineries. No increase in permanent workers is expected. Therefore, the proposed rule will not result in significant adverse impacts on parking.

g. The proposed rule involves modifications to the operations within the confines of an existing refinery. The proposed rule is not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XVI. UTILITIES AND SERVICE SYSTEMS.</b>					
Would the project:					
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and portions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plan which may require the installation of additional equipment within the refineries.

## Discussion of Impacts

a-g. The proposed rule will not generate or affect wastewater or solid waste, will not affect stormwater or stormwater drainage, and will not require water or affect water supplies. No increases in demand for public utilities are expected as a result of the proposed rule. No impacts are anticipated.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<b>XVII. MANDATORY FINDINGS OF SIGNIFICANCE</b>				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Discussion of Impacts

- a. Because of the lack of presence of these resources in the project area and the immediate vicinity, the proposed rule 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. There is no impact.
- b. The project does not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects. The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. There is no impact.

- c. The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that the rule may affect a refinery operator's decision to flare or not, and that this impact on the decision making process may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. Should hazardous materials be released, there is the potential that there would be an impact to sensitive receptors or that the release would create objectionable odors. The rule has been developed to mitigate safety concerns; language has been included that requires priority be given to the safe operation of the refinery. Although the scenario as stated could result in a significant impact, existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Consequently, the potential that the rule will expose sensitive receptors to pollution, create objectionable odors, create a hazard through transport of hazardous materials, or release into the environment hazardous materials including within one quarter mile of a school, is less than significant. Nonetheless, because of the high degree of interest on the issue of safety and the related hazard and air quality impacts, the potential for impacts will be further evaluated in the EIR.