DATE: October 20, 2022

TO: SJVUAPCD Governing Board

FROM: Samir Sheikh, Executive Director/APCO
Project Coordinator: Jonathan Klassen

RE: **ITEM NUMBER 11: ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES**

RECOMMENDATIONS:

1. Adopt proposed amendments to Rule 4460 (Petroleum Refinery Fence-line Air Monitoring) and Rule 3200 (Petroleum Refinery Community Air Monitoring Fees), and adopt Rule 4460 Petroleum Refinery Fence-Line Air Monitoring Plan Guidelines.

2. Authorize the Chair to sign the attached Resolutions.

BACKGROUND:

Assembly Bill (AB) 1647 (the Refinery Statute) requires local petroleum refinery owners and operators to install and operate fence-line air monitoring systems at or near a petroleum refinery in accordance with guidance developed by the appropriate local air district, and requires local air districts to install community air monitors at or near sensitive receptor locations around petroleum refineries. The District adopted Rules 4460 (Petroleum Refinery Fence-line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees) on December 19, 2019, to implement the requirements of the Refinery Statute.

A coalition of litigants filed a lawsuit challenging the District's implementation of requirements under California Health and Safety

Code (CH&SC) Section (§) 42705.6. On September 17, 2021, the Fresno County Superior Court affirmed certain aspects of District Rule 4460, but also held that facilities not currently engaged in crude oil refining may not be exempted from the Refinery Statute's fence-line monitoring requirements. In addition, for small refineries with a refining capacity of less than 40,000 barrels per day, the court determined that though the Refinery Statute does not require monitoring for every potential refinery-related pollutant identified in state guidance documents, the District did not provide adequate analysis to explain why it included the six, specified pollutants, while excluding any requirement to monitor for other pollutants. Accordingly, the District is proposing amendments to Rule 4460 and the supporting technical record to address these findings.

Through extensive research and a robust public outreach process, the District has developed a revised proposed Rule 4460 to fully address the findings identified by the court. Although the Court's ruling did not specifically issue any findings with respect to Rule 3200, the District is proposing amendments to Rule 3200 to ensure consistency with Rule 4460. Additionally, to establish updated detailed guidance and consistency with respect to implementation, the District has developed the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Guidelines (Guidelines).

DISCUSSION:

Petroleum refineries produce gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants, through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, cracking or other processes. Crude oil consists of a complex mixture of hydrocarbon compounds with smaller amounts of impurities, including sulfur, nitrogen, organic acids, metals and other compounds. The composition of crude oil varies from oilfield to oilfield, and may range from a "heavy crude," a black "treacle" consistency oil, to a pale yellow, low viscosity liquid. Processing of crude oil at petroleum refineries can result in potential emissions of criteria pollutants, toxic air contaminants, and other air pollutants.

Due to several incidents at large refineries in other parts of the state, concerns over emissions from refineries and the potential for community exposure to air contaminants have increased. For example, the explosion at the former Exxon-Mobil Refinery in Torrance in 2015, as well as other refinery incidents in the Bay Area, have added to a heightened level of community concern. In response to these events in the Bay Area and South Coast, state-level safety precautions related to refinery operations have increased.

Passed on October 8, 2017, and codified at CH&SC §42705.6, AB 1647 outlines specific requirements for monitoring pollutants released from petroleum refineries, both at/near

facility boundaries and in nearby communities. This legislation requires the following: (1) by January 1, 2020, the District shall design, develop, install, operate, and maintain a refinery-related community air monitoring system; 2) by January 1, 2020, petroleum refinery owners and operators must develop, install, operate, and maintain a fence-line monitoring system, per guidance developed by the District; 3) the District and petroleum refinery owners and operators shall collect real-time data from the refinery-related community air monitoring system and the fence-line monitoring system and the data shall be provided to the public as quickly as possible in a publicly accessible format; and 4) petroleum refinery owners and operators shall be responsible for the costs associated with implementing a refinery-related community air monitoring system. The District adopted Rules 4460 and 3200 on December 19, 2019, to implement the requirements of AB 1647 in the Valley.

Current Rule 4460 requires petroleum refineries to install, operate, and maintain a fence-line air monitoring system and to make the real-time data available to the public as quickly as possible. The rule requires the submittal and approval of a fence-line air monitoring plan for establishing and operating the system, and requires consideration of a specified list of air pollutants for monitoring based on a facility's processing capacity. Facilities not actively refining crude oil are exempt from the rule, but are required to submit a fence-line monitoring plan at least 6 months prior to any planned resumption of crude oil refining operations.

Current Rule 3200 sets forth requirements for petroleum refineries to pay a fee to recover the District's costs of developing and maintaining a refinery-related community air monitoring system to measure and record air pollutant concentrations in the ambient air at or near sensitive receptor locations. Facilities not actively refining crude oil are also exempt from the current rule.

Court Challenge

A coalition of litigants filed a lawsuit challenging the District's implementation of requirements under CH&SC §42705.6. On September 17, 2021, the Fresno County Superior Court affirmed certain aspects of District Rule 4460, but also held that facilities not currently engaged in crude oil refining may not be exempted from the Refinery Statute's fence-line monitoring requirements. In addition, for small refineries with a refining capacity of less than 40,000 barrels per day, the court determined that though the Refinery Statute does not require monitoring for every potential refinery-related pollutant identified in state guidance documents, the District did not provide adequate analysis to explain why it included the six, specified pollutants, while excluding any requirement to monitor for other pollutants. Accordingly, the District is proposing amendments to Rule 4460 and the supporting technical record to address these findings.

Valley Petroleum Refineries

District Rules 4460 and 3200 currently apply to facilities that process petroleum as described in the Standard Industrial Classification (SIC) Code under 2911 (Petroleum Refining). Valley facilities classified under this SIC code include Alon Bakersfield Refinery (Bakersfield Renewable Fuels), Kern Oil & Refining Co., San Joaquin Refining Co., and Tricor Refining, LLC. Kern Oil and San Joaquin Refining both have a processing capacity under 40,000 bpd and are required to monitor for benzene, toluene, ethylbenzene, xylene (BTEX compounds), hydrogen sulfide (H2S), and sulfur dioxide (SO2) at their fence-lines. At this time, Alon and Tricor are not actively refining crude oil and therefore both are exempt under current District Rules 4460 and 3200.

However, Alon and Tricor would become subject to the requirements of Rules 4460 and 3200, should your Board adopt the proposed amendments that remove the exemption and clarify applicability of the requirements to facilities that maintain permits to engage in activities described under SIC Code 2911. Please note that the definition of a petroleum refinery has been clarified in the proposed rule to ensure consistency with the court ruling in consultation with the Attorney General's office.

State Guidance for the Refinery Statute

The Refinery Statute requires the monitoring guidance developed by the District, to the extent feasible, be informed by refinery-related guidance prepared by the State. This State guidance includes the California Refinery Emergency Air Monitoring Assessment Report (REAMAR), prepared by the California Air Resources Board (CARB) and the California Air Pollution Control Officers Association (CAPCOA) to assess existing emergency air monitoring capabilities and to identify potential improvements to refinery air monitoring systems. The REAMAR presents recommendations to improve emergency air monitoring, as well as monitoring of ongoing routine emissions, at California's major refineries and the communities that surround them. The recommendations cover air monitoring technology, modeling, and coordination. The report acknowledges the variability among refineries, and advises that implementation of each recommended strategy must be suited to each facility's size, operations, specific location, and its surrounding receptors, keeping in mind the practical limitations of current and emerging technologies and the timeframes necessary for full implementation.

As a companion to the REAMAR, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) collaborated with CARB and the Interagency Refinery Taskforce to identify and develop information on chemicals emitted from refineries and their health effects in order to assist air agencies in developing plans for air monitoring in California. OEHHA published the Analysis of Refinery Chemical Emissions and Health Effects in March 2019, which identified 188

chemicals emitted from California refineries, including emissions that occur routinely in daily operations, as well as accidental and other non-routine emissions. The report prioritizes the chemicals according to their emissions levels and toxicity, and identifies 18 chemicals as top candidates for air monitoring near refineries (Table 1).

Table 1: Top Pollutants Recommended by OEHHA for Air Monitoring

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Formaldehyde
Hydrogen Fluoride (HF)
Hydrogen Sulfide (H2S)
Manganese
Naphthalene
Nickel
Nitrogen Oxide (NOx)
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide (SO2)
Sulfuric Acid
Toluene

Implementation of Refinery Fence-line Monitoring in California

In addition to the District, there are four other air districts with petroleum refineries in their jurisdiction: South Coast Air Quality Management District, Bay Area Air Quality Management District, San Luis Obispo County Air Pollution Control District, and Santa Barbara County Air Pollution Control District. These air districts have taken different approaches to implement the requirements of AB 1647 and all require different pollutants for monitoring at refinery fence-lines. The District's fence-line monitoring requirements for facilities subject to current Rule 4460 are currently as or more stringent than implementation approaches adopted by other air districts. Table 2 below shows a comparison of the pollutants required for fence-line monitoring in all California air districts.

Table 2: Pollutants Required for Fence-line Monitoring in California Air Districts

SJVAPCD (Current Rule 4460)		SCAQMD (Rule 1180)		BAAQMD (Reg 12-15)	SLOCAPCD (MOU)	SBCAPCD (Rule 364)
≥ 40,000 bpd	< 40,000 bpd	≥ 40,000 bpd	< 40,000 bpd			
Acetaldehyde*		Acetaldehyde*	No Monitoring Required			
Acrolein*		Acrolein*				
				Alkanes or other organic compound indicators*		
Ammonia*		Ammonia*		Ammonia*		
Benzene*	Benzene*	Benzene*		Benzene		Benzene
Black Carbon*		Black Carbon*			Black Carbon	
1,3 Butadiene*		1,3 Butadiene*		1,3 butadiene*		
Carbonyl Sulfide*		Carbonyl Sulfide*				
Ethylbenzene*	Ethylbenzene*	Ethylbenzene*		Ethylbenzene		Ethylbenzene
Formaldehyde*		Formaldehyde*				
Hydrogen Cyanide*		Hydrogen Cyanide*				
HF*		HF*				
H2S*	H2S*	H2S*		H2S		H2S
NOx*		NOx*			NOx	
SO2*	SO2*	SO2*		SO2*	SO2	SO2
Styrene*		Styrene*				
Toluene*	Toluene*	Toluene*		Toluene		Toluene
Total VOCs*		Total VOCs*			VOCs	
Xylene*	Xylene*	Xylene*		Xylene		Xylene

*Compound may be excluded from monitoring if refinery provides sufficient justification in plan.

Summary of Proposed Amendments to Rule 4460

The District developed the proposed amendments to Rule 4460 through a robust public process, taking into consideration the goals of AB 1647, input from affected parties, state-provided guidance, and monitoring technological capabilities. The District also conducted interagency consultation with the OEHHA, CARB, and Attorney General's office for feedback and guidance. Recognizing the variability among refineries and nearby communities, the District believes an approach that requires a site-specific analysis is most likely to provide useful information.

To ensure that all appropriate facilities are subject to Rule 4460, the District is proposing to remove the exemption for facilities not currently engaged in refining crude oil. Further, the proposed amendments will remove the provisions for a pre-determined set of pollutants and equipment requirements based on processing capacity. Proposed amendments to Rule 4460 will require refineries to address the full list of OEHHA recommended pollutants, as well as ethylbenzene and xylene (Table 3), and consider any additional pollutants emitted by the facility in their fence-line monitoring plans.

Should the owner or operator of a petroleum refinery propose to not monitor one or more of the specified pollutants, sufficient justification must be included in the proposed fence-line air monitoring plan as detailed in proposed Rule 4460 and associated Guidelines. Proposed plans will be made available for public review and comment before approval by the District.

Table 3: Air Pollutants to be Addressed in Fence-line Air Monitoring Plan

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Ethylbenzene
Formaldehyde
Hydrogen Fluoride
Hydrogen Sulfide
Manganese
Naphthalene
Nickel
Nitrogen Oxide
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide
Sulfuric Acid
Toluene
Xylene

Proposed amendments to Rule 4460 include requirements for refinery fence-line monitoring plans to be consistent with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines, discussed in further detail below. The District is also proposing a requirement for refinery owners and operators to submit a follow-up report following a monitoring system's detection of a pollutant exceeding its threshold as defined in an approved air monitoring plan. Additionally, given the extensive analysis associated with the proposed amendments, proposed amendments will provide adequate timeframes required for refineries to prepare an updated fence-line air monitoring plan following an unplanned modification at their facility, and to prepare the required quarterly reports.

Summary of Proposed Rule 4460 Fence-line Air Monitoring Plan Guidelines

Proposed Rule 4460 Section 5.6 requires that all fence-line monitoring plans be consistent with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines. The District developed these guidelines concurrently with the proposed amendments to Rule 4460, to inform refinery owners and operators about the elements necessary to complete an air monitoring plan, and provide a written framework to be used by the District to evaluate submitted monitoring plans. The guidelines cover pollutants that refineries are required to monitor at their fence-lines, air monitoring technologies, quality assurance and quality control, data display, and public notification requirements.

Summary of Proposed Amendments to Rule 3200

To ensure consistency with the proposed amendments to Rule 4460, the proposed amendments to Rule 3200 would clarify the definition of petroleum refinery and remove the exemption and provisions for refineries not currently engaged in refining crude oil. Proposed amendments also include updated deadlines for fee payments and language revisions to provide clarity.

Rule Development Public Process

The District held an initial scoping meeting on February 1, 2022, followed by a public workshop on April 26, 2022, to present, discuss, and receive feedback on potential amendments to Rules 4460 and 3200. The District held a second public workshop on June 28, 2022, to present the draft rule amendments and Rule 4460 Guidelines. Information about public meetings was shared with members of the public, AB 617 communities, affected sources, and other interested stakeholders. Information about the regulatory amendments and workshops was also made available at meetings of the Citizens Advisory Committee and Environmental Justice Advisory Group. Workshop announcements and public notices were provided in both English and Spanish, the comprehensive presentation from the June 28, 2022 workshop was provided in both English and Spanish, and interpretation services were made available at the meetings.

In accordance with CH&SC §40725, the proposed amendments to Rules 4460 and 3200, proposed Rule 4460 Guidelines, and the final draft staff report were publicly noticed and made available for public review on August 16, 2022. The public was also invited to provide comments during public commenting periods and at the public hearing to consider adoption of the proposed amendments and Guidelines.

The comments received throughout this public process have been integral to the development of the proposed amendments and Guidelines, and have been incorporated as appropriate into the proposed amendments, Guidelines, and final draft staff report. A

summary of significant comments and District responses is included as Appendix A of the final draft staff report.

Some of the key issues raised during the development of the proposed amendments and Guidelines included questions regarding the applicability of Rules 4460 and 3200 to facilities that refine alternative feedstock. In response, the District has clarified that the purpose of Rules 4460 and 3200 is to address the requirements of AB 1647, which applies only to petroleum refineries. Other key comments included recommendations that Rule 4460 require refineries to implement specific methods of public communication, such as email and text, and to provide all printed and digital media in specified languages. AB 1647 requires that "*To the extent feasible, the data generated by these systems shall be provided to the public as quickly as possible in a publicly accessible format,*" and does not specify the exact communication methods that should be used. The District requires that a refinery's fence-line air monitoring plan include proposed methods for public notification and that a refinery should consider providing information in other languages, based on the needs of the nearby communities. The proposed fence-line air monitoring plans will be made available for public review and feedback prior to District approval.

Supporting Regulatory Analyses

Socioeconomic Impact Analysis

Rules 4460 and 3200 do not directly reduce emissions from petroleum refineries. Indirect emissions benefits may be realized due to the potential for early detection of leaks and quick action to control such fugitive emissions.

Pursuant to CH&SC §40728.5(a), the District is required to conduct a socioeconomic analysis of proposed rules or rule amendments that will significantly affect air quality or emissions limitations prior to rule adoption. The proposed amendments have neither effect, and therefore a socioeconomic analysis is not required for this rule amendment project.

Rule Consistency Analysis

The District prepared a rule consistency analysis that compares the elements of the proposed amendments to Rules 4460 and 3200 with the corresponding elements of other District rules and federal regulations or guidelines that apply to the same type of equipment or source category. The proposed amendments will not conflict with other District rules, or federal rules, regulations, or policies covering analogous stationary sources. Refer to the final draft staff report for this analysis.

Environmental Impacts

Rules 4460 and 3200 establish petroleum refinery fence-line air monitoring requirements and a fee schedule to cover the District's costs of installing and operating

community air monitoring near petroleum refineries. As noted in the staff report, the proposed amendments to these rules will not have any adverse significant environmental impacts and are exempt from CEQA. Pursuant to Section 15062 of the CEQA Guidelines, the District will file a Notice of Exemption upon your Board approval of Rules 4460 and 3200 and the Guidelines.

FISCAL IMPACT:

Through the fees collected under the proposed Rule 3200, the District expects to have sufficient resources to purchase and operate the equipment needed for community air monitoring activities.

Attachments:

Attachment A: Resolution for Proposed Amendments to Rule 4460 and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Guidelines (5 pages)
Attachment B: Resolution for Proposed Amendments to Rule 3200 (5 pages)
Attachment C: Proposed Rule 4460 (7 pages)
Attachment D: Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines (13 pages)
Attachment E: Proposed Rule 3200 (4 pages)
Attachment F: Final Draft Staff Report with Appendix for Proposed Amendments to Rules 4460 and 3200 and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines (49 pages)

San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment A:

Resolution for Proposed Amendments to Rule 4460 and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

(5 PAGES)

BEFORE THE GOVERNING BOARD OF THE SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

IN THE MATTER OF: PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES) **RESOLUTION NO. 22-10-11a**

WHEREAS, the San Joaquin Valley Unified Air Pollution Control District (District) is a duly constituted unified air pollution control district, as provided in California Health and Safety Code (CH&SC) Sections (§) 40150 et seq. and 40600 et seq.; and

WHEREAS, said District is authorized by CH&SC §40702 to make and enforce all necessary and proper orders, rules, and regulations to accomplish the purpose of Division 26 of the CH&SC; and

WHEREAS, Assembly Bill 1647 (Muratsuchi, 2017), codified at CH&SC §42705.6, requires that: (1) air districts design, develop, install, operate, and maintain a refinery-related community air monitoring system; 2) owners and operators of petroleum refineries develop, install, operate, and maintain a fence-line air monitoring system; 3) air districts and owners and operators of petroleum refineries collect real-time data from the refinery-related community air monitoring system and the fence-line air monitoring system and provide this data to the public as quickly as possible in a publicly accessible format; and 4) owners and operators of petroleum refineries be responsible for the costs associated with implementing a refinery-related community air monitoring system; and

WHEREAS, District Rule 4460 requires owners and operators of petroleum refineries in the San Joaquin Valley to install, operate, and maintain fence-line air monitoring systems to implement the requirements of CH&SC §42705.6; and

WHEREAS, the Fresno County Superior Court issued a writ of mandate requiring the District to amend District Rule 4460 to: (a) remove the exemptions in the Refinery Rule for non-crude oil refining facilities and under-40,000-barrels per day (bpd) petroleum refineries in the Refinery Rules; (b) remove the monitoring provision specifying a pre-

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determined set of six pollutants for petroleum refineries with a refining capacity of less than 40,000 bpd in the Refinery Rules, and (c) issue revised regulations and provide evidentiary support for the decisions made and demonstrate a rational connection between the regulations devised and CH&SC §42705.6, including for the list of pre-determined pollutants; and

WHEREAS, proposed amendments to Rule 4460 and proposed Rule 4460 Guidelines would address the findings identified by the court; and

WHEREAS, the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines provide a written framework to be used by the APCO to evaluate fence-line air monitoring plans required by Rule 4460 and to inform petroleum refinery owners and operators subject to Rule 4460 about the elements necessary to complete the fence-line air monitoring plans; and

WHEREAS, the District Governing Board, in adopting this regulation, references the following statutes which the District hereby implements, interprets or makes specific: the provisions of the CH&SC §42705.6 (Refinery-Related Monitoring); and

WHEREAS, proposed amendments to Rule 4460 (Petroleum Refinery Fence-line Air Monitoring) will not be submitted for inclusion in the State Implementation Plan; and

WHEREAS, a public hearing for the adoption of proposed amendments to Rule 4460 and proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines was duly noticed for public hearing to be held on September 15, 2022, in accordance with CH&SC §40725 and §40727.2.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Governing Board hereby adopts the proposed amendments to Rule 4460 (Petroleum Refinery Fence-line Air Monitoring) and proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines. Said rule shall become effective on October 20, 2022.

2. The Governing Board hereby finds, based on the evidence and information presented at the hearing upon which its decision is based, all notices required to be given by law have been duly given in accordance with CH&SC §40725, and the Governing Board has allowed public testimony in accordance with CH&SC §40726.

3. In connection with said rulemaking, the Governing Board makes the following findings as required by CH&SC §40727:

a. **NECESSITY.** The Governing Board finds, based on the staff report, public testimony, and the record for this rulemaking proceeding, that a need exists for said rule amendment. Said rule amendment is necessary to meet the requirements of CH&SC §42705.6.

b. **AUTHORITY.** The Governing Board finds that it has the legal authority for said rulemaking under CH&SC §40000 and §40001.

c. **CLARITY.** The Governing Board finds that said rule is written or displayed so that the meaning can be easily understood by those persons or industries directly affected by said rule.

d. **CONSISTENCY.** The Governing Board finds that said rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

e. **NONDUPLICATION.** The Governing Board finds that said rule does not impose the same requirements as any existing state or federal regulation.

f. **REFERENCE.** The Governing Board finds that said rulemaking implements CH&SC §42705.6.

4. The Governing Board hereby finds that the requirements of CH&SC §40728.5 and §40920.6 have been satisfied to the greatest extent possible, and that the Governing Board has actively considered and made a good faith effort to minimize any adverse socioeconomic impacts associated with the proposed rulemaking.

5. The Governing Board finds that, because this rulemaking will have no possible significant adverse effect on the environment, the proposed actions do not constitute a project under the provisions of the California Environmental Quality Act of 1970 (CEQA). Furthermore, the proposed actions are exempt from CEQA per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061 (b)(3)). Therefore, pursuant to Section 15062 of the CEQA guidelines, Staff will file a Notice of Exemption upon Governing Board approval of proposed Rule 4460 and the accompanying Guidelines.

6. The Executive Director/Air Pollution Control Officer is directed to file a Notice of Exemption with the County Clerks of each of the counties in the District.

7. The Executive Director/Air Pollution Control Officer is directed to file with all appropriate agencies certified copies of this resolution and the rule adopted herein and is directed to maintain a record of this rulemaking proceeding in accordance with CH&SC §40728.

8. The Governing Board authorizes the Executive Director/Air Pollution Control Officer to update the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines as necessary to ensure consistency with state-established regulatory guidance.

9. The Governing Board authorizes the Executive Director/Air Pollution Control Officer to include in subsequent documentation any technical corrections, clarifications, or additions that may be needed, provided such changes do not alter the substantive requirements of the approved rule.

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THE FOREGOING was passed and adopted by the following vote of the Governing Board of the San Joaquin Valley Unified Air Pollution Control District this 20th day of October 2022, to wit:

AYES:

NOES:

ABSENT:

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

By _____
Vito Chiesa
Governing Board Chair

ATTEST:

Interim Deputy Clerk of the Governing Board

By _____
Adriana Myovich

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San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment B:

Resolution for Proposed Amendments to Rule 3200

(5 PAGES)

BEFORE THE GOVERNING BOARD OF THE SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

IN THE MATTER OF: PROPOSED AMENDMENTS TO RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES)) **RESOLUTION NO. 22-10-11b**

WHEREAS, the San Joaquin Valley Unified Air Pollution Control District (District) is a duly constituted unified air pollution control district, as provided in California Health and Safety Code (CH&SC) Sections (§) 40150 et seq. and 40600 et seq.; and

WHEREAS, said District is authorized by CH&SC §40702 to make and enforce all necessary and proper orders, rules, and regulations to accomplish the purpose of Division 26 of the CH&SC; and

WHEREAS, Assembly Bill 1647 (Muratsuchi, 2017), codified at CH&SC §42705.6, requires that: (1) air districts design, develop, install, operate, and maintain a refinery-related community air monitoring system; 2) owners and operators of petroleum refineries develop, install, operate, and maintain a fence-line monitoring system; 3) air districts and owners and operators of petroleum refineries collect real-time data from the refinery-related community air monitoring system and the fence-line monitoring system and provide this data to the public as quickly as possible in a publicly accessible format; and 4) owners and operators of petroleum refineries be responsible for the costs associated with implementing a refinery-related community air monitoring system; and

WHEREAS, Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) requires that owners and operators of operating petroleum refineries in the San Joaquin Valley pay fees to recover the District's costs for the installation and operation of community air monitoring systems in communities located in proximity to petroleum refining operations; and

WHEREAS, the Fresno County Superior Court ruled that facilities not currently engaged in crude oil refining may not be exempted from the fence-line monitoring

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requirements of District Rule 4460 (Petroleum Refinery Fence-line Air Monitoring), as adopted December 19, 2019; and

WHEREAS, proposed amendments to Rule 3200 would ensure consistency with amendments required by the court for District Rule 4460; and

WHEREAS, the District Governing Board, in adopting this regulation, references the following statues which the District hereby implements, interprets or makes specific: the provisions of the CH&SC §42705.6 (Refinery-Related Monitoring); and

WHEREAS, proposed amendments to Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) will not be submitted for inclusion in the State Implementation Plan; and

WHEREAS, a public hearing for the adoption of proposed amendments to Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) was duly noticed for public hearing to be held on September 15, 2022, in accordance with CH&SC §40725 and §40727.2.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Governing Board hereby adopts the proposed amendments to Rule 3200 (Petroleum Refinery Community Air Monitoring Fees). Said rule shall become effective on October 20, 2022.

2. The Governing Board hereby finds, based on the evidence and information presented at the hearing upon which its decision is based, all notices required to be given by law have been duly given in accordance with CH&SC §40725, and the Governing Board has allowed public testimony in accordance with CH&SC §40726.

3. In connection with said rulemaking, the Governing Board makes the following findings as required by CH&SC §40727:

a. **NECESSITY.** The Governing Board finds, based on the staff report, public testimony, and the record for this rulemaking proceeding, that a need exists for said rule. Said rule is necessary to meet the requirements of CH&SC §42705.6.

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b. **AUTHORITY.** The Governing Board finds that it has the legal authority for said rulemaking under CH&SC §40000 and §40001.

c. **CLARITY.** The Governing Board finds that said rule is written or displayed so that the meaning can be easily understood by those persons or industries directly affected by said rule.

d. **CONSISTENCY.** The Governing Board finds that said rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

e. **NONDUPLICATION.** The Governing Board finds that said rule does not impose the same requirements as any existing state or federal regulation.

f. **REFERENCE.** The Governing Board finds that said rulemaking implements CH&SC §42705.6.

4. The Governing Board hereby finds that the requirements of CH&SC §40728.5 and §40920.6 have been satisfied to the greatest extent possible, and that the Governing Board has actively considered and made a good faith effort to minimize any adverse socioeconomic impacts associated with the proposed rulemaking.

5. The Governing Board finds that, because this rulemaking will have no possible significant adverse effect on the environment, the proposed actions do not constitute a project under the provisions of the California Environmental Quality Act of 1970 (CEQA). Furthermore, the proposed actions are exempt from CEQA per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061 (b)(3)). Therefore, pursuant to Section 15062 of the CEQA guidelines, Staff will file a Notice of Exemption upon Governing Board approval of proposed Rule 3200.

6. The Executive Director/Air Pollution Control Officer is directed to file a Notice of Exemption with the County Clerks of each of the counties in the District.

SJVUAPCD
1990 E. Gettysburg Ave.
Fresno, CA 93726
(559) 230-6000

7. The Executive Director/Air Pollution Control Officer is directed to file with all appropriate agencies certified copies of this resolution and the rule adopted herein and is directed to maintain a record of this rulemaking proceeding in accordance with CH&SC §40728.

8. The Governing Board authorizes the Executive Director/Air Pollution Control Officer to include in subsequent documentation any technical corrections, clarifications, or additions that may be needed, provided such changes do not alter the substantive requirements of the approved rule.

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1990 E. Gettysburg Ave.
Fresno, CA 93726
(559) 230-6000

THE FOREGOING was passed and adopted by the following vote of the Governing Board of the San Joaquin Valley Unified Air Pollution Control District this 20th day of October 2022, to wit:

AYES:

NOES:

ABSENT:

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL DISTRICT

By _____
Vito Chiesa
Governing Board Chair

ATTEST:

Interim Deputy Clerk of the Governing Board

By _____
Adriana Myovich

SJVUAPCD
1990 E. Gettysburg Ave.
Fresno, CA 93726
(559) 230-6000

San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment C:

Revised Proposed Rule 4460

(8 PAGES)

RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING (Adopted December 19, 2019; Amended [rule adoption date])

1.0 Purpose

The purpose of this rule is to require petroleum refineries to implement real-time fence-line air monitoring systems that provide useful air quality information to the public regarding concentrations of refinery-related~~various~~ air pollutants, which could include criteria air pollutants and toxic air contaminants, at or adjacent to~~near~~ property boundaries of petroleum refineries.

2.0 Applicability

This rule applies to petroleum refineries.

3.0 Definitions

3.1 Air Pollution Control Officer (APCO): as defined in Rule 1020 (Definitions).

3.2 District: as defined in Rule 1020 (Definitions).

3.3 Fence-line Air Monitoring System: a combination of equipment that measures and records air pollutant concentrations at or adjacent to~~near~~ the property boundary of a petroleum refinery.

3.4 Petroleum Refinery, or Refinery: a facility permitted to engage in the activities ~~that processes petroleum, as~~ described in the Standard Industrial Classification Code under 2911 (Petroleum Refining).

3.5 Real-Time: the actual or near actual time during which pollutant levels are measured.

3.6 Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines: the written framework to be used by the APCO to evaluate a refinery fence-line air monitoring plan.

~~4.0 Exemptions~~

~~Refineries not currently engaged in refining crude oil shall be exempted from the requirements of this rule, except for Section 7.3. Not later than thirty (30) calendar days after adoption of this rule, the owner or operator of a refinery not currently engaged in refining crude oil shall submit to the District for APCO review and approval a declaration that the facility is not refining crude oil.~~

45.0 Requirements

Petroleum refineries shall install, operate, and maintain a fence-line air monitoring system, and shall collect monitoring data in real-time, make such data available to the public as quickly as possible, ~~in real-time the data collected~~ and incorporate a public notification system in accordance with an APCO ~~the District~~ approved fence-line air monitoring plan as required by ~~in~~ Section 56.0.

56.0 Fence-line Air Monitoring Plan

56.1 No later than May 1, 2023 ~~July 1, 2020~~, the owner or operator of a petroleum refinery shall submit to the APCO a written fence-line air monitoring plan for establishing and operating a real-time fence-line air monitoring system.

56.2 The fence-line air monitoring plan shall provide the following detailed information:

56.2.1 Equipment to be used to continuously monitor, record, and report air pollutant concentrations for the pollutants specified in Table 1 – ~~Equipment and~~ Air Pollutants to be Addressed ~~Considered~~ in Air Monitoring Plan in real-time, at or adjacent to ~~near~~ the property boundary of the petroleum refinery;

56.2.2 Siting and equipment specifications;

56.2.3 Equipment to be used to measure and continuously record wind speed and wind direction data within the boundaries of the petroleum refinery;

56.2.4 Procedures for addressing air monitoring equipment maintenance and failures ~~must be addressed in the plan~~, including:

56.2.4.1 Routine maintenance requirements and timelines for performing required periodic maintenance on the fence-line air monitoring system ~~equipment~~;

56.2.4.2 Length of time that fence-line air monitoring equipment will not be operating during routine maintenance activities; and

56.2.4.3 Temporary air monitoring measures that will be implemented in the event of an equipment failure or during routine maintenance activities and used until the fence-line air monitoring system is restored to normal operating conditions.

56.2.5 Procedures for implementing quality assurance by a qualified independent party, including quality control and audits of the fence-line air monitoring systems;

56.2.6 Procedures for implementing the fence-line air monitoring plan, including, information pertaining to the installation, operation, maintenance, and quality assurance, for the fence-line air monitoring system;

56.2.7 Methods and timeframe for dissemination of data collected by the equipment specified in Subsections 56.2.1 and 56.2.3 to the public, local response agencies, and the District.

56.3 The fence-line air monitoring plan required by Section 56.1 shall address real-time air monitoring for pollutants released due to petroleum refinery-related processes, and should reference the most recent refinery-related monitoring guidance from California Air Resources Board and California Air Pollution Control Officers Association and refinery-related monitoring report from the Office of Environmental Health Hazard Assessment ~~refinery-related monitoring guidance~~. Pollutants required to be monitored~~considered~~ in the fence-line air monitoring system~~plan~~ shall include pollutants specified in Table 1. Should owner or operator of a petroleum refinery propose to not monitor one or more of the specified pollutants in Table 1, sufficient justification shall be included in the proposed fence-line air monitoring plan in accordance with Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines. The owner or operator of a petroleum refinery should also consider monitoring additional pollutants beyond Table 1 that are produced through the facility's specific activities and processes. At minimum, a refinery shall monitor benzene, toluene, ethylbenzene, xylene, hydrogen sulfide, and sulfur dioxide.

Table 1: ~~Equipment and~~ Air Pollutants to be Addressed~~Considered~~ in Fence-line Air Monitoring Plan

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Ethylbenzene
Formaldehyde
Hydrogen Fluoride
Hydrogen Sulfide
Manganese

Naphthalene
Nickel
Nitrogen Oxide
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide
Sulfuric Acid
Toluene
Xylene

~~Petroleum Refinery Capacity (barrels per day)~~	~~Equipment for Fence-line Air Monitoring System~~	~~Pollutants to be Considered in Monitoring Plan~~
~~Less than 40,000~~	~~Point monitoring or open path system~~	~~Sulfur dioxide, hydrogen sulfide, BTEX compounds (benzene, toluene, ethylbenzene and xylene)~~
~~40,000 or greater~~	~~Open path system and point monitoring as needed~~	~~Sulfur dioxide, nitrogen oxides, total VOCs, BTEX compounds (benzene, toluene, ethylbenzene and xylene), formaldehyde, acetaldehyde, acrolein, 1,3 butadiene, styrene, hydrogen sulfide, carbonyl sulfide, ammonia, hydrogen cyanide, hydrogen fluoride, black carbon~~

5~~6~~.4 The owner or operator of a petroleum refinery shall submit an updated fence-line air monitoring plan to the APCO as follows:

5~~6~~.4.1 Thirty (30)~~Ten (10)~~ calendar days after the date of any unplanned facility, equipment, process or administrative modification that could result in permanent changes to an approved fence-line air monitoring plan.

5~~6~~.4.2 Forty-five (45) calendar days before the date of implementation of any planned facility, equipment, process or administrative modification that could result in permanent changes to an approved fence-line air monitoring plan.

5~~6~~.4.3 Sixty (60) calendar days after the date of receiving information that an approved fence-line air monitoring plan does not adequately measure one

or more pollutant(s) identified in Table 1 that are emitted from the petroleum refinery.

5~~6~~.4.4 Failure to comply with the requirements of Subsections 5~~6~~.4.1 through 5~~6~~.4.3 shall result in revocation of an approved fence-line air monitoring plan. Thirty (30) calendar days after revocation of an approved fence-line air monitoring plan, the owner or operator of a petroleum refinery shall submit a new fence-line air monitoring plan to the APCO pursuant to Sections 5~~6~~.2 and 5~~6~~.3. The updated fence-line air monitoring plan shall not be subject to the implementation schedule in Section 6~~7~~.0. An updated implementation schedule subject to approval by the APCO shall be included in the new fence-line air monitoring plan but in no case shall implementation exceed 180 calendar days.

5~~6~~.5 The owner or operator of a petroleum refinery may include the use of emerging technologies in a fence-line air monitoring plan that is compliant with the requirements of this rule.

5.6 All fence-line air monitoring plans shall be consistent with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines.

6~~7~~.0 Fence-line Air Monitoring Implementation Timeline Requirements

~~7.1~~ The owner or operator of an existing petroleum refinery shall complete installation and begin operation of a real-time fence-line air monitoring system within 365 calendar days of APCO~~District~~ approval of proposed monitoring plans.

~~7.2 The owner or operator of a refinery with the capacity to process less than 40,000 barrels per day that subsequently increases processing capacity to greater than or equal to 40,000 barrels per day must submit an amended fence-line air monitoring plan in accordance with Section 6.0 at least six (6) months prior to increasing processing capacity. The owner or operator of the facility must complete installation and begin operation of a real-time fence-line air monitoring system in accordance with the approved fence-line air monitoring plan prior to increasing petroleum processing activities.~~

~~7.3 The owner or operator of a refinery not currently engaged in refining crude oil must submit a proposed fence-line air monitoring plan at least six (6) months prior to planned recommencement of refining operations. The owner or operator of the facility must complete installation and begin operation of a real-time fence-line air monitoring system in accordance with the approved fence-line air monitoring plan prior to recommencement of petroleum refining activities.~~

~~7.4 Refinery facilities that cease to engage in refining crude oil shall notify the District in writing at least thirty (30) calendar days prior to ceasing petroleum refinery operations if fence-line air monitoring is also to be suspended or terminated.~~

7~~8~~.0 Refinery Fence-line Air Monitoring Plan Review Process

7~~8~~.1 The APCO shall notify the owner or operator in writing whether the fence-line air monitoring plan is approved or disapproved. Determination of approval status for the fence-line air monitoring plan shall be based on, at a minimum, submittal of information that satisfies the criteria in Section 5~~6~~.0.

7~~8~~.1.1 If disapproved, the owner or operator shall revise and resubmit the fence-line and air monitoring plan within thirty (30) calendar days after notification of disapproval of the plan. The resubmitted plan shall include any information necessary to address deficiencies identified in the disapproval letter.

7~~8~~.1.2 The APCO shall either approve the revised and resubmitted fence-line air monitoring plan or modify the plan and approve it as modified.

7~~8~~.2 A fence-line air monitoring plan that is submitted pursuant to the requirements of Section 5~~6~~.0 shall be made available, by the APCO, for public review and comment no less than thirty (30) calendar days prior to approval.

8~~9~~.0 Reporting

8.1 Owners or operators subject to Section 4~~5~~.0 shall submit a written report for each calendar quarter to the District. The quarterly report shall include the time and date of each period during which the fence-line air monitoring system was inoperative and the nature of system repairs and adjustments. The report is due by the 45th~~30th~~ calendar day following the end of the calendar quarter.

8.2 Following a monitoring system's detection of a pollutant exceeding its threshold defined in the approved air monitoring plan, owners or operators subject to Section 4.0 shall submit a Follow-up Report to the APCO within ten calendar days. The Report shall include:

8.2.1 The pollutant detected,

8.2.2 The pollutant's notification threshold,

8.2.3 The initial date and time the exceedance was detected,

8.2.4 The date and time the exceedance ended or if it is ongoing,

8.2.5 The predominant wind speed and direction throughout the exceedance period, and

8.2.6 Indication whether or not the suspected source of the exceedance is located within the refinery's fence-line.

8.2.7 If the suspected source of the exceedance identified per Section 8.2.6 is located within the refinery's fence-line, the Follow-up Report shall also include:

8.2.7.1 The specific processes or equipment from where the release is suspected to have originated, and

8.2.7.2 All corrective actions taken.

8.3 Should a monitoring system detect multiple exceedances within the ten day Report period, only one Follow-up Report will be required if the processes or units from where the releases are suspected to have originated are identical. This consolidated report must include the information required in Section 8.2 for each exceedance detected. This consolidated report must be submitted ten days following the initial exceedance.

9~~10~~.0 Recordkeeping

The owner or operator of a petroleum refinery shall maintain onsite records of all information, required under this rule for at least five (5) years and shall make the information readily available to the District upon request.

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San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment D:

Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

(13 PAGES)

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

Rule 4460

Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

Proposed

October 20, 2022

Table of Contents

Contents

1. Background

On October 8, 2017, the California State Legislature and Governor Jerry Brown passed Assembly Bill (AB) 1647[1]. As a part of the California Health and Safety Code §42705.6, this legislation requires the following: (1) the District design, develop, install, operate, and maintain a refinery-related community air monitoring system; 2) petroleum refinery owners and operators develop, install, operate, and maintain a fence-line monitoring system, in accordance with guidance developed by the District; 3) the District and petroleum refinery owners and operators collect real-time data from the refinery-related community air monitoring system and the fence-line monitoring system and the data be provided to the public as quickly as possible in a publicly accessible format; and 4) petroleum refinery owners and operators be responsible for the costs associated with implementing a refinery-related community air monitoring system.

The District adopted Rules 4460 (Petroleum Refinery Fence-line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees) on December 19, 2019 to implement the requirements of AB 1647 in the Valley. Amended [*rule adoption date*], Rule 4460 requires that petroleum refinery owners and operators install, operate, and maintain real-time fence-line air monitoring systems and make data collected by these systems publicly available. Rule 3200 requires that owners and operators of petroleum refineries operating in the Valley pay an initial fee to support the implementation of refinery-related community air monitoring by the District, and an annual operations and maintenance fee to support community air monitoring system maintenance and associated District staff time. Once operating, these community air monitoring systems will provide air quality information to the public regarding the levels of pollutants in communities located near petroleum refineries.

Rule 4460 requires the submittal and approval of a fence-line air monitoring plan (plan) for establishing and operating a fence-line air monitoring system. The plan must provide detailed information about the fence-line air monitoring system, including siting, instrument choices, wind data collection, maintenance procedures, measures in case of failures, quality assurance and auditing, and data reporting methods. Further, the rule sets forth requirements for the plan review process, notifications, and recordkeeping. The plan review process includes a public review period of no less than thirty (30) days prior to approval by the District.

The District developed these guidelines as a written framework to be used by the Air Pollution Control Officer (APCO) to evaluate air monitoring plans required by Rule 4460. These guidelines will inform refinery owners and operators subject to Rule 4460 about the elements necessary to complete the air monitoring plans.

[1] (Muratsuchi, 2017)

2. Air Monitoring Plan

District staff will evaluate each plan on a case-by-case basis, taking into consideration each facility's characteristics, including size, emissions, and location. An approvable fence-line air monitoring plan should provide detailed information about the installation, operation, and maintenance of the fence-line air monitoring system. The proposed fence-line monitoring system should be capable of measuring routine emissions from refineries, as well as unplanned releases from refinery equipment and other sources of refinery-related emissions.

Developing an air monitoring plan requires three important steps:

1. Identification of emissions sources and affected communities
2. Development of a fence-line air monitoring system that can provide real-time information about specific air pollutant levels
3. Effective communication of this information to the public and other interested parties.

Per District Rule 4460, a fence-line air monitoring plan must include detailed information for the following:

1. Equipment to be used to continuously monitor, record, and report air pollutant concentrations for the pollutants in real-time, at or adjacent to the property boundary of the petroleum refinery

2. Siting and equipment specifications
   a. Distance from facility to closest sensitive receptor(s)
   b. Location of impacted communities
   c. Refinery air pollutant distribution in those communities
   d. Description of how the monitoring system will cover identified impacted communities
   e. Specifications for the fence-line instruments (i.e., detection limits, time resolution, etc.)
   f. Locations where equipment will be sited (e.g., GIS coordinates) and measurement pathways for open-path monitoring equipment if proposed

3. Equipment to be used to measure and continuously record wind speed and wind direction data within the boundaries of the petroleum refinery

4. Procedures for addressing air monitoring equipment maintenance and failures, including:
   a. Routine maintenance requirements and timelines for performing required periodic maintenance on the fence-line air monitoring system;
   b. Length of time that fence-line air monitoring equipment will not be operating during routine maintenance activities; and

c. Temporary air monitoring measures that will be implemented in the event of an equipment failure or during routine maintenance activities and used until the fence-line air monitoring system is restored to normal operating conditions.

5. Procedures for implementing quality assurance by a qualified independent party, including quality control and audits of the fence-line air monitoring systems
   a. Quality assurance procedures for data generated by the fence-line air monitoring system (e.g. procedures for assessment, verification, and validation data)
   b. Standard operating procedures (SOPs) for all measurement equipment
   c. Routine equipment and data audits

6. Procedures for implementing the fence-line air monitoring plan, including information pertaining to the installation, operation, maintenance, and quality assurance for the fence-line air monitoring system
   a. Timeline for implementation

7. Methods and timeframe for dissemination of data collected by the monitoring equipment to the public, local response agencies, and the District
   a. Real-time current and historical air pollutant and meteorological data
   b. Educational material that describes the objectives and capabilities of the fence-line air monitoring system
   c. Description of all pollutants measured and measurement techniques
   d. Procedures to upload the data and ensure quality control
   e. Definition of QC flags
   f. Archived data that with data quality flags, explains changes due to QA/QC and provides chain of custody information
   g. Quarterly data summary reports, including relationship to health thresholds, data completeness, instrument issues, and quality control efforts
   h. Notifications for activities that could affect the fence-line air monitoring system (e.g., planned maintenance activities or equipment failures)
   i. Communication methods for notifications, such as, website, mobile applications, automated emails/text messages, and social media

3. Pollutants to be Monitored

The fence-line air monitoring plan should address real-time air monitoring for pollutants released due to petroleum refinery-related processes, and shall reference the most recent refinery-related monitoring guidance from California Air Resources Board (CARB) and California Air Pollution Control Officers Association (CAPCOA) and refinery-related monitoring report from the Office of Environmental Health Hazard Assessment (OEHHA).

Pollutants required to be monitored in the fence-line air monitoring system shall include pollutants specified below in Table 1, consistent with the refinery-related monitoring report from OEHHA. Should a petroleum refinery propose to not monitor

any of the pollutants required in Table 1, this proposal must be accompanied with sufficient justification to demonstrate one or more of the following:

1) The pollutant is not emitted through the refinery's activities and processes;
2) Real-time air monitors capable of reliably measuring the pollutant are not available;
3) The expected concentration levels of the pollutant at the fence-line are below the detection limits of currently available real-time monitoring equipment; or
4) Other technical justifications as appropriate.

In these instances, the petroleum refinery operator would be required to provide an alternative measurement methodology or evidence (e.g., historical air monitoring data or operational information) to support the proposed exclusion. A petroleum refinery may submit a revised fence-line air monitoring plan if changes to the fence-line air monitoring system are supported based on new information.

Table 1: Air Pollutants to be Addressed in Fence-line Air Monitoring Plan

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Ethylbenzene
Formaldehyde
Hydrogen Fluoride
Hydrogen Sulfide
Manganese
Naphthalene
Nickel
Nitrogen Oxide
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide
Sulfuric Acid
Toluene
Xylene

In the developed fence-line air monitoring plan, the owner or operator of a petroleum refinery should also consider monitoring additional pollutants beyond the above list that are produced through the facility's specific activities and processes. At minimum, a refinery shall monitor benzene, toluene, ethylbenzene, xylene, hydrogen sulfide, and sulfur dioxide.

4. Fence-line Air Monitoring Technologies

There are two main types of technologies available for monitoring petroleum refinery emissions: open path and point air monitoring systems. Open path air monitoring systems utilize light and reflectors to measure levels of a variety of gaseous compounds along industrial facility fence-lines, and can be configured to detect the origination point of increased pollution concentration levels. These systems range in cost, depending on the number of units needed to adequately cover a fence-line. Point air monitors are installed in a stationary location and measure concentrations of criteria pollutants, toxics, and particulate matter, depending on the configuration selected for the system, at a single location. This equipment also ranges significantly in cost depending on the number of pollutants that can be measured by the platform. Open path systems are typically more costly than point monitors.

To determine the appropriate technology for a fence-line monitoring system, refineries should take into account geospatial layout of the plant, potential release sources, local meteorology, atmospheric dispersion characteristics of the compounds of concern, and the relative risk to likely receptors based on these criteria.[2]

The air monitoring plan must provide specifications for the instruments selected for a fence-line air monitoring system, such as detection limits of the equipment for each chemical and time-resolution capabilities. In certain instances a refinery owner or operator may demonstrate that other air monitoring techniques and/or technologies (e.g., emerging technologies) could be used in place of conventional technology, depending on the pollutant(s) monitored.

Open Path Systems

Open path systems use a light signal, projected along a straight unobstructed path, to continuously detect and measure concentrations of chemical compounds along the distance covered by the light signal in real-time. The light source emits light towards a detector either at the opposite end of the light path (bi-static configuration), or co-located with the light source (mono-static configuration) if the light is reflected back by a reflector, providing path-averaged concentrations of multiple pollutants simultaneously. Some of the optical technologies used in these systems include the following:

- **Ultra Violet Differential Optical Absorption Spectroscopy**: An Ultra Violet Differential Optical Absorption Spectroscopy (UV-DOAS) system utilizes a high powered UV light to measure the absorption spectra, as opposed to a signal produced by a single wavelength. By doing so, this separates the absorption data of multiple target analytes. By using a software as well as a

[2] CARB and CAPCOA. (2019). *Refinery Emergency Air Monitoring Assessment Report. Objective 2: Evaluation of Air Monitoring Capabilities, Gaps and Potential Enhancements.* Air Resources Board, California Environmental Protection Agency. California Air Pollution Control Officers Association Air Monitoring Committee. Retrieved from https://ww2.arb.ca.gov/our-work/programs/incident-air-monitoring/refinery-air-monitoring

predetermined subset of known gases, the Open-Path UV DOAS is able to quantify multiple target gases.

- **Tunable Diode Laser Absorption Spectroscopy**: Tunable Diode Laser Absorption Spectroscopy (TDLAS) utilizes a laser tuned to be within a strict frequency range. This range is typically exclusive to the target gas in question. The laser is then tuned to match the desired frequency of the target gas, primarily Hydrogen Sulfide (H2S). The concentration of the target gas along the path can be determined from the absorption at a particular wavelength.

- **Fourier Transform Infrared**: Fourier Transform Infrared (FTIR) system utilizes a beam of infrared light to measure the absorption spectra of the infrared spectrum. Infrared light is emitted from the light source, which is then directed at retroreflectors or another unit, and the returning light is received by a detector. The change in intensity, frequency, and wavelength is then used to calculate the concentration of various target gases in the atmosphere. With this sampling method it is possible to measure a total alkane concentration.

Point Monitors

Point monitors extract ambient air at a specific location and perform the measurement within the system. They are the primary instrument types used in EPA-approved methodologies for measuring air pollutants. These type of monitors use a variety of technologies, including the following:

- **Gas Monitoring**: In addition to the open path options for monitors, there are also single point monitors that can measure a range of target gases by utilizing methods such as chemiluminescence, UV-fluorescence, and gas chromatography. These instruments and their methods are widely used throughout multiple regulatory air monitoring networks, and are accepted by both the EPA and CARB for the measurement of gases such as NO2, H2S, and SO2.

- **Particulate Matter Monitoring**: There are point monitors for particulate matter as well, which employ methods such as beta attenuation, light scattering/absorption, and tapered element oscillating microbalance. These instruments range from hourly to minute averages and cover a range of PM types including PM1.0, PM2.5, PM10, and speciated particulate matter. The previously mentioned instruments and methods are in use throughout regulatory air monitoring networks and are accepted by EPA and CARB for the criteria pollutants.

- **Total VOC Monitoring**: A Photoionization Detector (PID) takes Volatile Organic Compounds (VOCs) and charges the compounds with a large amount of high-energy photons which energizes the sample compounds. The energized compounds then pass by the photoionization detector, which subjects the positively charged compounds to a magnetic field and forces them to a collector

electrode to determine the concentration of total VOCs. A Flame Ionization Detector (FID) is similar to the PID but utilizes a flame, typically fueled by hydrogen, to ionize the sample before the signal is read by the detector to determine the concentration of total VOCs.

- **Gas Chromatography - Mass Spectrometry (GC-MS)**: GC-MS utilizes a gas chromatograph with a mass spectrometer as the secondary detector. The sample passes through a GC utilizing a PID or FID as the primary detector, which separates the sample based on retention time. The sample then passes to the mass spectrometer, which ionizes and separates the sample by its mass to charge ratio. The advantage of this technique is the utilization of multiple separation methods for analysis, which can supplement instances in which certain compounds will output similar spectra using GC despite being vastly different chemically.

5. Quality Assurance and Quality Control (QA/QC)

The air monitoring plan should address quality assurance and quality control, including training of personnel, development and maintenance of proper documentation (i.e., instrument manuals, standard operating procedures (SOPs), a Quality Assurance Project Plan (QAPP), routine maintenance and calibration checks, technical audits, data verification and validation, and data quality assessment. A QAPP should outline the QA/QC plan, following EPA guidelines. The QAPP provides a blueprint for conducting air monitoring that produces quality results and must outline the specific goals of the monitoring and instrumentation, the data quality that is required and how that relates to when data generated by the instrumentation is accepted, and how the data will be reviewed and managed by the refineries. The QAPP should provide clear definitions and procedures for QA/QC that are necessary to indicate why some data may be missing, suspect, or invalid.

The critical functions to be addressed in the QAPP are summarized below:

- **Project background and management:** The QAPP should provide background information and the general goals of the fence-line air monitoring system, quality objectives and acceptance criteria for measurement data, and plans for documentation, record keeping, and data dissemination.
- **Technical Approach:** The QAPP should demonstrate that the appropriate approaches and methodologies are employed for performing measurements, data handling, and quality control.
- **Assessment/Oversight:** The QAPP should offer appropriate QA/QC steps for ensuring the effectiveness of the monitoring, covering representativeness of the data, instrument operation and data acquisition, calibration check procedures, data quality indicators, and independent systems and performance audits.
- **Data Validation and Usability:** The QAPP should describe what steps will be taken to ensure that the individual data elements conform to the criteria specified in the QAPP.

Air monitors should continuously measure with a time resolution of five-minute averaging when feasible. If this is not feasible, refinery operators must provide a rationale in the air monitoring plan detailing equipment or other operational limitations. Instrumentation should aim to meet a minimum of 75 percent completeness among all hourly values on a daily basis, and 90 percent completeness among daily values for each quarter of the year. Atmospheric conditions beyond the control of the refinery that affect accurate measurements, such as dense fog on open-path systems, should not be counted against data completeness requirements as long as appropriate meteorological measurements document time periods when these conditions exist.

The real-time and near-real-time disseminated measurement data should not be considered final, but it is important that the preliminary real-time measurement data distributed to the public be of an acceptable quality. It is important to ensure that instrument failures are detected quickly, with automated screening where feasible, to prevent grossly invalid data from being presented to the public. This can be accomplished by utilizing built-in status flags on the instrument operational parameters and by providing real-time data screening for outliers, impossible values, stuck values, negative values, rates of change, excessive short-term noise, etc.

All monitoring data should be collected, managed and archived in a standard electronic format after necessary data processing and validation. Processing the data involves collecting the data, assuring its quality, storing the data in a standardized format, and interpreting the data for communication to the public. The most critical steps in this process include:

- Automatically retrieving data from the fence-line monitors containing the measured levels of each air pollutant along with meteorological parameters;
- Validating data file completeness and integrity;
- Transferring file contents to a database;
- Flagging data that do not meet pre-defined quality control limits;
- Copying quality assured data and indices into a database for use by data display and dissemination program;
- Generating and recording logs to monitor system operation;
- Notifications, as appropriate, when measured concentrations are above pre-defined concentrations limits.

To ensure that the collected data meets the highest quality possible, each piece of monitoring equipment should be operated in strict accordance with an in-depth operating protocol. To achieve the appropriate level of detail and standardization, and to consequently ensure that the monitoring equipment provides high quality data, SOPs should be prepared for each specific measurement method. The SOPs should be informed by general operating instructions that are typically provided by the manufacturers of equipment, by operational experience and audits, and by general operational guidelines and performance specifications that are available for EPA and State approved methods. The SOPs should address specific topics such as calibration procedures and quality control procedures (indicating standards and

checks, acceptance criteria and schedule), as well as data reduction (indicating validation procedures, reporting and schedule).

The refinery operators shall submit to the District quarterly reports of data collected through the fence-line air monitoring system. The quarterly report shall include the time and date of each period during which the fence-line air monitoring system was inoperative and the nature of system repairs and adjustments. The report is due by the 45th calendar day following the end of the calendar quarter.

6. Data Display

The air monitoring plan should identify how the data will be provided to the public through a website. The website for displaying the data should include the current real-time measurements, historical data, and quarterly data reports. The air monitoring data should be provided in a manner that the public can readily access and understand. The websites should use data visualization tools to graphically depict information using maps and time series plots of measured pollutants and wind data. The website should include the following:

- Information regarding the species measured and the measurement techniques;
- Discussion of levels of concern for each measured species;
- Definition of data QC flags;
- When a monitor or system is offline, a flag/notification should be identified online explaining the loss of data;
- Links to additional sources of information as necessary;
- Details of how the public can report experiences and provide comments and feedback for improvement of the website, other data dissemination tools, and the monitoring activities in general.

The air monitoring plan should also identify alternative methods of accessing periodic reports for those members of the community who may not have internet access (e.g., automated phone systems for dial-in information, public displays, hard copies of periodic reports in libraries or community centers, etc.). Based on the needs of the communities, providing information in other languages should be considered.

Some other examples of methods for communicating the data to the public include the following:

- Mobile application;
- Automated email/fax/text notification system;
- Social media feeds;
- Public data displays in community locations;
- Automated call-in phone system;
- Television and radio reports; and
- Published quarterly data summary reports.

7. Public Notification System

The website should offer an opt-in public notification system that is integrated with the data collected by the air monitors that automatically generates and issues notifications to subscribers when each of the pollutant levels exceed corresponding thresholds pursuant to the approved air monitoring plan. Resources for establishment of potential thresholds include the National Ambient Air Quality Standards (NAAQS), California Ambient Air Quality Standards (CAAQS), and the acute and chronic Reference Exposure Levels (RELs) and cancer inhalation unit risks (IURs) developed by OEHHA.

The refinery should design the notification system to provide information to the public via email, text message, or other communication venues with the ability to be notified regarding: (1) data availability and release of periodic reports; (2) exceedances of thresholds established in approved fence-line air monitoring plans; and (3) monitoring system status. The timely notifications will inform the public when certain pollutants exceed those concentration thresholds or may pose a potential health concern, allowing the public to consider further actions to protect their health. The notifications could also serve to provide information to refinery operators to rapidly identify and mitigate any undetected and/or accidental emissions.

8. Plan Review Process

Rule 4460 requires that no later than May 1, 2023, the owner or operator of a petroleum refinery must submit to the APCO a written fence-line air monitoring plan for establishing and operating a real-time fence-line air monitoring system.

If disapproved, the owner or operator must revise and resubmit the fence-line and air monitoring plan within thirty (30) calendar days after notification of disapproval of the plan. The resubmitted plan must include all information necessary to address deficiencies identified in the disapproval letter.

The District will either approve the revised and resubmitted fence-line air monitoring plan or modify the plan and approve it as modified. A fence-line air monitoring plan will be made available, by the District, for public review no less than thirty (30) days prior to approval.

9. Implementation Timeline

The owner or operator of an existing petroleum refinery must complete the installation and begin the operation of a real-time fence-line air monitoring system within 365 days of APCO approval of a proposed monitoring plan.

10. Updates to Air Monitoring Plans

The owner or operator of a petroleum refinery must submit an updated fence-line air monitoring plan to the APCO as follows:

- Thirty (30) calendar days after the date of any unplanned facility, equipment, process or administrative modification that could result in permanent changes to an approved fence-line air monitoring plan.

- Forty-five (45) calendar days before the date of implementation of any planned facility, equipment, process or administrative modification that could result in permanent changes to an approved fence-line air monitoring plan.

- Sixty (60) calendar days after the date of receiving information that an approved fence-line air monitoring plan does not adequately measure one or more pollutant(s) identified in Table 1 that are emitted from the petroleum refinery.

Failure to comply with these requirements outlined above will result in revocation of an approved fence-line air monitoring plan. Thirty days (30) after revocation of an approved fence-line air monitoring plan, the owner or operator of a petroleum refinery must submit a new fence-line air monitoring plan to the APCO pursuant to Sections 5.2 and 5.3 of Rule 4460. An updated implementation schedule subject to approval by the APCO must be included in the new fence-line air monitoring plan, but in no case shall implementation exceed 180 calendar days.

San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment E:

Revised Proposed Rule 3200

(4 PAGES)

RULE 3200 PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES

(Adopted December 19, 2019, Amended [rule adoption date])

1.0 Purpose

The purpose of this rule is to recover the District's costs of developing and maintaining a refinery-related community air monitoring system, as required by California Health and Safety Code §42705.6.

2.0 Applicability

This rule applies to petroleum refineries.

3.0 Definitions

3.1 Air Pollution Control Officer (APCO): as defined in Rule 1020 (Definitions).

3.2 District: as defined in Rule 1020 (Definitions).

3.3 Community Air Monitoring System: a combination of equipment that measures and records air pollutant concentrations in communities near a petroleum refinery.

~~3.4 Operating: Actively refining crude oil.~~

3.4~~5~~ Petroleum Refinery, or Refinery: a facility permitted to engage in the activities ~~that processes petroleum, as~~ described in the Standard Industrial Classification Code under 2911 (Petroleum Refining).

~~4.0 Exemptions~~

~~4.1 Refineries not currently engaged in refining crude oil shall be exempted from the requirements of this rule, except for Section 7.1. Not later than thirty (30) calendar days after adoption of this rule, the owner or operator of a refinery not currently engaged in refining crude oil shall submit to the District for APCO review and approval a declaration that the facility is not refining crude oil.~~

4~~5~~.0 Equipment and Installation Fees

4~~5~~.1 Pursuant to California Health and Safety Code §42705.6, the owner or operator of a~~n operating~~ petroleum refinery shall pay the District for costs associated with implementation of a refinery-related community air monitoring system, as defined in Table 1.

Table 1: Community Air Monitoring System Installation Fees

Petroleum Refinery Capacity (barrels per day)	Community Air Monitoring Installation Fee Amount
Less than 40,000	$173,595
Greater than or equal to 40,000	$715,000

This fee may be reduced in the event that an existing air monitoring site, which is not directly related to petroleum refinery community air monitoring, is used to measure air pollutants for petroleum refinery community air monitoring purposes.

45.2 Unless a petroleum refinery has already paid the community air monitoring installation fee, nNo later than May 1, 2023July 1, 2020, the owner or operator of an operating petroleum refinery shall pay the community air monitoring installation fee, as specified in Table 1.

56.0 Annual Operating and Maintenance Fees

56.1 Pursuant to California Health and Safety Code §42705.6, the owner or operator of a petroleum refinery operating in the San Joaquin Valley shall pay an annual operating and maintenance fee, as defined in Table 2, to the District beginning in 20232021.

Table 2: Community Air Monitoring Annual Operating and Maintenance Fees

Petroleum Refinery Capacity (barrels per day)	Annual Operating and Maintenance Fee
Less than 40,000	$70,729
Greater than or equal to 40,000	$223,549

56.2 The annual operating and maintenance fees will be included in the annual operating permit invoice and payment shall be submitted to the District in accordance with the timelines for the annual operating permit renewal fee in District Rule 3010.

~~7.0 Refinery Facilities Not Refining Crude Oil~~

~~7.1 The owner or operator of a refinery not currently engaged in refining crude oil must submit payment of the community air monitoring installation fee, as specified in Table 1, at least six (6) months prior to planned resumption of petroleum refining operations.~~

~~7.2 Refinery facilities that cease to engage in refining crude oil shall notify the District in writing at least thirty (30) calendar days prior to ceasing petroleum refinery operations.~~

6~~8~~.0 Increases in Petroleum Refinery Capacity

The owner or operator of a petroleum refinery with the capacity to process less than 40,000 barrels per day that subsequently increases processing capacity to greater than or equal to 40,000 barrels per day must notify the District in writing of planned increase in capacity at least six (6) months before a planned increase in capacity. No later than thirty (30) calendar days after an increase in facility capacity, the owner or operator must pay the applicable community air monitoring system installation fee specified in Table 1, less the amount already paid for refineries with operating capacities less than 40,000 barrels per day. The petroleum refinery will also pay the increased annual operation and maintenance fee for petroleum refineries with capacity greater than or equal to 40,000 barrels per day, as specified in Table 2, beginning the year following the capacity increase.

7~~9~~.0 Late Fees

Fees not paid by the invoice due date shall be subject to late fees in accordance with Section 11.0 of District Rule 3010.

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San Joaquin Valley Unified Air Pollution Control District
Meeting of the Governing Board
October 20, 2022

ADOPT PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) AND RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) AND ADOPT PROPOSED RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

Attachment F:

Final Draft Staff Report with Appendix for Proposed Amendments to Rules 4460 and 3200 and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

(49 PAGES)

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

FINAL DRAFT STAFF REPORT

Proposed Amendments to Rule 4460 (Petroleum Refinery Fence-line Air Monitoring) and Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

October 20, 2022

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Jessi Fierro, Director of Air Quality Planning
Sheraz Gill, Deputy Air Pollution Control Officer

I. SUMMARY

Assembly Bill (AB) 1647 (the Refinery Statute) requires local petroleum refinery owners and operators to install and operate fence-line air monitoring systems at or near a refinery in accordance with guidance developed by the appropriate local air district, and requires local air districts to install community air monitors at or near sensitive receptor locations around petroleum refineries. The District adopted Rules 4460 (Petroleum Refinery Fence-line Air Monitoring) and 3200 (Petroleum Refinery Community Air Monitoring Fees) to implement the requirements of the Refinery Statute.

A coalition of litigants filed a lawsuit challenging the District's implementation of requirements under California Health and Safety Code (CH&SC) Section (§) 42705.6. On September 17, 2021, the Fresno County Superior Court affirmed certain aspects of District Rule 4460, but also held that facilities not currently engaged in crude oil refining may not be exempted from the Refinery Statute's fence-line monitoring requirements. In addition, for small refineries with a refining capacity of less than 40,000 barrels per day, the court determined that though the Refinery Statute does not require monitoring for every potential refinery-related pollutant identified in state guidance documents, the District did not provide adequate analysis to explain why it included the six, specified pollutants, while excluding any requirement to monitor for other pollutants. Accordingly, the District is proposing amendments to Rule 4460 and the supporting technical record to address these findings.

Through extensive research and a robust public outreach process, the District has developed a revised proposed Rule 4460 to fully address the findings identified by the

court. Although the Court's ruling did not specifically issue any findings with respect to Rule 3200, the District is proposing amendments to Rule 3200 to ensure consistency with Rule 4460. Additionally, to establish updated detailed guidance and consistency with respect to implementation, the District has developed the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines (Guidelines).

II. BACKGROUND

A. Requirements of State Legislation for Petroleum Refinery Air Monitoring

In August, 2012, the Chevron Refinery in Richmond, California experienced a major fire that raised serious concerns among elected officials, regulators, and the public about refinery maintenance, internal safety practices, and emergency preparedness in the vicinity of California's oil refineries and other large petrochemical facilities. The Richmond incident, and others that have occurred since 2012, led to intensified community concern in three main areas: 1) lack of sufficient safety controls to prevent accidental releases at refineries and other industrial facilities, 2) inadequate emergency response monitoring systems to effectively inform and protect communities in the event of an accident, and 3) insufficient government oversight to ensure effective emergency preparedness and response to unplanned air contaminant releases.

In response to these concerns, the Governor created the Interagency Refinery Task Force (IRTF) in 2013 with the goal of better coordinating refinery safety and compliance efforts, and improving preparedness for future incidents. The IRTF includes representatives from various state and local agencies including the California Air Resources Board (CARB), the District, and three other air districts with refineries in their jurisdictions: Bay Area Air Quality Management District (BAAQMD), South Coast Air Quality Management District (SCAQMD), and San Luis Obispo County Air Pollution Control District (SLOCAPCD). In support of IRTF goals, CARB and the California Air Pollution Control Officers Association (CAPCOA) agreed to jointly assess existing emergency air monitoring capabilities and to identify potential improvements to refinery air monitoring systems. As a result of this coordination, the collaborating agencies published several reports and guidance documents for air monitoring in the vicinity of refineries in California, including the *Refinery Emergency Air Monitoring Assessment Report* and the *Analysis of Refinery Chemical Emissions and Health Effects*.[1]

In response to an explosion at a refinery in Torrance, CA in 2015, Assemblymember Al Muratsuchi developed the "California Refinery Jobs and Safety Action Plan," which consisted of five assembly bills to improve public safety at all California refineries, including AB 1647. Passed on October 8, 2017 and codified at CH&SC §42705.6, AB 1647 outlines specific requirements for monitoring pollutants released from petroleum

[1] https://ww2.arb.ca.gov/our-work/programs/incident-air-monitoring/refinery-air-monitoring

refineries, both at/near facility boundaries and in nearby communities. This legislation requires the following: (1) by January 1, 2020, the District shall design, develop, install, operate, and maintain a refinery-related community air monitoring system; 2) by January 1, 2020, petroleum refinery owners and operators must develop, install, operate, and maintain a fence-line monitoring system, per guidance developed by the District; 3) the District and petroleum refinery owners and operators shall collect real-time data from the refinery-related community air monitoring system and the fence-line monitoring system and the data shall be provided to the public as quickly as possible in a publicly accessible format; and 4) petroleum refinery owners and operators shall be responsible for the costs associated with implementing a refinery-related community air monitoring system.

B. Current District Rule 4460 and Rule 3200

The District adopted Rules 4460 and 3200 on December 19, 2019, to implement the requirements of AB 1647 in the Valley. Rule 4460 requires petroleum refineries to install, operate, and maintain a fence-line air monitoring system and to make the real-time data available to the public as quickly as possible. The rule requires the submittal and approval of a fence-line air monitoring plan for establishing and operating the system, and requires consideration of a specified list of air pollutants for monitoring. Facilities not actively refining crude oil are exempt from the rule, but are required to submit a fence-line monitoring plan at least 6 months prior to any planned resumption of crude oil refining operations. Rule 3200 sets forth requirements for petroleum refineries to pay a fee to recover the District's costs of developing and maintaining a refinery-related community air monitoring system to measure and record air pollutant concentrations in the ambient air at or near sensitive receptor locations.

Current Rule 4460 utilizes a tiered approach to require different levels of air monitoring, depending on the size of the permitted facility. Refineries with the capacity to process greater than or equal to 40,000 bpd are required to implement a comprehensive fence-line air monitoring system capable of monitoring 18 different pollutants. The District took into consideration the smaller production capacity and emissions profile associated with less complex refining processes at Valley petroleum refineries, and determined that facilities with the capacity to process under 40,000 bpd should be required to monitor the pollutants most representative of emissions from their facilities. Table 1 below shows the types of equipment and air pollutants refineries must consider in their fence-line monitoring plan as specified in current Rule 4460.

Table 1: Rule 4460 Table 1 – Equipment and Air Pollutants to be Considered in Fence-line Air Monitoring Plan

Petroleum Refinery Capacity (barrels per day)	Equipment for Fence-line Air Monitoring System	Pollutants to be Considered in Monitoring Plan
Less than 40,000	Point monitoring or open path system	Sulfur dioxide, hydrogen sulfide, BTEX compounds (benzene, toluene, ethylbenzene and xylene)
40,000 or greater	Open path system and point monitoring as needed	Sulfur dioxide, nitrogen oxides, total VOCs, BTEX compounds (benzene, toluene, ethylbenzene and xylene), formaldehyde, acetaldehyde, acrolein, 1,3 butadiene, styrene, hydrogen sulfide, carbonyl sulfide, ammonia, hydrogen cyanide, hydrogen fluoride, black carbon

Current Rule 3200 establishes a fee schedule, to be paid by petroleum refinery owners and operators, for the cost of designing, developing, purchasing, installing, operating, and maintaining refinery-related community air monitoring systems. To develop the fees included in Rule 3200, the District conducted an evaluation of projected costs associated with the initial capital expenditures as well as ongoing operation and maintenance. Table 2 below outlines the cost to be paid by each applicable petroleum refinery facility for the initial installation of the community air monitoring system. Table 3 identifies the annual fees subject petroleum refinery facilities must pay for ongoing maintenance and operation of the air monitoring system. As required by AB 1647, fees may be reduced by the District in the event that a community air monitor is also used for purposes other than refinery-related emissions monitoring.

Table 2: Community Air Monitoring System Installation Fees

Petroleum Refinery Capacity (barrels per day)	Community Air Monitoring Installation Fee Amount
Less than 40,000	$173,595
Greater than or equal to 40,000	$715,000

Table 3: Community Air Monitoring Annual Operating and Maintenance Fees

Petroleum Refinery Capacity (barrels per day)	Annual Operating and Maintenance Fee
Less than 40,000	$70,729
Greater than or equal to 40,000	$223,549

C. Court Challenge

A coalition of litigants filed a lawsuit challenging the District's implementation of requirements under CH&SC §42705.6. On September 17, 2021, the Fresno County Superior Court affirmed certain aspects of District Rule 4460, but also held that facilities not currently engaged in crude oil refining may not be exempted from the Refinery Statute's fence-line monitoring requirements. In addition, for small refineries with a refining capacity of less than 40,000 barrels per day, the court determined that though the Refinery Statute does not require monitoring for every potential refinery-related pollutant identified in state guidance documents, the District did not provide adequate analysis to explain why it included the six, specified pollutants, while excluding any requirement to monitor for other pollutants. Accordingly, the District is proposing amendments to Rule 4460 and the supporting technical record to address these findings.

D. Petroleum Refining Operations in the San Joaquin Valley

Rule 4460 and Rule 3200 currently apply to facilities that process petroleum as described in the Standard Industrial Classification (SIC) Code under 2911 (Petroleum Refining). Valley facilities classified under this SIC code include Alon Bakersfield Refinery (Bakersfield Renewable Fuels), Kern Oil & Refining Co., San Joaquin Refining Company, and Tricor Refining, LLC (Table 4).

Alon Bakersfield Refinery (Bakersfield Renewable Fuels) is an oil refining company located in Bakersfield, California. The facility was sold in May 2020 and is currently being converted to produce renewable diesel from organic feedstock. Alon is not actively processing crude oil and is exempt under current Rules 4460 and 3200, but would be subject to the proposed amended Rules 4460 and 3200. The facility currently has an existing fence-line air monitoring system installed as a condition of obtaining County use permits. The system gathers real-time measurements of ammonia, hydrogen sulfide, and non-methane hydrocarbons, and transmits the data to the refinery's process information system for operational analysis and to a public website.

Kern Oil & Refining Co (Kern Oil) is an oil refining company located in Bakersfield, California. The facility processes up to 27,000 barrels of oil per day, and is a supplier

for gasoline and diesel in the southern San Joaquin Valley. The refinery prepared a fence-line air monitoring plan in accordance with existing Rule 4460, which the District made available for public review and comment before approving the plan on January 28, 2021. Kern Oil's fence-line air monitoring system and website have been implemented, and correspondingly, the District has implemented the refinery-related community air monitoring system and website. Both the fence-line and community air monitoring systems monitor for BTEX compounds, hydrogen sulfide, and sulfur dioxide, and provide this data in real-time.

San Joaquin Refining Company is an oil refining company located in Bakersfield, California. The facility processes up to 15,000 barrels of various petroleum-based products per day, used in asphalt production and a variety of industries with applications for diesel fuel, drilling fluids, fuel additives, hydraulic fluids, lubricants, tires, and more. In accordance with current Rule 4460, the refinery submitted a fence-line monitoring plan which the District made available for public review and comment before approving the plan on April 7, 2021. The plans for both the fence-line and community air monitoring systems proposed to monitor BTEX compounds, hydrogen sulfide, and sulfur dioxide.

Tricor Refining, LLC is located in Bakersfield, California at the site of the Golden Bear Oil Specialties Refinery. Ergon, Inc. and San Joaquin Refining Co. purchased the refinery in 2001, and subsequently redesigned the facility into a processing, transloading, and storage facility for hazardous and non-hazardous material, petroleum products, and asphalt. Tricor Refining offers processing capabilities for industrial asphalt customers with its two asphalt blowing stills, emulsion plant and polymer plant. The facility is not actively processing crude oil and is exempt from current Rules 4460 and 3200, but would be subject to the proposed amended Rules 4460 and 3200.

As described above, Alon and Tricor would become subject to the proposed amended Rules 4460 and 3200, which remove the exemption and clarify applicability of the requirements to facilities that maintain permits to engage in activities described under SIC Code 2911. Please note that the definition of a petroleum refinery has been clarified in the proposed rule to ensure consistency with the court ruling in consultation with the Attorney General's office.

Table 4: San Joaquin Valley Petroleum Refining Operations

Facility Name	Location	Processing Capacity (bpd)	Status of Refining (2021 CEC Report[2])
Alon (Bakersfield Renewable Fuels)	Rosedale Highway, Bakersfield, CA	66,000	Non-Refining
Kern Oil & Refining Co.	Panama Lane, Bakersfield, CA	26,000	Operational
San Joaquin Refining Company	Shell Street, Bakersfield, CA	15,000	Operational
Tricor Refining, LLC	Manor Street, Bakersfield, CA	12,500	Non-Refining

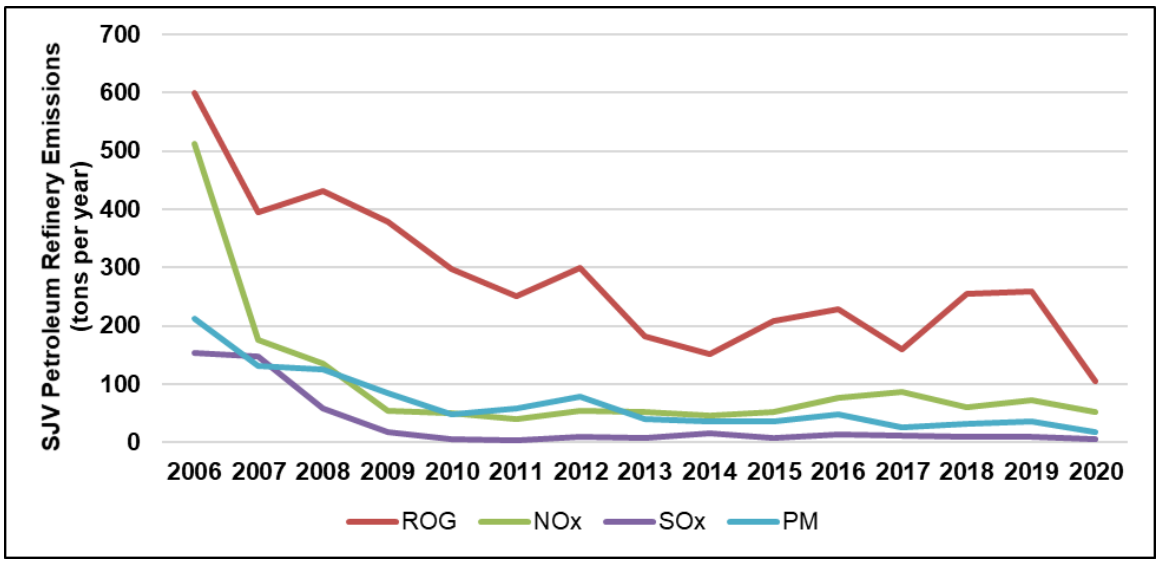
In addition to Rule 4460 and Rule 3200, Valley petroleum refineries are subject to multiple District rules, shown to be the most stringent rules feasible for implementation. Refineries are also subject to a variety of performance standards under local, state, and federal regulations to reduce emissions of air pollutants, shown in Table 5 below. Through these requirements, Valley petroleum refineries are required to test for emissions from combustion equipment, continuously monitor for leaks, provide ongoing reporting to the District, and undergo regular District inspections to ensure compliance with all applicable rules. Through compliance with these rules and standards, petroleum refineries have significantly reduced their emissions over time, as displayed in Figure 1 below.

[2] https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/californias-oil-refineries/california-oil

Table 5: District Rules and New Source Performance Standards Applicable to Petroleum Refineries

District Rules Affecting Valley Petroleum Refineries
• Rule 2201 – New and Modified Stationary Source Review Rule • Rule 4101 – Visible Emissions • Rule 4102 – Nuisance • Rule 4311 – Flares • Rules 4305, 4306, 4307, 4320, 4351 – Boilers, Steam Generators, and Process Heaters • Rule 4453 – Refinery Vacuum Producing Devices or Systems • Rule 4454 – Refinery Process Unit Turnaround • Rule 4455 – Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants • Rule 4623 – Storage of Organic Liquids • Rule 4624 – Transfer of Organic Liquid • Rule 4651 – Soil Decontamination Operations • Rules 4701, 4702 – Internal Combustion Engines • Rule 4703 – Stationary Gas Turbines
New Source Performance Standards
• Subparts J and Ja Standards of Performance for Petroleum Refineries • Subparts K, Ka, Kb Volatile Organic Liquid Storage Vessels • Subpart XX Bulk Gasoline Terminals • Subpart GGG and GGGa Equipment Leaks of VOC at Petroleum Refineries • Subpart QQQ VOC Emissions from Petroleum Refinery Wastewater Systems

Figure 1: Valley Petroleum Refinery Emissions Trend



Air Toxics "Hot Spots" Information and Assessment Act

The State of California enacted the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) in September 1987. Under this act, stationary sources are required to report the types and quantities of certain toxic substances their facilities routinely release into the air. The District's implementation of AB 2588 in conjunction with local, state, and federal air toxics reduction measures, has resulted in dramatic reductions in emissions of air toxics from existing sources in the San Joaquin Valley. Under this right-to-know law, the District has worked with Valley facilities to quantify emissions of air toxics, determine the health risk caused by those emissions, report emissions and any significant risks through written public reports and neighborhood public meetings, and take steps to reduce such risks. As a result of these efforts, there were no Valley facilities under the California Air Toxics "Hot Spots" program that were identified as posing a significant risk to any Valley resident since 2007.

Under the Air Toxics "Hot Spots" program, the District "prioritizes" facilities to determine which facilities must perform a health risk assessment. In establishing priorities, the District takes into consideration the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the District determines may indicate that the facility may pose a significant health risk.

California Refineries

Petroleum refining activity in the Valley represents under 6% of the total refining activity in California. As compared to petroleum refineries located in southern California or the Bay Area, which may have processing capacities of over 350,000 barrels of crude oil per day, refineries in the Valley range in capacity from 12,500 to 66,000 bpd, the largest active refinery processing 26,000 bpd (as illustrated in the table and figure below). Due to this much smaller scale of operation, emissions from Valley petroleum refineries are also significantly lower than large refineries in other regions. In addition, some Valley refineries only partially refine crude oil prior to shipping the product to the Bay Area for further processing, meaning that emissions from these facilities are also less per barrel processed compared to the larger petroleum refining complexes in the northern and southern portions of the state.

Some of the petroleum refineries in the Valley also focus much of their efforts in refining, blending, or storing a variety of specialized products such as biofuels, asphalt products, drilling fluids, fuel additives, hydraulic fluids, and lubricants that produce significantly less emissions than the larger and more complex crude oil refining processes in other parts of the state.

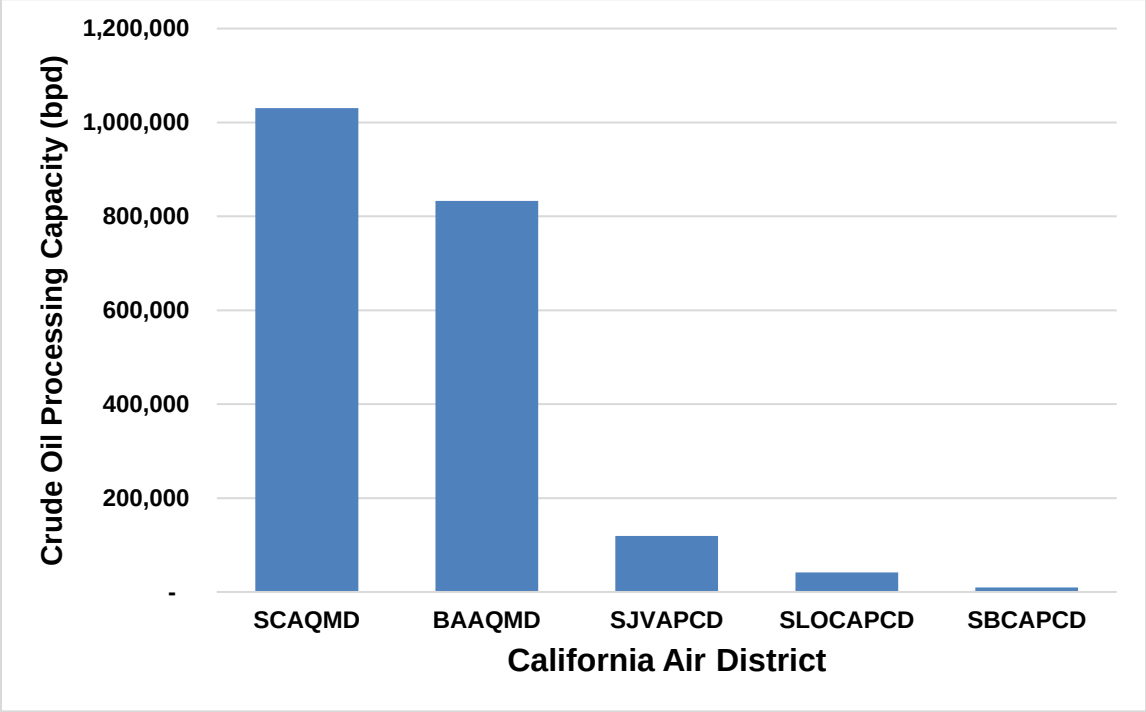
Table 6: California Oil Refinery Locations and Crude Oil Processing Capacities

Refinery Name	Barrels Per Day
Marathon Petroleum Corp., Carson Refinery	363,000
Chevron U.S.A. Inc., El Segundo Refinery	269,000
Chevron U.S.A. Inc., Richmond Refinery	245,271
Marathon Petroleum Co., Martinez/Avon*	166,000*
PBF Energy, Torrance Refinery	160,000
PBF Energy, Martinez Refinery	156,400
Valero Energy, Benicia Refinery	145,000
Phillips 66, Wilmington Refinery	139,000
Phillips 66, Rodeo San Francisco Refinery	120,200
Valero Energy, Wilmington Refinery	85,000
Alon Bakersfield Refinery (Bakersfield Renewable Fuels)*	***66,000****
Phillips 66, Santa Maria Refinery*	41,800*
Kern Oil & Refining Company, Bakersfield Refinery	***26,000***
San Joaquin Refining Company Inc., Bakersfield Refinery	***15,000***
Tricor Refining LLC, Oildale Refinery*	***12,500****
Greka Energy, Santa Maria Refinery	9,500
Lunday Thagard, South Gate Refinery	8,500
Valero Wilmington Asphalt Refinery	6,300
Total California Crude Oil Processing Capacity	**2,034,471**

Source: California Energy Commission. Data as of January 1, 2021

**Not reported by California Energy Commission as an active refinery*

Figure 2: Total Crude Oil Refining Capacity by Air District



E. Industry Process Description

Petroleum refineries process crude oil into a variety of products, including liquefied petroleum gas, gasoline, kerosene, aviation fuel, diesel fuel, fuel oils, lubricating oils, and feedstocks for the petrochemical industry. Petroleum refining generally begins with the delivery of crude for storage at the refinery, followed by petroleum handling and refining operations, and ending with storage and transfer of the refined products. The refining industry can employ a variety of processes, which can depend on the composition of the crude oil feedstock processed and the petroleum products that they produce. In Chapter 5 of AP-42[3], U.S. EPA provides a list of petroleum refining process categories (i.e., separation processes, petroleum conversion processes, petroleum treating processes, feedstock and process handling, and auxiliary facilities) along with other associated operations that are specific to the petroleum industry, and associated emission factors.

Crude oil consists of a mixture of hydrocarbon compounds including paraffinic, naphthenic, and aromatic hydrocarbons with small amounts of impurities, including sulfur, nitrogen, oxygen, and metals. The primary pollutants emitted from petroleum

[3] U.S. EPA. (1995). AP-42: Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Fifth Edition [https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors]

refining are volatile organic compounds arising from leakage, venting, and evaporation of the raw materials and finished products. Operations specific to this industry can also generate sulfur oxides, hydrogen sulfide, particulate matter, and several toxic species. Most of the petroleum refinery related air emissions are associated with catalytic or thermal cracking units, catalytic reformer units, sulfur recovery plants, storage vessels, fluid coking units, wastewater streams, cooling towers, equipment leaks, blowdown systems, vacuum distillation units, steam boilers, process furnaces, process heaters, compressor engines, barge or ship loading, and gasoline loading.

F. Refinery Emergency Air Monitoring Assessment Report

The Refinery Statute requires the monitoring guidance developed by District, to the extent feasible, be informed by refinery-related guidance prepared by the State. This State guidance includes the *California Refinery Emergency Air Monitoring Assessment Report (REAMAR),* prepared by CARB and CAPCOA to assess existing emergency air monitoring capabilities and to identify potential improvements to refinery air monitoring systems in order to support the goals of the IRTF. CARB and CAPCOA have published two volumes of the REAMAR to date: *Objective 1: Delineation of Existing Capabilities* (May 2015), and *Objective 2: Evaluation of Air Monitoring Capabilities, Gaps, and Potential Enhancements* (March 2019).

REAMAR Objective 1 provides a comprehensive inventory of emergency air monitoring assets and capabilities located in and around California's fifteen major oil refineries. This report serves as the basis for CARB and CAPCOA's ongoing assessment and guideline development for improving public and worker safety at oil refineries, and provides a foundation for the *REAMAR Objective 2*. *Objective 2* presents recommendations to improve emergency air monitoring, as well as monitoring of ongoing routine emissions, at California's major refineries and the communities that surround them. The recommendations cover air monitoring technology, modeling, and coordination. The report acknowledges the variability among refineries, and advises that implementation of each recommended strategy must be suited to each facility's size, operations, specific location, and its surrounding receptors, keeping in mind the practical limitations of current and emerging technologies and the timeframes necessary for full implementation.

G. OEHHA Report

The California Environmental Protection Agency's (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) collaborated with CARB and the IRTF to identify and develop information on chemicals emitted from refineries and their health effects in order to assist air agencies in developing plans for air monitoring in California. OEHHA published the *Analysis of Refinery Chemical Emissions and Health Effects* in March 2019, which identified 188 chemicals emitted from California refineries, including emissions that occur routinely in daily operations, as well as accidental and other non-

routine emissions. The report prioritizes the chemicals according to their emissions levels and toxicity, and identifies 18 chemicals as top candidates for air monitoring near refineries (Table 7). The presence of a chemical on this list does not necessarily mean that all refineries release it at all times or in significant quantities.[4]

Table 7: Top Pollutants Recommended by OEHHA for Air Monitoring

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Formaldehyde
Hydrogen Fluoride
Hydrogen Sulfide
Manganese
Naphthalene
Nickel
Nitrogen Oxide
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide
Sulfuric Acid
Toluene

The following describes in further detail the pollutants recommended by OEHHA for air monitoring at petroleum refineries. OEHHA provides a more detailed list of possible pollutants and their health effects in the *Analysis of Refinery Chemical Emissions and Health Effects* report.

Aldehydes

Aldehydes are products of incomplete combustion of hydrocarbons and other organic materials. Formaldehyde and acetaldehyde are two of the most common aldehydes produced in industry, detected in both ambient air emissions and at several refinery process units such as boilers, cokers, crude units, FCCUs, heaters, and incinerators. Exposure to aldehydes can cause irritation to the eyes, skin, and respiratory pathways, and prolonged exposure can have lasting health effects.

[4] Office of Environmental Health Hazard Assessment. (2019). *Analysis of Refinery Chemical Emissions and Health Effects*. Retrieved from: https://oehha.ca.gov/media/downloads/faqs/refinerychemicalsreport032019.pdf

Ammonia

Ammonia gas is colorless, pungent-smelling, and corrosive. Refineries may release ammonia from several types of process units, but predominantly from FCCUs. OEHHA found ammonia to be the most commonly released routine facility emission of all the chemicals they examined in their report. Exposure to high concentrations of ammonia may induce adverse health impacts, primarily to the respiratory system.

BTEX Compounds (Benzene, Toluene, Ethylbenzene, and Xylene)

BTEX is a specified subset of aromatic hydrocarbons compounds containing benzene, toluene, ethylbenzene, and xylene. These chemicals appear naturally in crude oil and can be associated with emissions from refineries as they are released partly due to incomplete combustion of natural gas as well as emissions from petroleum and storage and transfer. In addition, other combustion sources such as wood burning and fossil fuel combustion also contribute to BTEX emissions. The negative health effects associated with BTEX exposure include neurological impairment and cancer.

Cadmium

Cadmium is a soft silver-white metal, usually found in combination with other elements. The main sources of cadmium in the air are the burning of fossil fuels such as coal or oil and the incineration of municipal waste. Inhalation exposure to cadmium may result in adverse health effects to the kidneys or lungs.

Hydrogen Sulfide

Hydrogen sulfide (H2S) is a corrosive and highly flammable colorless gas, characterized by its pungent odor of rotten eggs. Oil refineries may emit hydrogen sulfide from various process units, such as boilers, crude units, heaters, storage tanks, cokers, FCCUs, wastewater treatment, and incinerators. It is one of the most commonly reported chemicals emitted during refinery incidents. Exposure at high concentrations can cause irritation, unconsciousness, and death.

Manganese

Manganese is a naturally occurring metal associated with a number of refinery process units, including oilers, cooling towers, crude units, heaters, storage tanks, cokers, FCCUs, and incinerators. Exposure to manganese has the potential to cause adverse health effects and appears to target the nervous system.

Nickel

Nickel is a silvery metal that occurs naturally in the environment at low levels. A variety of sources generate nickel air emissions, including oil refining operations. Exposure to nickel emissions can have negative effects on the respiratory and immune systems.

Nitrogen Oxides

Nitrogen oxides (NOx) represent a group of highly reactive gasses released into the air from combustion sources. Refineries emit NOx during non-routine processes and from many process units, such as boilers, crude units, heaters, storage tanks, cokers, FCCUs, incinerators, and flares. Refineries have also reported NOx releases during multiple fire incidents between 2001 and 2012. Exposure to NOx emissions may result in both acute and chronic health effects, primarily to the respiratory system.

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAH) are a class of chemicals that occur naturally in coal, crude oil, and gasoline. There are many sources of PAHs in the air, including volcanoes, automobile exhaust, and cigarette smoke. Petroleum refineries may emit PAHs from multiple process units, such as separators, boilers, cooling towers, crude units, heaters, storage tanks, cokers, FCCUs, wastewater treatment, incinerators, and vents. The majority of health effects of PAHs stem from long term exposure.

Particulate Matter

Sources of particulate matter (PM) can be natural or anthropogenic. Particulate matter has shown to have a direct impact that adversely affects human health. Combustion sources as well as motor vehicles and earth moving operations contribute to elevated PM concentrations. There are existing regulations that address the ambient concentrations of particulate matter with aerodynamic diameters less than 10 µm (PM10) and less than 2.5 µm (PM2.5). The majority of PM produced by combustion falls in the PM2.5 size designation.

Sulfur Dioxide

Sulfur Dioxide (SO2) is a colorless, irritating gas with a choking or suffocating odor. It is one of the most commonly reported routine and non-routine chemicals emitted from California refineries. Acute and chronic health effects include impairment and irritation of the respiratory system.

Sulfuric Acid

Sulfuric acid is a colorless, oily liquid that exists in water vapor and particulates. Used in petroleum refinery operations as a catalyst during alkylation and in various treatment processes, this chemical has been detected in refinery air emissions and reported in both fire and non-fire incidents. Studies have shown that exposure to sulfuric acid targets the respiratory system, and can lead to altered lung and airway function.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) include non-methane hydrocarbons (NMHC) and oxygenated NMHC such as alcohols, aldehydes, and organic acids. Several of OEHHA's top recommended pollutants are VOCs, including BTEX, 1,3-butadiene, PAHs, aldehydes, naphthalene, and diethanolamine. VOCs, mainly hydrocarbons, originate from production processes, storage tanks, transport pipelines, and waste areas. Hydrocarbons are some of the most commonly reported chemicals emitted during refinery incidents. The health effects of these compounds vary, but long term exposure can have lasting adverse health effects.

H. Air Monitoring Technologies

A petroleum refinery fence-line air monitoring system is a combination of equipment that measures and records air pollutant concentrations at or near the property boundary of a petroleum refinery. Refineries may need to employ multiple technologies to ensure adequate compound identification. Conventional fence-line air monitoring technologies include open path and point air monitors. Open path air monitoring systems utilize lasers and reflectors to measure levels of a variety of gaseous compounds along industrial facility fence-lines, and can be configured to detect the origination point of increased pollution concentration levels. These systems range in cost, depending on the number of units needed to adequately cover a fence-line. Point air monitors are installed in a stationary location and measure concentrations of criteria pollutants, toxics, and particulate matter, depending on the configuration selected for the system, at a single location. Open path systems are typically more costly than point monitors.

It is important to consider the limitations of available equipment, such as detection limits for each chemical and time-resolution capabilities. To determine the appropriate technology for a fence-line monitoring system, refineries should take into account geospatial layout of the plant, potential release sources, local meteorology, atmospheric dispersion characteristics of the compounds of concern, and the relative risk to likely receptors based on these criteria.[5]

[5] CARB and CAPCOA. (2019). *Refinery Emergency Air Monitoring Assessment Report. Objective 2: Evaluation of Air Monitoring Capabilities, Gaps and Potential Enhancements.* Air Resources Board, California Environmental

Open Path Systems

Open path systems use a light signal, projected along a straight unobstructed path, to continuously detect and measure concentrations of chemical compounds along the distance covered by the light signal in real-time. The light source emits light towards a detector either at the opposite end of the light path (bi-static configuration), or co-located with the light source (mono-static configuration) if the light is reflected back by a reflector, providing path-averaged concentrations of multiple pollutants simultaneously. Some of the optical technologies used in these systems include the following:

Ultra Violet Differential Optical Absorption Spectroscopy: An Ultra Violet Differential Optical Absorption Spectroscopy (UV-DOAS) system utilizes a high powered UV light to measure the absorption spectra, as opposed to a signal produced by a single wavelength. By doing so, this separates the absorption data of multiple target analytes. By using software, as well as a predetermined subset of known gases, the Open-Path UV-DOAS is able to quantify multiple target gases.

Tunable Diode Laser Absorption Spectroscopy: Tunable Diode Laser Absorption Spectroscopy (TDLAS) utilizes a laser tuned to be within a strict frequency range. This range is typically exclusive to the target gas in question. The laser is then tuned to match the desired frequency of the target gas, primarily Hydrogen Sulfide (H2S). The concentration of the target gas along the path can be determined from the absorption at a particular wavelength.

Fourier Transform Infrared: Fourier Transform Infrared (FTIR) system utilizes a beam of infrared light to measure the absorption spectra of the infrared spectrum. A light source directs infrared light at retroreflectors or another unit, and a detector receives the returning light. The change in intensity, frequency, and wavelength is then used to calculate the concentration of various target gases in the atmosphere. With this sampling method it is possible to measure a total alkane concentration.

Point Monitors

Point monitors extract ambient air at a specific location and perform the measurement within the system. They are the primary instrument types used in EPA-approved methodologies for measuring air pollutants. These type of monitors use a variety of technologies, including the following:

Protection Agency. California Air Pollution Control Officers Association Air Monitoring Committee. Retrieved from https://ww2.arb.ca.gov/our-work/programs/incident-air-monitoring/refinery-air-monitoring

Gas Monitoring: In addition to the open path options for monitors, there are also single point monitors that can measure a range of target gases by utilizing methods such as chemiluminescence, UV-fluorescence, and gas chromatography. These instruments and their methods are widely used throughout multiple regulatory air monitoring networks, and are accepted by both the EPA and CARB for the measurement of gases such as NO2, H2S, and SO2.

Particulate Matter: Point monitors that measure particulate matter employ methods such as gravimetry, beta attenuation, light scattering/absorption, and tapered element oscillating microbalance. These instruments range from hourly to minute averages and cover a range of PM types including PM1.0, PM2.5, PM10, and speciated particulate matter. The previously mentioned instruments and methods are in use throughout regulatory air monitoring networks and are accepted by EPA and CARB for the criteria pollutants.

Total VOC Monitoring: A Photoionization Detector (PID) takes Volatile Organic Compounds (VOCs) and charges the compounds with a large amount of high-energy photons which energizes the sample compounds. The energized compounds then pass by the photoionization detector, which subjects the positively charged compounds to a magnetic field and forces them to a collector electrode to determine the concentration of total VOCs. A Flame Ionization Detector (FID) is similar to the PID but utilizes a flame, typically fueled by hydrogen, to ionize the sample before the detector reads the sample and determines the concentration of total VOCs.

GC-MS: Gas chromatography (GC) with mass spectrometry (MS) utilizes a gas chromatograph with a mass spectrometer as a secondary detector. The sample will pass through a GC with a PID or FID as the primary detector, which will separate the sample based on retention time. The sample then passes to the mass spectrometer, which will ionize and separate the sample by its mass to charge ratio. The advantage of this technique is the utilization of multiple separation methods for analysis, which can supplement instances in which certain compounds will output similar spectra using GC despite being vastly different chemically.

Air monitoring for most of OEHHA's 18 recommended pollutants is presently conducted in some refineries and surrounding communities, as specified in Table 8 below.

Table 8: Monitoring Equipment Capabilities for Recommended Pollutants

Pollutant	Available Real-Time Monitoring Equipment	Status of Use
Acetaldehyde	AKA Ethanal / Ethyl Alcohol: UV-DOAS	Fence-line monitoring at some refineries. Statewide air toxics monitoring network (major urban areas).
Ammonia	UV-DOAS chemiluminescence	Fence-line and community monitoring at some refineries, as well as process unit level monitoring.
Benzene	FTIR, UV-DOAS, Auto GC	Fence-line monitoring at some refineries. Statewide air toxics monitoring network (major urban areas).
1,3-butadiene	FTIR, UV-DOAS, Auto GC	Fence-line monitoring at some refineries. Statewide air toxics monitoring network (major urban areas).
Formaldehyde	FTIR, UV-DOAS	Fence-line and community monitoring at some refineries. Statewide air toxics monitoring network (major urban areas).
Hydrogen Fluoride	FTIR, UV-DOAS	Fence-line and community monitoring at some refineries.
Hydrogen Sulfide	UV-DOAS, UV fluorescence	Personal monitors at most refineries. Process unit level, ground level, fence-line, and community monitoring at some refineries.
NOx	FTIR, UV-DOAS, chemiluminescence	Fence-line and community monitoring at some refineries.
Particulate Matter	UV-DOAS beta attenuation	Community monitoring at some refineries (PM2.5 only). Regulatory and special purpose monitoring programs.
Sulfur Dioxide	FTIR, UV-DOAS, UV fluorescence	Process unit level monitoring, ground level monitoring, fence-line and community monitoring at some refineries.
Toluene	FTIR, UV-DOAS, Auto GC	Fence-line monitoring at some refineries. Statewide air toxics monitoring network (major urban areas).

I. Rulemaking Efforts in Other Air Districts

Bay Area Air Quality Management District (BAAQMD)

BAAQMD adopted Regulation 12, Rule 15 (Petroleum Refining Emissions Tracking) and the associated *Air Monitoring Guidelines for Petroleum Refineries* on April 20, 2016, to track air emissions and crude oil composition characteristics from petroleum refineries and support facilities over time, and to establish air monitoring systems to provide air quality data along refinery boundaries. Per BAAQMD Regulation 12, Rule 15, a petroleum refinery owner/operator must submit for approval a plan for establishing and operating a fence-line monitoring system. This plan shall include detailed information describing the equipment to be used to monitor, record, and report air pollutant levels, the siting, operation, and maintenance of this equipment, and

procedures for implementing data quality assurance and quality control. Within one year of the approval of an air monitoring plan, the petroleum refinery owner/operator must install and operate a fence-line monitoring system in accordance with the plan.

In accordance with the BAAQMD Guidelines, refinery operators must measure benzene, toluene, ethylbenzene, xylenes (BTEX), and hydrogen sulfide concentrations at refinery fence-lines with open path technology capable of measuring in the parts per billion range, regardless of path length. Refinery operators must also consider open path measurement of sulfur dioxide, alkanes or other organic compound indicators, 1,3-butadiene, and ammonia concentrations in their submitted air monitoring plan, and provide rationale for not monitoring any of these pollutants. The BAAQMD Guidelines allow the use of surrogates to measure concentrations of a more easily speciated compound as a proxy for monitoring for one of the suggested pollutants.

BAAQMD amended Regulation 12, Rule 15 on December 19, 2018 to address public concerns about the refinery operators being responsible for siting and operating community air monitors. BAAQMD is now responsible for siting and operating the monitors, which they will fund through a broad-based major source fee (BAAQMD Regulation 3, Schedule X). BAAQMD amended Regulation 12, Rule 15 most recently on November 3, 2021, with updates to several definitions in the rule to ensure that the facilities that produce fuels and other products from non-petroleum feedstock remain subject to the rule. This amendment added an exemption for refineries processing less than 20,000 barrels per stream day of any organic feedstock.

Since rule adoption, the five affected refineries in BAAQMD have developed and implemented their individual air monitoring plans. These facilities are all currently monitoring for BTEX compounds, hydrogen sulfide, and sulfur dioxide. Two of the refineries opted not to monitor alkanes, citing benzene or hexane as reasonable surrogates. Only one Bay Area refinery is monitoring for 1,3 butadiene and ammonia; other refineries provide rationale for excluding these, stating that these compounds are either not produced at their facilities or not emitted in measurable amounts.

South Coast Air Quality Management District (SCAQMD)

SCAQMD adopted Rule 1180 (Refinery Fenceline and Community Air Monitoring) and the associated guidance document on December 1, 2017 to require real-time fence-line air monitoring systems and to establish a fee schedule to fund refinery-related community air monitoring systems that provide air quality information to the public about levels of various criteria air pollutants, volatile organic compounds, metals and other compounds, at or near the property boundaries of petroleum refineries and in nearby communities. SCAQMD Rule 1180 requires that fence-line air monitoring systems measure for sulfur dioxide, NOx, total VOCs, formaldehyde, acetaldehyde, acrolein, 1,3-butadiene, styrene, BTEX, hydrogen sulfide, carbonyl sulfide, ammonia, black carbon, hydrogen cyanide, and hydrogen fluoride, however, subject operators may provide

justification for not monitoring for one or more pollutants. The SCAQMD *Rule 1180 Refinery Fenceline Air Monitoring Plan Guidelines* provide further information about required elements of the plans and data quality control. Notably, SCAQMD exempts petroleum refinery operations that have a capacity to process 40,000 bpd or less, due to the reduced emissions originating from smaller facilities and the burdensome cost of compliance with rule requirements for operations with smaller revenues.

Since rule adoption, the five affected refineries in SCAQMD have developed and implemented their individual air monitoring plans. These facilities are all currently monitoring for the full list of pollutants SCAQMD Rule 1180 requires for consideration, though four refineries do not use and therefore exclude hydrogen fluoride from monitoring. In addition to the required pollutants, one facility opted to include cyclohexane, hexane, methane, methanol, and propylene in their monitoring plan because their selected monitoring technology has the capability to detect additional gases that are present as possible emissions from the refinery.

San Luis Obispo County Air Pollution Control District (SLOCAPCD)

In response to AB 1647, SLOCAPCD established a Memorandum of Understanding (MOU) with Phillips 66 Santa Maria Refinery, the only petroleum refinery located within their district. Phillips 66 developed the *Community/Fence-line Air Monitoring Plan* following the guidance established in South Coast's *Rule 1180 Refinery Fenceline Air Monitoring Plan Guidelines* as recommended by SLOCAPCD. Taking into consideration the full list of pollutants required in SCAQMD's rule, Phillips 66 determined through analysis that only nitrogen dioxide, sulfur dioxide, black carbon, and non-methane VOC were present at detectable limits at the refinery fence-line and therefore would be included in their monitoring plan.

Santa Barbara County Air Pollution Control District (SBCAPCD)

SBCAPCD adopted Rule 364 (Refinery Fenceline and Community Air Monitoring) and associated guidelines on May 21, 2020 to address the requirements of AB 1647. Currently, there is only one refinery in Santa Barbara County subject to Rule 364. SBCAPCD took this facility's processes and emissions into consideration when determining the requirements of the rule. The final rule requires monitoring of BTEX compounds, sulfur dioxide, and hydrogen sulfide at the refinery fence-line. The rule also addresses the need for SBCAPCD to install and operate a refinery-related community air monitoring system, and has a cost recovery provision to cover the costs of the community air monitoring system.

State of Colorado

On June 23, 2021, Colorado Governor Jared Polis signed a bill (HB21-1189) adding new requirements for certain stationary sources of hazardous air pollutants, including

petroleum refineries. The bill requires affected facilities to conduct fence-line monitoring of covered air toxics, to use an emergency notification service to communicate to nearby communities in the event of an incident or exceedance of a notification threshold, and to pay an annual share of the costs of conducting community-based air monitoring to the Colorado Department of Public Health and Environment (CDPHE). The bill defines covered air toxics as hydrogen cyanide, hydrogen sulfide, and benzene, and authorizes CDPHE to list additional hazardous air pollutants by rule. Affected petroleum refineries are required to begin fence-line monitoring by January 1, 2023.

The District's fence-line monitoring requirements for facilities subject to current Rule 4460 are currently as or more stringent than implementation approaches adopted by other air districts. Table 9 below shows the pollutants required for fence-line monitoring in current District Rule 4460 in comparison with the pollutants required for monitoring in all other California air districts with refineries in their jurisdiction.

Table 9: Pollutants Required for Fence-line Monitoring in California Air Districts

SJVAPCD (Current Rule 4460)		SCAQMD (Rule 1180)		BAAQMD (Reg 12-15)	SLOCAPCD (MOU)	SBCAPCD (Rule 364)
≥ 40,000 bpd	< 40,000 bpd	≥ 40,000 bpd	< 40,000 bpd			
Acetaldehyde*		Acetaldehyde*	No Monitoring Required			
Acrolein*		Acrolein*				
				Alkanes or other organic compound indicators*		
Ammonia*		Ammonia*		Ammonia*		
Benzene*	Benzene*	Benzene*		Benzene		Benzene
Black Carbon*		Black Carbon*			Black Carbon	
1,3 Butadiene*		1,3 Butadiene*		1,3 butadiene*		
Carbonyl Sulfide*		Carbonyl Sulfide*				
Ethylbenzene*	Ethylbenzene*	Ethylbenzene*		Ethylbenzene		Ethylbenzene
Formaldehyde*		Formaldehyde*				
Hydrogen Cyanide*		Hydrogen Cyanide*				
HF*		HF*				
H2S*	H2S*	H2S*		H2S		H2S
NOx*		NOx*			NOx	
SO2*	SO2*	SO2*		SO2*	SO2	SO2
Styrene*		Styrene*				
Toluene*	Toluene*	Toluene*		Toluene		Toluene
Total VOCs*		Total VOCs*			VOCs	
Xylene*	Xylene*	Xylene*		Xylene		Xylene

*Compound may be excluded from monitoring if refinery provides sufficient justification in plan.

Some districts include a provision in their rule allowing a refinery to exclude certain pollutants from monitoring, as long as the refinery provides sufficient justification for the exclusion in their fence-line monitoring plan. Due to this allowance, several refineries in the Bay Area and South Coast excluded one or more of the pollutants required in their respective rules. Table 10 below shows which pollutants the refineries in California actually identified for monitoring in their fence-line monitoring plans.

Table 10: Refinery Fence-line Monitoring in California

	Refinery	Processing Capacity (bpd)	Pollutants Identified for Monitoring in Plans
SCAQMD	Marathon Carson/Wilmington	363,000	All required in Rule 1180 except HF
	Chevron El Segundo	269,000	
	PBF Energy Torrance	160,000	
	Phillips 66 Wilmington	139,000	All required in Rule 1180 except HF, and additional detectable gases
	Valero Wilmington	85,000	All required in Rule 1180
BAAQMD	Chevron Richmond	245,271	BTEX, H2S, SO2, alkanes
	Marathon Martinez	161,500	All required in Reg 12-15, except using hexane as surrogate for alkanes
	PBF Energy Martinez	156,400	BTEX, H2S, SO2, alkanes
	Valero Benicia	145,000	BTEX, H2S, SO2
	Phillips 66 Rodeo	120,200	BTEX, H2S, SO2, alkanes
SJVAPCD	Kern Oil & Refining Co	26,000	BTEX, H2S, SO2
	San Joaquin Refining	15,000	BTEX, H2S, SO2
SLOCAPCD	Santa Maria Refinery	41,800	Black Carbon, NOx, SO2, VOCs
SBCAPCD	Greka Energy	9,500	BTEX, H2S, SO2

Proposed amendments to Rule 4460 will require monitoring for a comprehensive list of criteria pollutants and toxic air contaminants recommended by OEHHA for monitoring, unless a refinery can provide sufficient justification for not monitoring a specified pollutant. Table 11 below shows the District's proposed list of pollutants in comparison with the pollutants required for monitoring in all other California air districts.

Table 11: Pollutants Required for Fence-line Monitoring in California Air Districts, with Proposed Amendments to District Rule 4460

SJVAPCD (Proposed Rule 4460)	SCAQMD (Rule 1180)		BAAQMD (Reg 12-15)	SLOCAPCD (MOU)	SBCAPCD (Rule 364)
	≥ 40,000 bpd	< 40,000 bpd			
Acetaldehyde*	Acetaldehyde*	No Monitoring Required			
	Acrolein*				
			Alkanes or other organic compound indicators*		
Ammonia*	Ammonia*		Ammonia*		
Benzene	Benzene*		Benzene		Benzene
	Black Carbon*			Black Carbon	
1,3 Butadiene*	1,3 Butadiene*		1,3 butadiene*		
Cadmium*					
	Carbonyl Sulfide*				
Diethanolamine*					
Ethylbenzene	Ethylbenzene*		Ethylbenzene		Ethylbenzene
Formaldehyde*	Formaldehyde*				
	Hydrogen Cyanide*				
HF*	HF*				
H2S	H2S*		H2S		H2S
Manganese*					
Naphthalene*					
Nickel*					
NOx*	NOx*			NOx	
PAH*					
PM*					
SO2	SO2*		SO2*	SO2	SO2
	Styrene*				
Sulfuric Acid*					
Toluene	Toluene*		Toluene		Toluene
	Total VOCs*			VOCs	
Xylene	Xylene*		Xylene		Xylene

*Compound may be excluded from monitoring if refinery provides sufficient justification in plan.

The following table compares the types of monitoring equipment being used for refinery fence-line systems operating throughout the state (Table 12).

Table 12: Equipment Utilized for Fence-line Air Monitoring at Petroleum Refineries

SJVAPCD	SCAQMD	BAAQMD	SBCAPCD	SLOCAPCD
• Open-path UV DOAS • UV Fluorescence Hydrogen Sulfide monitors	• Open-path UV DOAS • Open-path TDL • Open-path FTIR • GC-PID (Photoionization Detector) • Extractive FTIR • Organic Gas Detectors (point sampling) • TDLAS (monostatic Tunable Diode Laser Absorption Spectroscopy)	• Open-path UV DOAS • Open-path TDL • Open-path FTIR • Point monitor for diesel PM and H2S • Aethalometer (black carbon) • TDLAS • UV Fluorescence Hydrogen Sulfide monitors	• Open-path UV DOAS	• Point Monitoring

The equipment required to comply with regulations in SCAQMD and BAAQMD is estimated to cost refinery operations a minimum of $2,000,000, and up to $4,200,000, depending on the number of air monitors needed to adequately cover the facility perimeter. The direct cost to refinery operations to implement fence-line air monitoring systems is in addition to community air monitoring fees charged by both air districts, with initial community air monitoring capital cost-recovery fees ranging from approximately $200,000 to $1,000,000 per refinery. Both air districts also charge an ongoing annual maintenance fee that ranges from approximately $200,000 to $900,000 per facility.

The District conducted a thorough analysis of regulatory requirements and air monitoring guidance in other air districts to develop the proposed amendments to Rules 4460 and 3200. The District developed the proposed amendments through a public process, taking into consideration the goals of AB 1647, input from affected parties, state-provided guidance, and monitoring technological capabilities. The District also conducted interagency consultation with OEHHA, CARB, and the Attorney General's office for feedback and guidance. The District believes an approach that requires site-specific analysis is most likely to provide useful information.

III. PROPOSED AMENDMENTS TO RULES 4460 AND 3200

A. Proposed Amendments to Rule 4460 (Petroleum Refinery Fence-line Air Monitoring)

To ensure that all appropriate facilities are subject to Rule 4460, the District is proposing to clarify the definition of petroleum refinery and remove the exemption for facilities not currently engaged in refining crude oil. Further, the District will remove the provisions for a pre-determined set of pollutants and equipment requirements based on processing capacity. Proposed amendments to Rule 4460 will require monitoring for a comprehensive list of criteria pollutants and toxic air contaminants recommended by OEHHA for monitoring, unless a refinery can provide sufficient justification for not monitoring a specified pollutant. Additionally, amendments include a requirement to develop a fence-line air monitoring plan in accordance with Rule 4460 Guidelines, which the District developed concurrently with proposed amended Rule 4460.

Purpose/Applicability (Section 1.0/Section 2.0)

Proposed amendments include added or amended language to provide clarity.

Definitions (Section 3.0)

Proposed amendments would clarify the definition of a Petroleum Refinery to be defined as a facility that is permitted to engage in the activities described in the Standard Industrial Classification Code under 2911 (Petroleum Refining).

Proposed amendments include a definition for Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines, which is the written framework to be used by the APCO to evaluate a refinery fence-line air monitoring plan.

Exemptions (Existing Section 4.0)

Proposed updates would remove the exemption for refineries not currently engaged in refining crude oil. There are two facilities in the Valley that would be newly subject to the full requirements of Rule 4460 through the removal of this exemption.

Requirements (Existing Section 5.0/Proposed Section 4.0)

Proposed amendments include added or amended language to provide clarity on rule requirements.

Fence-line Air Monitoring Plan (Existing Section 6.0/Proposed Section 5.0)

Section 5.1 – The District is proposing the deadline for owners and operators of petroleum refineries to submit fence-line air monitoring plans be updated from July 1, 2020 to May 1, 2023, which provides a timeframe consistent with what was provided in the current rule when it was adopted.

Section 5.3 – Updates to this section include removal of the specified monitoring provisions for facilities based on their processing capacity (Table 1 under existing 6.3). The District is proposing to replace these provisions with requirements for all facilities to address the full list of OEHHA recommended pollutants in their fence-line monitoring plans, unless they can provide sufficient justification for not monitoring a specified pollutant in accordance with the Rule 4460 Guidelines. The proposed list of air pollutants will replace the existing Table 1, and will be as displayed below.

Table 1: Air Pollutants to be Addressed in Fence-line Air Monitoring Plan

Acetaldehyde
Ammonia
Benzene
1,3-Butadiene
Cadmium
Diethanolamine
Ethylbenzene
Formaldehyde
Hydrogen Fluoride
Hydrogen Sulfide
Manganese
Naphthalene
Nickel
Nitrogen Oxide
Polycyclic Aromatic Hydrocarbons (PAH)
Particulate Matter (PM)
Sulfur Dioxide
Sulfuric Acid
Toluene
Xylene

In addition, proposed amendments include a requirement for refineries to consider monitoring pollutants beyond those in Table 1 that are produced through their facility's specific activities and processes, and at a minimum, monitor benzene, toluene, ethylbenzene, xylene, hydrogen sulfide, and sulfur dioxide.

Section 5.4 – The District is proposing to amend the timeframe for a refinery to submit an updated fence-line air monitoring plan following an unplanned modification at their facility from 10 days to 30 days, to provide adequate time to prepare the updated plan, given the extensive analysis associated with the proposed amendments.

Section 5.6 – Proposed amendments include a provision that monitoring plans shall be consistent with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines.

Other proposed amendments to Section 5 include revised language to provide clarity.

Fence-line Air Monitoring Implementation Timeline Requirements (Existing Section 7.0/Proposed Section 6.0):

Proposed amendments would remove Section 7.2 from the rule, as the amendments will also remove the distinct requirements for refineries based on processing capacity.

Proposed amendments would remove Section 7.3 and Section 7.4 from the rule, as refinery facilities not refining crude oil will no longer be exempt from the requirements of the rule.

Refinery Fence-line Air Monitoring Plan Review Process (Existing Section 8.0/Proposed Section 7.0):

Language would be added in this section to provide clarity.

Reporting – (Existing Section 9.0/Proposed Section 8.0)

Section 8.1 – The District is proposing to amend the timeframe for a refinery to submit a quarterly report from 30 days to 45 days following the end of the calendar quarter, to provide adequate time to prepare the report, given the extensive analysis associated with the proposed amendments.

Section 8.2 – Proposed amendments would add a requirement for refinery owners and operators to submit a follow-up report to the APCO, ten calendar days following a monitoring system's detection of a pollutant exceeding its threshold defined in the approved fence-line air monitoring plan. The report shall include:

- The pollutant detected,
- The pollutant's notification threshold,
- The initial date and time the exceedance was detected,
- The date and time the exceedance ended or if it is ongoing,
- The predominant wind speed and direction throughout the exceedance period, and

- Indication whether or not the suspected source of the exceedance is located within the refinery's fence-line.
- If the suspected source of the exceedance is located within the refinery's fence-line, the report shall also include:
    - The specific processes or equipment from where the release is suspected to have originated, and
    - All corrective actions taken

Recordkeeping – (Existing Section 10.0/Proposed Section 9.0)

No changes proposed at this time.

B. Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

Proposed Rule 4460 Section 5.6 requires that all fence-line monitoring plans be consistent with the Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines. The District developed these guidelines concurrently with the proposed amendments to Rule 4460, to inform refinery owners and operators about the elements necessary to complete a fence-line air monitoring plan, and provide a written framework to be used by the APCO to evaluate submitted monitoring plans. The guidelines cover pollutants required to be monitored at refinery fence-lines, air monitoring technologies, quality assurance and quality control, data display, and public notification requirements.

Consistent with the proposed amended Rule 4460, the guidelines require refineries to address the full list of OEHHA recommended pollutants, as well as ethylbenzene and xylene, and consider any additional pollutants emitted by the facility in their fence-line monitoring plans. Should owner or operator of a petroleum refinery propose to not monitor one or more of the specified pollutants, sufficient justification shall be included in the proposed fence-line air monitoring plan in accordance with the Rule 4460 Guidelines, which will require demonstration of one or more of the following:

1) The pollutant is not emitted through the refinery's activities and processes;
2) Real-time air monitors capable of reliably measuring the pollutant are not available;
3) The expected concentration levels of the pollutant at the fence-line are below the detection limits of currently available real-time monitoring equipment; or
4) Other technical justifications as appropriate.

Proposed Rule 4460 and Guidelines require that at minimum, a refinery shall monitor benzene, toluene, ethylbenzene, xylene, hydrogen sulfide, and sulfur dioxide.

C. Proposed Amendments to Rule 3200 (Petroleum Refinery Community Air Monitoring Fees)

Consistent with CH&SC §42705.6, Rule 3200 sets forth requirements for petroleum refineries to be responsible for the costs associated with District implementation of a petroleum refinery community air monitoring system. Proposed amendments to Rule 3200 would clarify the definition for petroleum refinery and remove the exemption and provisions for refineries not currently engaged in refining crude oil.

The following paragraphs discuss the intended purpose of each section of Rule 3200.

Purpose and Applicability (Section 1.0/Section 2.0)

No changes proposed at this time.

Definitions (Section 3.0)

Proposed amendments will remove the definition for "operating," as the proposed rule would no longer make a distinction between operating and non-operating petroleum refineries.

Proposed amendments would clarify the definition of a Petroleum Refinery to be defined as a facility that is permitted to engage in the activities described in the Standard Industrial Classification Code under 2911 (Petroleum Refining).

Exemptions (Section 4.0)

Proposed updates would remove the exemption for refineries not currently engaged in refining crude oil. There are two facilities in the Valley that would be newly subject to the full requirements of Rule 3200 through the removal of this exemption.

Equipment and Installation Fees (Existing Section 5.0/Proposed Section 4.0)

Proposed amendments would update the deadline for refineries to pay the community air monitoring installation fee from July 1, 2020, to May 1, 2023, for those facilities which have not yet paid this fee, which provides a timeframe consistent with what was provided after the District adopted the existing rule. In addition, some language would be removed to provide clarity.

Annual Operating and Maintenance Fees (Existing Section 6.0/Proposed Section 5.0)

Proposed amendments would update the year a petroleum refinery shall begin paying a community air monitoring annual operating and maintenance fee from 2021 to 2023.

Refinery Facilities Not Refining Crude Oil (Existing Section 7.0)

Proposed amendments would remove this section from the rule, as facilities not refining crude oil will no longer be exempt from the requirements of the rule.

Increases in Petroleum Refinery Capacity (Existing Section 8.0/Proposed Section 6.0)

No changes proposed at this time.

Late Fees (Existing Section 9.0/Proposed Section 7.0)

No changes proposed at this time.

V. ANALYSES

A. Emission Reduction Analysis

The proposed amendments to Rules 4460 and 3200 do not directly reduce emissions from petroleum refineries. Indirect emissions benefits may be realized due to the potential for early detection of leaks and quick action to control such fugitive emissions.

B. Socioeconomic Analysis

The proposed amendments to Rules 4460 and 3200 do not directly reduce emissions from petroleum refineries. Indirect emissions benefits may be realized due to the potential for early detection of leaks and quick action to control such fugitive emissions.

Pursuant to CH&SC §40728.5(a), the District is required to conduct a socioeconomic analysis of proposed rules or rule amendments that will significantly affect air quality or emissions limitations prior to rule adoption. The proposed rule amendments have neither effect, and therefore a socioeconomic analysis is not required for this rule amendment project.

C. Rule Consistency Analysis

Pursuant to CH&SC §40727.2, prior to adopting, amending, or repealing a rule or regulation, the District is required to perform a written analysis that identifies and compares the air pollution control elements of the rule or regulation with corresponding elements of existing or proposed District and EPA rules, regulations, and guidelines that apply to the same source category. The elements analyzed are emission standards, monitoring and testing requirements, and recordkeeping and reporting requirements.

Based on the following analysis, the District found that proposed Rule 4460 and Rule 3200 do not conflict with any District or federal rules, regulations, or policies covering similar stationary sources.

District Rules

There is no other District prohibitory rule or regulation tailored specifically for petroleum refinery fence-line and community air monitoring. The requirements of other District rules affecting petroleum refineries are not in conflict with, nor are they inconsistent with, the requirements of Proposed Rule 4460.

Pursuant to CH&SC §40727.2 (g) a rule consistency analysis of Rule 3200 is not required. Rule 3200 does not strengthen emission limits or impose more stringent monitoring, reporting, or recordkeeping requirements.

Federal Rules, Regulations, and Policies

Based on the following analysis, the District found that Rule 4460 would not conflict with any federal rules, regulations, or policies covering similar stationary sources.

In December 2015, U.S. EPA promulgated a final national rulemaking in 40 CFR Part 63.658 for fence-line monitoring of benzene at petroleum refining process units and related emission points that are a major source as defined by section 112(a) of the Clean Air Act and that emit or have equipment containing or contacting one or more of the hazardous air pollutants identified in Table 1 of 40 CFR 63.658. 40 CFR § 63.658 is not applicable to the four facilities operating under District permit as petroleum refineries, as this MACT standard (Subpart CC, aka “Refinery MACT 1”) only affects major sources of HAP emissions. The refineries permitted by the District are area sources of HAP emissions. Two Valley refineries are each limited by permit condition to facility-wide emissions of less than 10 tons per year of any single hazardous air pollutant, and less than 25 tons per year of any combination of hazardous air pollutants, and the two remaining refineries, though not limited by permit condition, have actual emissions below these limits. As this regulation does not apply to Valley refineries subject to Rule 4460 and Rule 3200, there is no conflict between the proposed rules and the federal regulation.

There are no applicable Control Technique Guidelines (CTG), Alternative Control Techniques (ACT), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), Best Available Control Technology (BACT), or Maximum Achievable Control Technology (MACT) guidelines for Petroleum Refineries that require real-time fence-line or community air monitoring.

EPA Policy on Recordkeeping: EPA has a policy that mandates stationary sources keep and maintain records for at least five years. Proposed District Rule 4460 is consistent with EPA recordkeeping policy.

D. Environmental Impact Analysis

Based on the District's assessment of the Rule Amendments and Guidelines, the District concludes that the Rule Amendments and Guidelines will not cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment, and as such is not a "project" as that term is defined under the CEQA Guidelines § 15378.

The Rule Amendments will include the removal of an exemption for facilities not currently refining crude oil in Rule 4460 and Rule 3200, updated list of pollutants required for monitoring by refineries in Rule 4460, and additional reporting requirements in Rule 4460. The proposed Rule 4460 Guidelines establish updated guidance and consistency with respect to implementation of Rule 4460. According to Section 15061 (b)(3) of the CEQA Guidelines, a project is exempt from CEQA if, "(t)he activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." As such, substantial evidence supports the District's assessment that assuming the Rule Amendment and Guidelines are a "project" under CEQA, it will not have any significant adverse effects on the environment.

Furthermore, the Rule Amendment and Guidelines is an action taken by a regulatory agency, the San Joaquin Valley Air Pollution Control District, as authorized by state law to assure the maintenance, restoration, enhancement, or protection of air quality in the San Joaquin Valley where the regulatory process involves procedures for protection of air quality. CEQA Guidelines §15308 (Actions by Regulatory Agencies for Protection of the Environment), provides a categorical exemption for "actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities and relaxation of standards allowing environmental degradation are not included in this exemption." No construction activities or relaxation of standards are included in the Rule Amendments or Guidelines.

Therefore, the District has determined for all the above reasons, the proposed rule amendments and Guidelines are exempt from CEQA. Pursuant to Section 15062 of the CEQA Guidelines, the District will file a Notice of Exemption upon Governing Board approval of Rule Amendments and Guidelines.

VI. RULE DEVELOPMENT PROCESS

The District held an initial scoping meeting on February 1, 2022, followed by a public workshop on April 26, 2022, to present, discuss, and receive feedback on potential amendments to Rules 4460 and 3200. The District held a second public workshop on June 28, 2022, to present the draft rule amendments and Rule 4460 Guidelines. Information about public meetings was shared with members of the public, AB 617 communities, affected sources, and other interested stakeholders. Information about the regulatory amendments and workshops was also made available at meetings of the Citizens Advisory Committee and Environmental Justice Advisory Group. Workshop announcements and public notices were provided in both English and Spanish, the comprehensive presentation from the June 28, 2022 workshop was provided in both English and Spanish, and interpretation services were made available at the meetings.

In accordance with CH&SC §40725, the proposed amendments to Rules 4460 and 3200, proposed Rule 4460 Guidelines, and the final draft staff report were publicly noticed and made available for public review on August 16, 2022. The public was also invited to provide comments during public commenting periods and at the public hearing to consider adoption of the proposed amendments and Guidelines.

The comments received throughout this public process have been integral to the development of the proposed amendments and Guidelines, and have been incorporated as appropriate into the proposed amendments, Guidelines, and final draft staff report. A summary of significant comments and District responses is included as Appendix A.

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APPENDIX A

Summary of Significant Comments and Responses For Proposed Amendments to Rules 4460 (Petroleum Refinery Fence-line Air Monitoring) and Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) and Proposed Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines

October 20, 2022

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SUMMARY OF SIGNIFICANT COMMENTS DRAFT AMENDMENTS TO RULES 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) and 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES) and DRAFT RULE 4460 PETROLEUM REFINERY FENCE-LINE AIR MONITORING PLAN GUIDELINES

June 28, 2022

The District held a public workshop to present, discuss, and receive comments on the draft amendments to Rule 4460 and Rule 3200, and draft Rule 4460 Petroleum Refinery Fence-line Air Monitoring Plan Guidelines on June 28, 2022. Summaries of significant comments received during the public workshop and associated comment period are summarized below.

Comments were received from the following:
Ashworth Leininger Group (ALG), Central California Environmental Justice Network (CCEJN), Central Valley Air Quality (CVAQ) Coalition, Clean Water Action (CWA), Earthjustice, Lamont Residents, Leadership Counsel for Justice & Accountability (LCJA), Kern Oil and Refining Co. (Kern Oil), Sonoma Technology, Western Independent Refiners Association (WIRA), and Community Members

1. **COMMENT:** Is this rule just for petroleum refineries, or is the rule going to be expanded for other oil and gas facilities? (Community member)

   RESPONSE: The purpose of Rules 4460 and 3200 is to address the requirements of State Assembly Bill (AB) 1647, which applies only to petroleum refineries.

2. **COMMENT:** We would like to see what is done with the monitoring data after it is collected, including some root cause analysis or corrective action when these facilities do go over the threshold. (CVAQ)

   RESPONSE: The proposed amendments to Rule 4460 include a requirement for refineries to submit a 10-day follow-up report to the District following a monitoring system's detection of a pollutant exceeding its established threshold. This report must provide details of the exceedance, including the suspected cause and the corrective actions taken if the suspected source is within the refinery's fence-line.

3. **COMMENT:** How is fence-line monitoring data in South Coast and Bay Area released to the public, and how does it compare to this plan? (Community member)

   RESPONSE: The District's proposed approach is consistent with South Coast, Bay Area, and other air districts throughout California.

4. **COMMENT:** The proposed Rule 4460 Section 8.2 requirement for submittal of a Monitoring Event Summary within 24 hours after the start of the next business day for any pollutant concentration that exceeds a determined threshold should be removed from the proposed rule. This requirement is not consistent with requirements in other air districts, is not in the judge's order, nor is it an element of AB 1647 and the implementing regulations at Health and Safety Code Section 42705.6. Federal regulations already require notification of potential releases offsite to state and federal emergency response agencies to be made as soon as practicable after a potential release, and comparable notifications are already codified in the District's regulations for breakdowns and potential deviations that might cause excess emissions from the refinery. Additionally, investigations into the potential cause of an exceedance can take several days and up to several weeks to complete. (ALG, Kern Oil, Sonoma, WIRA)

   RESPONSE: Though the proposed reporting requirement is not an element of AB 1647, the District is authorized under California Health and Safety Code Section 42708 to adopt requirements more stringent than that of the Refinery Statute. In addition to the spill and release notifications required under District, state, and federal regulations, fence-line monitoring notifications currently required by Rule 4460 provide timely notice to interested parties of emissions exceeding applicable thresholds at a refinery's boundary. The District has taken this comment into consideration, and to ensure sufficient time for preparing a Monitoring Event Summary for the District and community stakeholders, the District has amended the proposed regulation to include a ten-day timeframe for submitting the required report.

5. **COMMENT:** The District should consider revising Draft Rule 4460 Section 5.4.1 to provide subject facilities at least 90 calendar days (as opposed to the ten proposed) to prepare and submit updated fence-line monitoring plans after certain triggering events occur. The proposed ten-day period may not allow for the necessary turnaround time facilities require to study, prepare, and submit updated monitoring plans. (Kern Oil, WIRA)

   RESPONSE: The District understands that additional time may be needed to prepare and submit an updated monitoring plan, given the extensive analysis associated with the proposed amendments, and in response, is proposing to amend the timeframe for submittal of an updated monitoring plan to 30 days following an unplanned modification at a facility.

6. **COMMENT:** The District should consider amending Draft Rule 4460 Section 8.1 to allow subject refineries to submit required quarterly reports by the 60th calendar day following the end of the calendar quarter (rather than the 30th day). This adjustment is needed to account for the time and resources required to

analyze applicable technical data sources requisite for submitting the quarterly reports to the District. (Kern Oil, WIRA)

RESPONSE: The District understands that additional time may be needed to prepare and submit quarterly reports, given the extensive analysis associated with the proposed amendments, and in response is proposing to amend the timeframe for submitting quarterly reports to the 45th day following the end of the calendar quarter.

7. **COMMENT:** The District should consider amending Section 3 of the proposed Rule 4460 Guidelines to include the following potential justifications to exclude a pollutant:
    1) A pollutant does not pose any offsite health risk, factoring into account scientific support from verified analyses submitted to the District; and
    2) Pollutants that are not monitored at any refinery fence-line in the State of California (Kern Oil, WIRA)

    RESPONSE: As detailed in the guidelines, the owner or operator may propose other technical justifications as appropriate. These justifications will be evaluated on a case-by-case basis within the submitted fence-line air monitoring plans, which will undergo a public process for review and comment prior to District approval.

8. **COMMENT:** The District should include in Rule 4460 the implementation of a notification system to warn residents in the surrounding areas when flares occur and what preventative measures they can take. The notification system must apply even when threshold levels are not reached. (LCJA)

    RESPONSE: The intent of AB 1647 and Rule 4460 is to require petroleum refineries to implement fence-line air monitoring systems that provide useful information to the public regarding concentrations of air pollutants at or adjacent to property boundaries. District Rule 4311 (Flares) requires flare operators to submit flare minimization plans, perform extensive monitoring and record keeping, submit reports of planned and unplanned flaring activities to the District, and meet petroleum refinery SO2 performance targets.

9. **COMMENT:** The District should require a community notification system in Section 4 of the proposed rule. There should also be requirements for notifications beyond email for those that do not have internet access. All printed and digital material must be provided in Spanish, and other languages commonly spoken in nearby communities. (CCEJN, CVAQ, CWA, Earthjustice, LCJA, Lamont residents)

    RESPONSE: Section 4 of proposed Rule 4460 requires refineries to incorporate a public notification system as part of their fence-line monitoring system.

Proposed Rule 4460 Guidelines require that a refinery's fence-line air monitoring plan include proposed methods for public notifications, and provide examples of public notification, including: mobile applications, automated email/fax/text notification systems, social media feeds, public data displays in community locations, automated call-in phone systems, television and radio reports, and published quarterly data summary reports. Based on the needs of the communities, providing information in other languages should be considered. The proposed fence-line air monitoring plans will be made available for public review and feedback prior to District approval.

10. **COMMENT:** The District should engage community members in the revision of Rules 4460 and 3200 and set up an oversight committee primarily made up of residents in the affected communities. The District should include community members in the drafting phase as well as the implementation phase with an oversight committee so they can provide input and guide conversations. (LCJA)

    RESPONSE: The District continues to conduct a thorough public process and encourage community and public participation allowing for comment and input throughout the development of amended Rule 4460, amended Rule 3200, and Rule 4460 Fence-line Air Monitoring Plan Guidelines. Additionally, each refinery's proposed fence-line air monitoring plan will also undergo a public process to ensure that the community, public, and affected stakeholders have an opportunity to review, comment, and provide input.

11. **COMMENT:** The District should make sure each refinery implements a fence-line monitoring system that can detect the lowest amount of PM possible to make sure that our communities are safe. (LCJA)

    RESPONSE: PM monitors available today are capable of measuring at low detection levels. A refinery's proposed fence-line air monitoring plan must include specifications for selected instruments, including detection limits for each chemical. The proposed plan will undergo a public process to ensure that the public has an opportunity to review and provide input.

12. **COMMENT:** The District should incorporate how they will enforce the implementation of monitoring systems, hold public enforcement hearings, state the penalty fee amounts, and allocate penalties collected towards community programs aimed to help better air quality both inside and out of the home. (LCJA)

    RESPONSE: The state legislature has conferred existing, specific authority for the enforcement of District rules to the Air Pollution Control Officer pursuant to Health & Safety Code section 47052, with specific penalty authority derived pursuant to Health & Safety Code section 42400 *et. seq*. Pursuant to this well-established statutory authority, the District's Compliance Department performs a

full suite of enforcement and compliance assistance related activities to ensure that the emission reduction and health protection goals of District, state, and federal rules and regulations are achieved. As part of all compliance inspections, District staff inspect all equipment and processes under the District's regulatory purview, and take appropriate enforcement action when non-compliance is determined. The enforcement process, including what is required to obtain compliance and ongoing compliance assistance, is provided to facilities to ensure a prompt return to compliance and to minimize potential impacts to surrounding communities. In accordance with District policy and the California Health and Safety Code, penalties are assessed to encourage and promote long-term compliance, and penalties collected are used for air pollution prevention activities, which benefit all residents in the Valley, including those in areas where violations are discovered. The District also has an alternative settlement process, which provides funding for projects with an air pollution nexus which directly benefit the communities where the violations occur.

Separate from the District's enforcement activities, the District has several incentive programs specifically designed to mitigate pollution impacts within disadvantaged communities.

13. **COMMENT:** Proposed Rule 4460 Guidelines should be updated to require that fence-line air monitoring websites not only display the relevant data, but also allow the public to download the data generated by these systems through open application programming interface and .csv files that can be imported into Excel for those with limited programming experience – the same should also be implemented for refinery-related community air monitoring systems and websites operated by the District. (CWA, CVAQ, Earthjustice)

    RESPONSE: Proposed Rule 4460 Guidelines Section 6 specifies that a refinery's air monitoring plan should identify how the fence-line air monitoring data will be provided to the public through a website, which should include current real-time measurements, historical data, and quarterly data reports, provided in a manner that the public can readily access and understand. A refinery's proposed fence-line monitoring plan will be made available for public review and comment before it is approved.

14. **COMMENT:** The pollutants that petroleum refineries can exclude from monitoring should not be based solely on routine expected concentration levels, but should also consider the potential for excess releases during malfunctions. (CWA, CVAQ, Earthjustice)

    RESPONSE: The District determined the proposed minimum required pollutants for monitoring (benzene, toluene, ethylbenzene, xylene, hydrogen sulfide, and sulfur dioxide) based on state recommendations, the presence of these pollutants during refinery incidents, and potential to serve as surrogate pollutants

for other hazardous pollutants. In addition to the minimum requirements included in the proposed amendments, a refinery must consider a comprehensive list of pollutants for monitoring that includes recommendations from OEHHA and any additional pollutants emitted from the refinery. A refinery is required to include sufficient justification in their plan for proposed exclusion of any pollutant, and the proposed fence-line monitoring plan will be made available for public review and comment before it is approved.

15. **COMMENT:** The definition of petroleum refinery should make clear that those refineries producing biofuels would be required to comply, which would ensure that the petroleum refineries in the region considering non-petroleum feedstocks and fuels could not claim an exemption. (CWA, CVAQ, Earthjustice)

RESPONSE: The purpose of Rules 4460 and 3200 is to address the requirements of State Assembly Bill (AB) 1647, which applies only to petroleum refineries.

SUMMARY OF SIGNIFICANT COMMENTS
DEVELOPMENT OF PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) and RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES)

April 26, 2022

The District held a public workshop to present, discuss, and receive comments on potential amendments to Rule 4460 and Rule 3200 on April 26, 2022. Summaries of significant comments received during the public workshop and associated comment period are summarized below.

Comments were received from the following:
Bakersfield Renewable Fuels (BRF), Central Valley Air Quality (CVAQ) Coalition, The Fair Tech Collective, Kern Oil and Refining Co. (Kern Oil)

1. **COMMENT**: The potential amendment will remove the exemption for facilities not refining crude oil. How many facilities would be subject to monitoring requirements after the rule amendment? (CVAQ)

   RESPONSE: The District currently has two facilities that are subject to monitoring requirements. Removing the exemption for facilities currently not refining crude oil would add two additional facilities subject to the rule, for a total of four facilities.

2. **COMMENT:** Are refineries changing the monitoring system used, and will there be consideration to move the community monitoring site if this happens? How was the original monitoring site location chosen? (CVAQ)

   RESPONSE: The original community air monitoring sites were established based on input from the community through a public process. After the rule amendment process for Rule 4460 is completed, the District will consider how these changes impact community monitors and take appropriate action.

3. **COMMENT**: Is it the intent of the law to apply to facilities that refine crude oil? Bakersfield Renewable Fuels does not currently or plan in the future to refine crude oil. (BRF)

   RESPONSE: Proposed Rule 4460 states that a facility is subject to the rule if it is permitted to engage in the activities described in the Standard Industrial Classification Code under 2911 (Petroleum Refining).

4. **COMMENT:** The District should consider adding a process so facilities can submit information justifying why a specific parameter should not be monitored. (Kern Oil)

RESPONSE: Rule 4460 requires that should the owner or operator of a refinery propose to not monitor one of the specified pollutants, sufficient justification must be provide in the proposed fence-line air monitoring plan. The proposed plan will undergo a public process for review and comment prior to District approval.

5. **COMMENT:** The District should consider how the fence-line monitoring programs have been implemented in other districts when determining whether a particular parameter should be monitored. (Kern Oil)

   RESPONSE: As demonstrated in the staff report, the proposed amendments are consistent and in cases more stringent than other air districts.

6. **COMMENT:** We recommend that additional provisions be included in the requirements for fence-line monitoring to ensure data quality and to ensure public access to data, including requirements for public application programming interfaces (API) for all data endpoints. (Fair Tech Collective)

   RESPONSE: Proposed Rule 4460 Guidelines Section 6 specifies that a refinery's air monitoring plan should identify how the fence-line air monitoring data will be provided to the public through a website, which should include current real-time measurements, historical data, and quarterly data reports, provided in a manner that the public can readily access and understand. Additionally, Section 5 of proposed Rule 4460 Guidelines addresses quality assurance and quality control requirements to ensure data quality. The plan will be made available for public review and comment before it is approved.

7. **COMMENT:** We recommend that additional provisions be included in the requirements for fence-line monitoring to ensure long-term resilience of monitoring systems, including requirements for monitoring plans to specify measures for routine maintenance and periodic upgrades to monitoring systems and APIs and user interfaces. (Fair Tech Collective)

   RESPONSE: Proposed Rule 4460 Sections 5.2.4, 5.2.5, and 5.2.6 require that a fence-line monitoring plan include procedures for addressing air monitoring equipment maintenance and failures, implementing quality assurance by a qualified independent party, and implementing the fence-line air monitoring plan, including information pertaining to the installation, operation, maintenance, and quality assurance for the fence-line monitoring system. The plan will be made available for public review and comment before it is approved.

SUMMARY OF SIGNIFICANT COMMENTS DEVELOPMENT OF PROPOSED AMENDMENTS TO RULE 4460 (PETROLEUM REFINERY FENCE-LINE AIR MONITORING) and RULE 3200 (PETROLEUM REFINERY COMMUNITY AIR MONITORING FEES)

February 1, 2022

The District held a public scoping meeting to present, discuss, and receive comments on potential amendments to Rule 4460 and Rule 3200 on February 1, 2022. Summaries of significant comments received during the scoping meeting and associated comment period are summarized below.

Comments were received from the following:
Association of Irritated Residents (AIR), Center on Race, Poverty & the Environment (CRPE), Central Valley Air Quality (CVAQ) Coalition, Clean Water Action (CWA), Earthjustice, Kern Oil and Refining Co. (Kern Oil), Lamont residents

1. **COMMENT**: Real-time information on the pollutants present in the air should be available to members of the community near Kern Oil Refining. Monitoring should give us alerts consistently so we know what is going on with the refinery. (Lamont residents)

   RESPONSE: Kern Oil is operating a fence-line monitoring system in accordance with current Rule 4460 requirements, which includes real-time measurements of BTEX, H2S, and SO2. The fence-line monitoring website displays the real-time data from this system, and provides the option to sign up for email notifications when concentrations of these compounds exceed established thresholds. Real-time data from the refinery-related community monitor is also available on the District's website under Air Monitoring; See "Petroleum Refinery Air Monitoring" listed under "Other Links".

2. **COMMENT:** The 18 OEHHA recommended pollutants should be the bare minimum to look into for monitoring, in addition to other pollutants of concern (e.g. bromopropane, xylene, PFAS, total VOCs). The District should also provide a list of pollutants emitted from all four refineries. (CRPE, Lamont residents)

   RESPONSE: Proposed amendments to Rule 4460 require a comprehensive list of pollutants for monitoring that includes recommendations from OEHHA, including ethylbenzene, xylene, and any additional pollutants that are emitted from the refinery. The District published emission inventories for the four Valley petroleum refineries before the workshop held April 26, 2022.

3. **COMMENT:** The District must share in-depth information and analysis that identifies and explains the types and amounts of pollutants emitted by each petroleum refinery in the region, associated health impacts of those pollutants,

and recorded exceedances of pollutant limits under applicable rules and permits. (AIR, CRPE, CVAQ, CWA, Earthjustice)

RESPONSE: The District posted the toxics inventories for the four Valley refineries prior to the public workshop held for this rule amendment on April 26, 2022. Furthermore, refineries are now required to report under the recent Criteria and Toxics Reporting regulation. Under state law, the District, under guidance and in consultation with OEHHA, also analyzes the health impacts of these pollutants through the AB 2588 "Hot Spots" program.

4. **COMMENT:** The District must confirm that all petroleum refineries in the Central Valley, including those described as "non-refining," would be subject to amended Rules 4460 and 3200 fence-line and community air monitoring requirements, including San Joaquin Refining Co., Kern Oil, Alon, and Tricor. (AIR, CRPE, CVAQ, CWA, Earthjustice)

   RESPONSE: Proposed amendments to Rules 4460 and 3200 include removal of the exemption for facilities not actively refining crude oil. With the removal of this exemption, facilities will be subject to the rule requirements if they are permitted to engage in the activities described in the Standard Industrial Classification Code under 2911.

5. **COMMENT:** The District must ensure air monitoring data transparency, including rule amendments to provide residents with multiple means of receiving real-time notifications of elevated emissions, and explore opportunities for collaboration with and consideration of ongoing community science and monitoring efforts. (AIR, CRPE, CVAQ, CWA, Earthjustice)

   RESPONSE: Refer to the response to comment #6 from the comment period beginning April 26, 2022 above.

6. **COMMENT:** Given the District's deep involvement in the implementation of AB 617 in Arvin/Lamont, the District should identify opportunities for emission reductions for all Central Valley petroleum refineries, led by and consistent with the priorities of the Arvin/Lamont Community Steering Committee. (AIR, CRPE, CVAQ, CWA, Earthjustice)

   RESPONSE: In addition to Rule 4460 and Rule 3200, Valley petroleum refineries are subject to multiple District rules, shown to be the most stringent rules feasible for implementation. Refineries in the Valley are also subject to a variety of performance standards under local, state, and federal regulations to reduce emissions of air pollutants, shown in Table 5 of the staff report. Through ongoing emission reduction evaluation efforts, the District recently amended several regulations in 2020/2021 to further reduce emissions, including from internal combustion engines, industrial flares, process heaters, and other

equipment. Through these requirements, Valley petroleum refineries are required to test for emissions from combustion equipment, continuously monitor for leaks, provide ongoing reporting to the District, and undergo regular District inspections to ensure compliance with all applicable rules. Through compliance with these rules and standards, petroleum refineries have significantly reduced their emissions over time, as displayed in Figure 1 of the staff report. The District will continue to evaluate emission reduction opportunities from Valley refineries, including through current regulatory efforts to consider potential enhancements to leak detection and repair requirements at refineries and other oil and gas operations.

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