

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

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**Preliminary Draft Staff Report for:**

**Proposed Amended Rule 1180 – Major Petroleum Refinery Fenceline and Community Air Monitoring; and  
Proposed Rule 1180.1 – Other Refinery Fenceline and Community Air Monitoring**

August 2023

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## **EXECUTIVE SUMMARY**

Proposed Amended Rule 1180 – Fenceline and Community Air Monitoring for Petroleum Refineries and Related Operations (PAR 1180) and Proposed Rule 1180.1 – Other Refinery Fenceline and Community Air Monitoring (PR 1180.1) aim to enhance air quality monitoring and provide public access to information about pollutants in the vicinity of refineries.

Rule 1180 – Fenceline and Community Air Monitoring for Petroleum Refineries (Rule 1180) was adopted in December 2017 to require major petroleum refineries to conduct real-time fenceline air monitoring for specified compounds at or near the property boundaries. The rule also includes a fee schedule to fund refinery-related community air monitoring systems. It was adopted to provide valuable information as quickly as possible about the potential presence of air contaminants, including some toxics, resulting from petroleum refinery operations to petroleum refineries, nearby communities, and South Coast AQMD staff. Rule 1180 applies to petroleum refineries permitted to process petroleum, as defined in the Standard Industrial Classification Manual as Industry No. 2911, with an exemption for petroleum refineries with a maximum capacity to process less than 40,000 barrels per day (bpd) of crude oil.

In 2020, Earthjustice and the Center on Race, Poverty, and the Environment filed a lawsuit in Fresno County Superior Court (Court) against San Joaquin Valley Air Pollution Control District (SJVAPCD) fenceline monitoring regulation and the Court ordered SJVAPCD to remove compliance exemptions for non-crude oil refining facilities and to remove the 40,000-bpd exemption. South Coast AQMD commenced rule development to amend Rule 1180 in November 2022 to address the 40,000-bpd exemption. On December 19, 2022, East Yard Communities for Environmental Justice filed a lawsuit against South Coast AQMD in Los Angeles Superior Court (Case No. 22STCP04398) claiming the air district has not fulfilled its duty to implement Health and Safety Code Section 42705.6 due to the exemption for refineries with a refining capacity less than 40,000 bpd from the fenceline and community air monitoring requirements.

Staff proposes to amend Rule 1180 and adopt PR 1180.1 primarily to address the issues identified in the South Coast AQMD and SJVAPCD lawsuits. Seven petroleum refineries are currently subject to Rule 1180 and have been operating fenceline monitoring systems since the second quarter of 2020. PAR 1180 will broaden the applicability to include several facilities with operations related to petroleum refineries. PR 1180.1 will require three facilities, two asphalt refineries and one refinery that processes alternative feedstocks, to install fenceline monitoring systems and includes a fee schedule to cover South Coast AQMD's cost to design, develop, install, operate and maintain refinery-related community air monitoring systems. The public process for PAR 1180 and PR 1180.1 included four Working Group Meeting and a Public Workshop.

## CHAPTER 1 : BACKGROUND

INTRODUCTION

REGULATORY HISTORY

PUBLIC PROCESS

## INTRODUCTION

The South Coast AQMD Governing Board adopted Rule 1180 in December 2017 to require real-time fenceline air monitoring for specified compounds at or near the property boundaries and to provide data as quickly as possible to the public. The rule also includes fee schedule to fund refinery-related community air monitoring systems. Rule 1180 applies to petroleum refineries permitted to process petroleum, as defined in the Standard Industrial Classification Manual as Industry Number 2911, with an exemption for petroleum refineries with a maximum capacity to process less than 40,000 barrels per day of crude oil.

The following section provides a detailed background on state laws, Rule 1180, the comparable rules by other air districts, and the lawsuits that triggered the rule development process for PAR 1180 and PR 1180.1.

## REGULATORY BACKGROUND

In October 2017, California State Legislature passed Assembly Bill 1647 (Muratsuchi) (AB 1647) to add California Health and Safety Code Section 42705.6, which established mandates for fenceline air monitoring at petroleum refineries and air monitoring in nearby communities. Prior to or after the passage of AB 1647, several air districts adopted refinery fenceline and community air monitoring rules that align with the requirements of Health and Safety Code Section 42705.6.

### Rule 1180

Rule 1180 was adopted by the South Coast AQMD Governing Board on December 1, 2017, and the rule is applicable to petroleum refineries that have a maximum capacity to process more than 40,000 bpd of crude oil.

In the South Coast AQMD, there are seven facilities that are currently subject to Rule 1180:

- Tesoro Carson (Tesoro Refining and Marketing Co, LLC), Carson, CA
- Tesoro Wilmington (Tesoro Refining and Marketing Co, LLC), Wilmington, CA
- Torrance (Torrance Refining Company); Torrance, CA
- Chevron (Chevron Products Co); El Segundo, CA
- Phillips 66 Company; Carson, CA
- Phillips 66 Company; Wilmington, CA
- Valero (Ultramar Inc); Wilmington, CA

Rule 1180 requires that refinery owners and operators submit a written Fenceline Air Monitoring Plan (FAMP) for establishing and operating the fenceline air monitoring system. The "Refinery Fenceline Air Monitoring Guidelines" (Guidelines) provided by the South Coast AQMD specifies criteria for developing an approvable FAMP and for FAMP evaluation. The Guidelines are referenced by applicable facilities for the elements necessary to complete an air monitoring plan and by the Executive Officer for the evaluation of the air monitoring plans.

Rule 1180 also establishes a fee schedule, to be paid by the petroleum refineries, for the cost of designing, developing, installing, operating, and maintaining refinery-related community air

monitoring systems. Staff prepared Rule 1180 Community Air Monitoring Plan<sup>1</sup> (CAMP) that outlines the South Coast AQMD's strategy and approach for conducting air monitoring in communities adjacent to the above-mentioned refineries, as part of Rule 1180 implementation

In August 2018, all refineries submitted their draft FAMPs to South Coast AQMD. Staff identified deficiencies during the initial review and worked with each refinery individually to improve the plans. South Coast AQMD staff determined that the revised fenceline coverages are adequate to satisfy the requirements of Rule 1180; therefore, all refineries received partial approvals of the fenceline air monitoring portion of the FAMPs.

South Coast AQMD staff has been working with all refineries on all other elements of the fenceline monitoring plans, namely: back-up monitoring and maintenance, data presentation to the public, public notifications and notification thresholds, and a Quality Assurance Project Plan (QAPP). The revised FAMPs and QAPPs for all refineries can be found on the South Coast website<sup>2</sup>.

As part of Rule 1180 and the Guidelines compliance, the applicable refineries established their data display webpages to provide real-time and historical air monitoring data, and notification systems that automatically generate and issue a notification when the emissions exceed the defined notification thresholds. All applicable refineries have been providing data and notifications since the second quarter of 2020. The public have the access to the data display websites and subscribe for receiving the notifications by the following links.

**Table 1-1:Fenceline Air Monitoring Data Display Website Links**

Facility Name and Location	Fenceline Air Monitoring Data Display Website
Tesoro Carson (Tesoro Refining and Marketing Co, LLC)	<a href="https://marathonlosangelesrefineryfencelinemonitoring.com/">https://marathonlosangelesrefineryfencelinemonitoring.com/</a>
Tesoro Wilmington (Tesoro Refining and Marketing Co, LLC)	
Chevron, El Segundo (Chevron Products Co.)	<a href="https://www.elsegundo1180.com/">https://www.elsegundo1180.com/</a>
Phillips 66 Company Carson	<a href="https://p66losangeles1180.com/">https://p66losangeles1180.com/</a>
Phillips 66 Company Wilmington	
Torrance (Torrance Refining Company)	<a href="https://torc.data.spectrumenvsoln.com/">https://torc.data.spectrumenvsoln.com/</a>
Valero (Ultramar Inc)	<a href="https://wilmingtonrefinerymonitoring.org/">https://wilmingtonrefinerymonitoring.org/</a>

<sup>1</sup> South Coast AQMD, "Rule 1180 Community Air Plan," last modified April 2020, [http://www.aqmd.gov/docs/defaultsource/fenceline\\_monitroing/r1180\\_draft\\_community\\_monitoring\\_plan\\_rev\\_2\\_04022020\\_final\\_use\\_updated1.pdf?sfvrsn=8](http://www.aqmd.gov/docs/defaultsource/fenceline_monitroing/r1180_draft_community_monitoring_plan_rev_2_04022020_final_use_updated1.pdf?sfvrsn=8).

<sup>2</sup> South Coast AQMD, "Rule 1180 - Refinery Community and Fenceline Air Monitoring," <http://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1180-refinery-fenceline-monitoring-plans#:~:text=Rule%201180%20requires%20petroleum%20refineries,pollutants%20and%20toxic%20air%20conaminants>.

### *Overall success of the Rule 1180 monitoring*

Staff investigates every time a compound is detected above the notification threshold and evaluates concentration of pollutant, emission location, and meteorological conditions, e.g., wind speed and direction and conducts inspection at refinery, inspections may include the use of handheld total volatile analyzers, Jerome meters, and FLIR camera. Rule 1180 notifications can serve as an indicator of refinery events, some of which have led to Notice of Violations with rules including Rule 3002 – Requirements: Failure to comply with a Title V Permit by failing to operate equipment in good condition, Rule 463 – Organic Liquid Storage, and Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. Rule 1180 fenceline and community monitors have provided information to locate odor sources for complaint investigations which have resulted in early detection and mitigation of leaks.

In October 2021, South Coast AQMD investigated odors from Dominguez Channel. Over 4,700 odor complaints received from residents in Carson, Gardena, Long Beach, Redondo Beach, Torrance and Wilmington. Air monitoring efforts in the impacted areas included a variety of technologies and strategies including using data from Rule 1180 monitors. Results showed elevated levels of hydrogen sulfide caused strong odors. Based on data from the Rule 1180 monitors it did not appear that refineries were the main source of the elevated levels of hydrogen sulfide measured during this event, although initial assumptions considered refineries as a potential source for this event. The Rule 1180 community and fenceline monitors provide continuous real-time measurements of several compounds.

### **San Joaquin Valley Air Pollution Control District (SJVAPCD) Lawsuit**

In December 2019, SJVAPCD adopted Rule 4460 – Petroleum Refinery Fence-line Air Monitoring and Rule 3200 – Petroleum Refinery Community Air Monitoring Fees which included an exemption for facilities with a refining capacity 40,000-bpd or less, mirroring Rule 1180 exemption. In 2020, Earthjustice and the Center on Race, Poverty, and the Environment filed a lawsuit in Fresno County Superior Court against SJVAPCD’s regulations citing the 40,000-bpd or less exemption. The court ordered SJVAPCD to remove compliance exemptions for non-crude oil refining facilities and to remove the 40,000-bpd exemption. In October 2022, SJVAPCD amended the Rules 4460 and 3200 to: 1) require monitoring for the list of compounds recommended by OEHHA, unless a refinery can provide sufficient justification for not monitoring a specified pollutant; 2) remove the exemption for refineries not currently engaged in refining crude oil; and 3) remove the 40,000-bpd exemption.

### **South Coast AQMD Lawsuit**

On December 19, 2022, East Yard Communities for Environmental Justice filed a lawsuit against South Coast AQMD in Los Angeles Superior Court (Case No. 22STCP04398) claiming the air district has not fulfilled its duty to implement Health and Safety Code Section 42705.6 due to the exemption for refineries with a refining capacity less than 40,000 bpd from the fenceline and community air monitoring requirements. East Yard Communities for Environmental Justice claimed that for at least three refineries with refining capacities less than 40,000 bpd, South Coast AQMD failed to:

- Require fenceline monitoring for each refinery,
- Install a community air monitoring system near each refinery,
- Prepare refinery fenceline and community air monitoring guidance documents, and

- Collect fees for community air monitoring systems from each refinery.

In April 2023, a settlement was signed and the order for dismissal was entered. South Coast AQMD agreed to amend Rule 1180 and develop PR 1180.1. PAR 1180 will remove the 40,000 bpd exemption and require fence-line air monitoring, and related community monitoring requirement for those refineries in response to litigation (Case No. 22STCP04398, Los Angeles Superior Court) and hold a Governing Board hearing by January 5, 2024, on whether to amend Rule 1180 and adopt PR 1180.1. Proposed Rule 1180.1 will address the refineries previously exempted by Rule 1180.

### **Bay Area Air Quality Management District (BAAQMD) Fence-line Monitoring Rule**

In April 2016, BAAQMD adopted Regulation 12, Rule 15 –Refining Emissions Tracking. In 2020 and 2021, two of the five petroleum refineries in BAAQMD’s jurisdiction subject to this rule submitted permit applications to modify their facility operation to process alternative feedstocks with the intention of producing “renewable” products. On November 3, 2021, BAAQMD amended Regulation 12, Rule 15 to change the definition of “Petroleum Refinery” to “Refinery” and add alternative feedstock to the definition of “Refinery”. The revised refinery definition is: “Refinery: An establishment that is located on one or more contiguous or adjacent properties that processes any petroleum or alternative feedstock, to produce more usable products such as gasoline, diesel fuel, aviation fuel, lubricating oils, asphalt or petrochemical feedstocks, or any other similar product...”

### **Senate Bill 674 (SB 674)**

On February 16, 2023, Senator Lena Gonzalez (Long Beach), introduced SB 674 – The Refinery Air Pollution Transparency and Reduction Act. SB 674 would extend the requirements of AB1647 (Muratsuchi, Chapter 589, Statutes of 2017) – Petroleum refineries: air monitoring systems by expanding the definition of refineries to include non-crude oil feedstock refineries and related facilities and requiring refineries to improve public notification processes, reporting, data accessibility, and to conduct third-party audits and root cause analyses of any threshold exceedances. Table 1-2 provides a summary comparison of the SB 674 under the regular session, PAR 1180, and PR 1180.1 proposed requirements. Staff has aligned PAR 1180 and PR 1180.1 with SB 674 for most of the proposed requirements and provided additional comments to the Senator Gonzalez SB 674 staff to align remaining requirements.

Table 1-2: Comparison of SB674 Requirements to PAR 1180 and PR 1180.1

	SB674 <sup>1</sup>	PAR 1180 and PR 1180.1
<b>Applicability</b>	Crude oil and alternative feedstock refineries and related facilities, including storage tanks, sulfur recovery plants, port terminals, electrical generation plants and hydrogen plants that provide more than 50 percent of production output to refinery	Similar facilities proposed to be applicable, but facilities must be adjacent to petroleum refinery
<b>Required Air Pollutants for Monitoring</b>	Air Pollutants identified by OEHHA March 2019 report; A district may exclude a pollutant if technologically infeasible or not released during routine and nonroutine operations	Similar requirement
<b>Notification Threshold</b>	Lowest of the following: National Ambient Air Quality Standards (NAAQS), California Ambient Air Quality Standards (CAAQS), and the acute, chronic or carcinogenic Reference Exposure Levels (RELs) established by OEHHA, or if not established, the historical concentration of any measured pollutant, if historical data is available	Similar requirement, but with further specification that if health standards are not established, about 90 percentile of quarterly maximum of one-hour average historical data are used to establish the notification
<b>Root Cause Analysis</b>	Include root cause analysis for any exceedance of notification threshold	Same requirement
<b>Third-Party Audits</b>	Require refineries to perform third party audits to ensure data accuracy	Similar requirement but timelines differ in current proposal;

<sup>1</sup> Comparison based on the July 12, 2023, version of SB 674

## PAR 1180 and PR 1180.1

PAR 1180 and PR 1180.1 are necessary to address the issues identified in the South Coast AQMD and SJVAPCD lawsuit and align with SB674 proposal. The rules will also update the air pollutants that require monitoring to reflect additional air pollutants identified in the Office of Environmental Health Hazard Assessment report “Analysis of Refinery Chemical Emissions and Health Effects” finalized in March 2019 (OEHHA report), where applicable. The applicability of PAR 1180 will be expanded to include facilities with operations related to petroleum refineries located on contiguous or adjacent properties. The applicability of PR 1180.1 will include facilities that are not applicable to PAR 1180, including two asphalt refineries and one refinery that processes alternative feedstocks and specify community air monitoring fees. In addition, both rules will:

- Set notification thresholds for several of the newly included air pollutants and several air pollutants with historical fence line monitoring data;
- Require root cause analysis and corrective actions when air pollutants are detected above notification thresholds; and
- Provide additional specifications on compliance schedule, web-based fence line data display and notification program, independent audits, and quarterly reports.

Lastly, PAR 1180 and PR 1180.1 require facilities to submit a FAMP for establishing and operating the fence line air monitoring system and the Guidelines provides criteria for developing an approvable FAMP. Amendments to the Guidelines are necessary to clarify they apply to both Rule 1180 and PR 1180.1 and reflect the proposed changes in PAR 1180.

## PUBLIC PROCESS

PAR 1180 and PR 1180.1 were developed through a public process that included a series of Working Group Meetings designed to provide the public and stakeholders an opportunity to discuss important details about the proposed rule and provide South Coast AQMD staff with important input during the rule development process. The Working Group Meetings were attended by interested parties comprised of a variety of stakeholders including representatives from industry, environmental groups, community groups, and public agency representatives. . The table below summarizes the Working Group Meetings and the main topics of discussion that were held prior to the release of the Preliminary Draft Staff Report.

**Table 1-3: Summary of Working Group Meetings and Public Workshops**

Meeting title	Date	Highlights
<b>Working Group Meeting #1</b>	January 25, 2023	<ul style="list-style-type: none"> <li>• Rule background</li> <li>• Regulatory history</li> <li>• Overview of the applicability and target compound list</li> </ul>
<b>Working Group Meeting #2</b>	April 19, 2023	<ul style="list-style-type: none"> <li>• Continued proposed amendments on applicability and target compound list</li> <li>• Community air monitoring</li> <li>• SB 674</li> </ul>

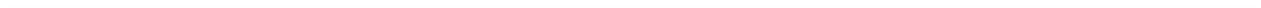
Meeting title	Date	Highlights
<b>Working Group Meeting #3</b>	May 30, 2023	<ul style="list-style-type: none"> <li>• Response to stakeholder comments</li> <li>• PAH monitoring technology</li> <li>• Quality Assurance/Quality Control (QA/QC) and monitoring system performance</li> <li>• Pollutants without established threshold</li> <li>• Rule and guideline proposal updates</li> </ul>
<b>Working Group Meeting #4</b>	July 11, 2023	<ul style="list-style-type: none"> <li>• Response to stakeholder comments</li> <li>• Establishing notification thresholds               <ul style="list-style-type: none"> <li>○ Informational-based notification thresholds</li> <li>○ Health standard-based notification thresholds</li> </ul> </li> <li>• Exclusion criteria for metals</li> <li>• Community monitoring QA/QC</li> <li>• Proposed rule language</li> </ul>
<b>Public Workshop</b>	Scheduled for August 22, 2023 (10:00 a.m.)	<ul style="list-style-type: none"> <li>• Release preliminary draft rule language</li> <li>• Proposed revision to the Guidelines</li> <li>• Key issues</li> </ul>
<b>Community Public Workshop</b>	Scheduled for August 22, 2023 (6:00 p.m.)	<ul style="list-style-type: none"> <li>• Release preliminary draft rule language</li> <li>• Proposed revision to the Guidelines</li> <li>• Key issues</li> </ul>

## CHAPTER 2 : FENCELINE AND COMMUNITY AIR MONITORING

APPLICABILITY

TARGET COMPOUND LIST

POTENTIAL FENCELINE MONITORING CONFIGURATIONS AT NEW  
FACILITIESCOMMUNITY AIR MONITORING



## APPLICABILITY

### Standard Industrial Classification (SIC) code 2911

Rule 1180 applies to petroleum refineries defined in SIC 2911<sup>3</sup> as petroleum refining facilities establishments primarily engaged in producing 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.

### PAR 1180 and PR 1180.1

Based on the lawsuit South Coast AQMD received in 2022, which required removing the 40,000-bpd exemption, all petroleum refineries identified under SIC 2911 will be subject to the fenceline monitoring rules, including two asphalt refineries located within the South Coast AQMD. In addition, staff proposes to include facilities that refine alternative feedstocks to align with the comparable BAAQMD and SJVAPCD rules and SB674, this will apply to one alternative feedstock refinery in the South Coast AQMD. Staff also proposes to include facilities with operations related to petroleum refineries (e.g., Hydrogen Production Plants, Sulfur Recovery Plants, and Terminals) located on contiguous or adjacent properties, considering the integrity of the operations to align with SB 674.

PAR 1180 will be applicable to the existing major petroleum refineries, including facilities with operations related to petroleum refineries located on contiguous or adjacent properties. The existing petroleum refineries will remain under PAR 1180 even if they transition some or all of their operation to refining alternative feedstocks. PR1180.1 will be applicable to refineries that refine crude oil and/or alternative feedstocks that are not included in PAR 1180. PR 1180.1 is focused on smaller refineries previously exempted by Rule 1180. PAR 1180 and PR 1180.1 applicability will be discussed in next sections with more details.

### PAR 1180 Facilities

Currently seven facilities are subject to Rule 1180 requirements as shown in Figure 2-1. Note the figure only shows the approximate boundaries of the facilities.

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<sup>3</sup> NAICS Association, "SIC Industry: 2911 Petroleum Refining," <https://www.naics.com/sic-industry-description/?code=2911>.



**Figure 2-1: Current Rule 1180 Facilities**

In addition, several facilities with related operations located on properties contiguous or adjacent to a petroleum refinery have been identified. PAR 1180 applicable facilities are listed in Table 2-1.

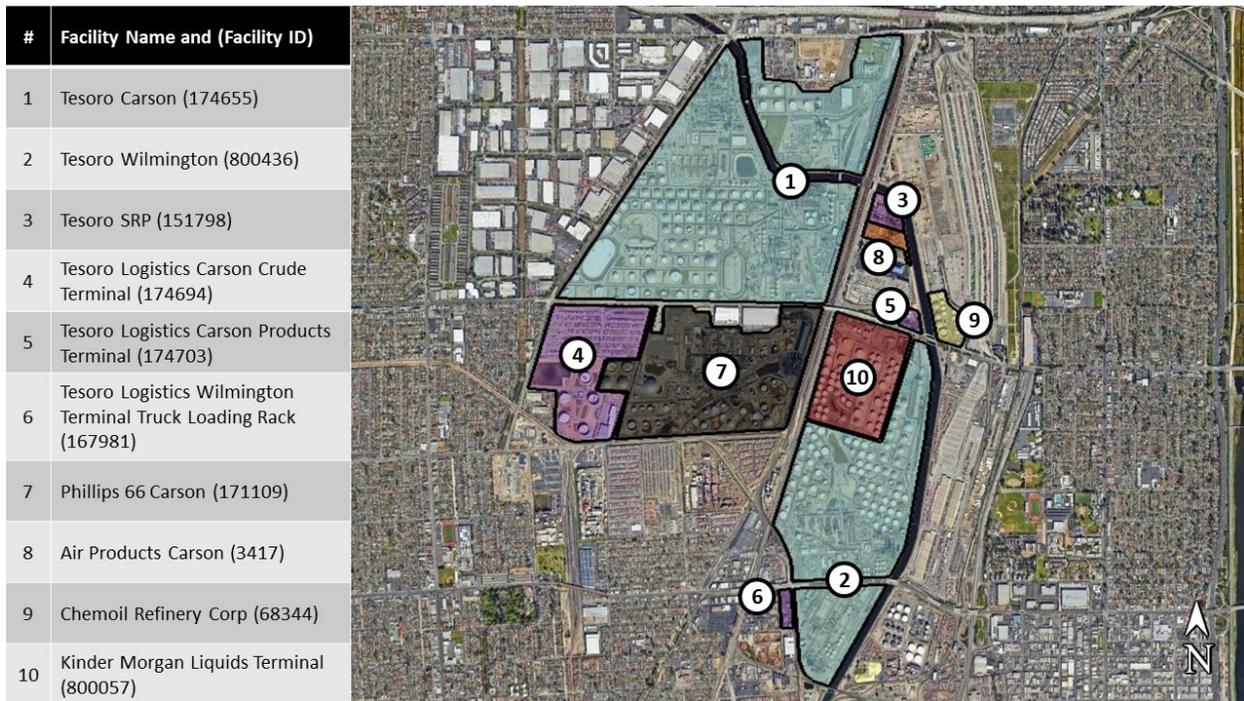
**Table 2-1: PAR 1180 Facilities**

Facility ID	Facility Name	Location	Type of Facility
<b>Major Petroleum Refineries</b>			
174655	Tesoro Carson (Tesoro Refining & Marketing Co, LLC)	Carson	Petroleum Refinery
800436	Tesoro Wilmington (Tesoro Refining & Marketing Co, LLC)	Wilmington	Petroleum Refinery
171109	Phillips 66 Carson (Phillips 66 Company/Los Angeles Refinery)	Carson	Petroleum Refinery
171107	Phillips 66 Wilmington (Phillips 66 Company/LA Refinery Wilmington Pl)	Wilmington	Petroleum Refinery
800030	Chevron, (Chevron Products Co.)	El Segundo	Petroleum Refinery
181667	Torrance (Torrance Refining Company LLC)	Torrance	Petroleum Refinery
800026	Valero (Ultramar Inc)	Wilmington	Petroleum Refinery
<b>Facilities with Related Operations to Petroleum Refineries – Under Common ownership</b>			
151798	Tesoro SRP (Tesoro Refining & Marketing Co, LLC)	Carson	Related Operations
167981	Tesoro Logistics, Wilmington Terminal Truck Loading Rack	Wilmington	Related Operations
174694	Tesoro Logistics, Carson Crude Terminal	Carson	Related Operations
174703	Tesoro Logistics, Carson Product Terminal	Carson	Related Operations
<b>Facilities with Related Operations to Petroleum Refineries – Not Under Common ownership</b>			

Facility ID	Facility Name	Location	Type of Facility
3417	Air Products Carson (Air Products and Chemicals)	Carson	Related Operations
68344	Chemoil Refinery Corp.	Carson	Related Operations
800057	Kinder Morgan Liquids Terminal LLC	Carson	Related Operations
101656	Air Products Wilmington (Air Products and Chemicals)	Wilmington	Related Operations
182735	Torrance Logistics Company LLC	Torrance	Related Operations

Additional Facilities with Related Operations may be added upon further evaluation

Tesoro Refining and Marketing Company LLC (Tesoro) has two petroleum refineries one located in Wilmington and the other in Carson, and four facilities located on contiguous properties including Carson Crude Terminal, Carson Product Terminal, Tesoro Sulfur Recovery Plant (SRP), and Tesoro Logistics Wilmington Terminal. Figure 2-2 shows the two petroleum refineries which are labeled as number (1) and number (2) which are covered under the current rule, and the four contiguous facilities which are labeled as number (3) to number (6) will be covered under the proposed amended rule.



**Figure 2-2: Proposed Amended Rule 1180 Facilities with Adjacent Boundaries Map**

The Tesoro facilities with related operations are on contiguous properties, which are either in physical contact or separated solely by a public roadway or other public right-of-way. For the purposes of applying New Source Review, Title V and other applicable federal regulations requirements in the permit evaluations, staff has considered these six facilities under Tesoro as one

single source. U.S. EPA provides guidance for “contiguous” definition/ determination<sup>4</sup>, and what should be considered a “public right of way,” including adjacent properties separated by a railroad track.<sup>5</sup> The railroad track is determined to be comparable to a roadway; therefore, does not interrupt the contiguity with the adjacent properties.

Air Products at Carson, Chemoil Refinery Corp, and Kinder Morgan Liquids Terminal LLC are not Tesoro facilities; however, they are adjacent to Tesoro Carson Refinery and Tesoro Wilmington Refinery respectively (Figure 2-2). Air Products at Wilmington is adjacent to Valero Refinery (Figure 2-3), and Torrance meters (Torrance Logistics Company) is contiguous to Torrance Refinery (Figure 2-4). All those facilities have operations related to their contiguous or adjacent petroleum refineries.

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<sup>4</sup> U.S. EPA, “Applicability of Title V Permitting Requirements to Gasoline Bulk Terminals Owned by Williams Energy Ventures, Inc.,” May 19, 1999, <https://www.epa.gov/sites/default/files/2015-07/documents/we1999.pdf>.

<sup>5</sup> U.S. EPA, *Environmental Administrative Decisions: Decisions of the United States Environmental Protection Agency*, 1995.



Figure 2-3: Air Products Wilmington Adjacent to Valero

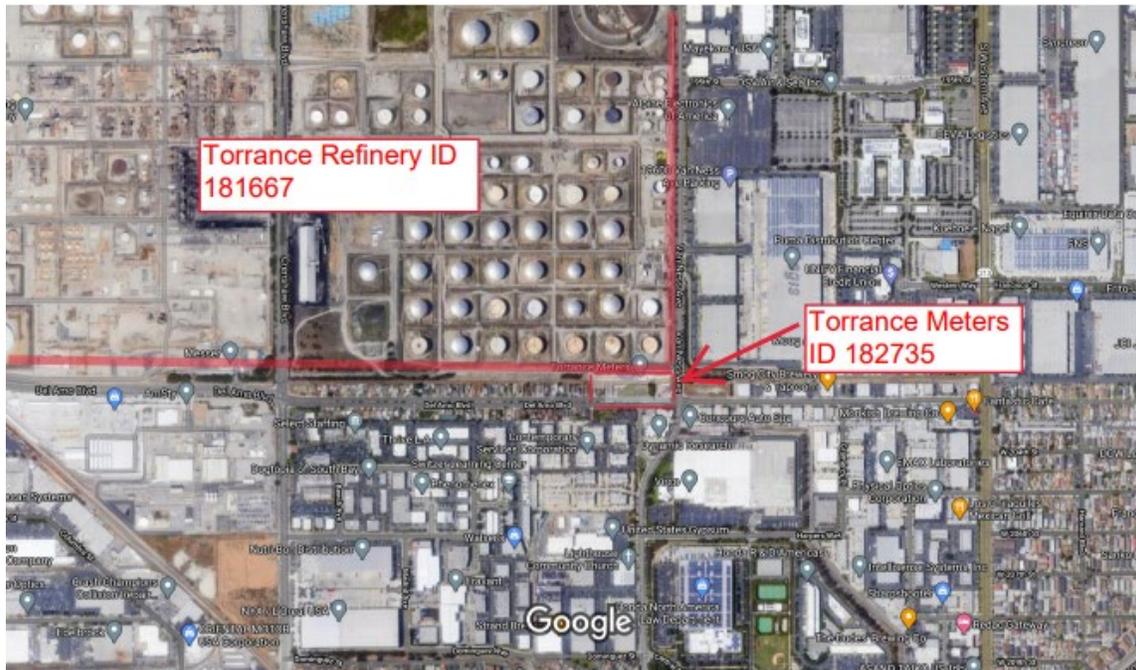


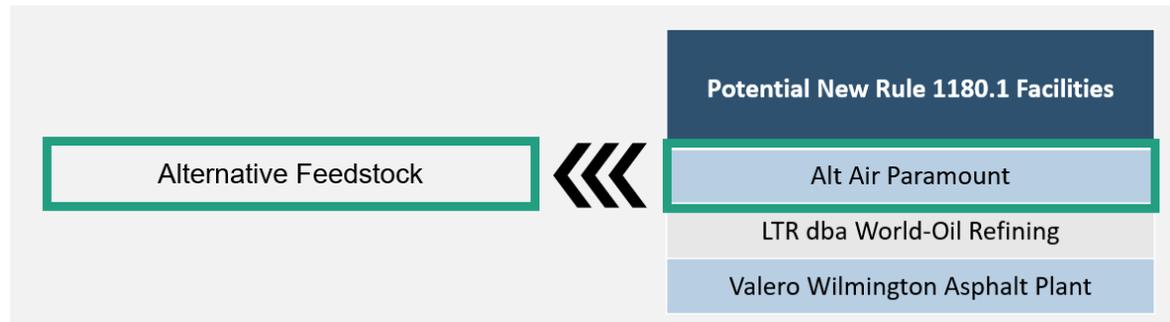
Figure 2-4: Torrance Meters (Torrance Logistics) Adjacent to Torrance Refinery

**PR 1180.1 Facilities**

PR 1180.1 is developed to require fenceline monitoring at refineries that are not subject to PAR 1180, which includes smaller refineries that were previously exempt from Rule 1180 (e.g.,

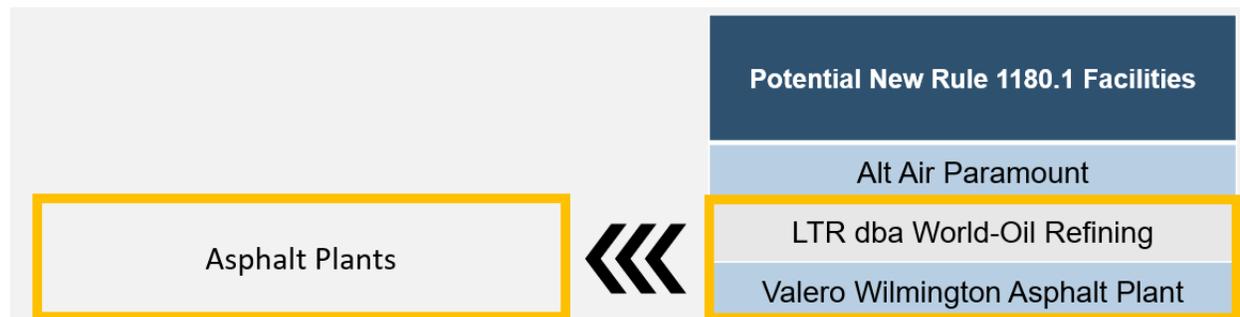
refineries with a refining capacity of 40,000 bpd or less) and refineries that process non-crude oil, alternative feedstocks.

In the South Coast AQMD, AltAir Paramount is currently the only facility processing alternative feedstocks that will be subject to PR 1180.1. Any new refinery permitted to process alternative feedstocks, regardless the throughput capacity, would be subject to PR 1180.1, existing PAR 1180 facilities would continue to comply with Rule 1180 if they transition to alternative feedstocks at a partial or full capacity.



**Figure 2-5: Alternative Feedstock Facility Subject to PR 1180.1**

Two smaller petroleum refineries that produce asphalt from crude oil in the South Coast AQMD and are classified under SIC 2911 will be subject to PR 1180.1. These two facilities are currently exempted from Rule 1180 as their maximum process capacities are less than 40,000 bpd.



**Figure 2-6: Asphalt Plants Subject to PR 1180.1**

Staff initially (in WGM#1) included World Oil Recycling (DeMenno-Kerdoon); Facility ID: 800037) in the consideration for its PR 1180.1 applicability. Staff later (in WGM#2) determined not to include World Oil Recycling due to three main reasons: 1) the facility is not identified under SIC 2911; 2) establishments primarily re-refining used lubricating oils are classified under SIC 2992; and 3) AB1647 fenceline monitoring requirements do not apply to SIC 2992 establishments.

Table 2-2 summarizes the facilities that would be applicable to PR 1180.1 at the time of the rule adoption.

Table 2-2: PR 1180.1 Facilities

Facility ID	Facility Name	Location	Type
800393	Valero Wilmington Asphalt Plant	Wilmington	Asphalt Plant
800080	LTR dba World Oil Refining	South Gate	Asphalt Plant
187165	AltAir Paramount LLC	Paramount	Alternative Feedstock

The following map shows the locations of the PR 1180.1 facilities.

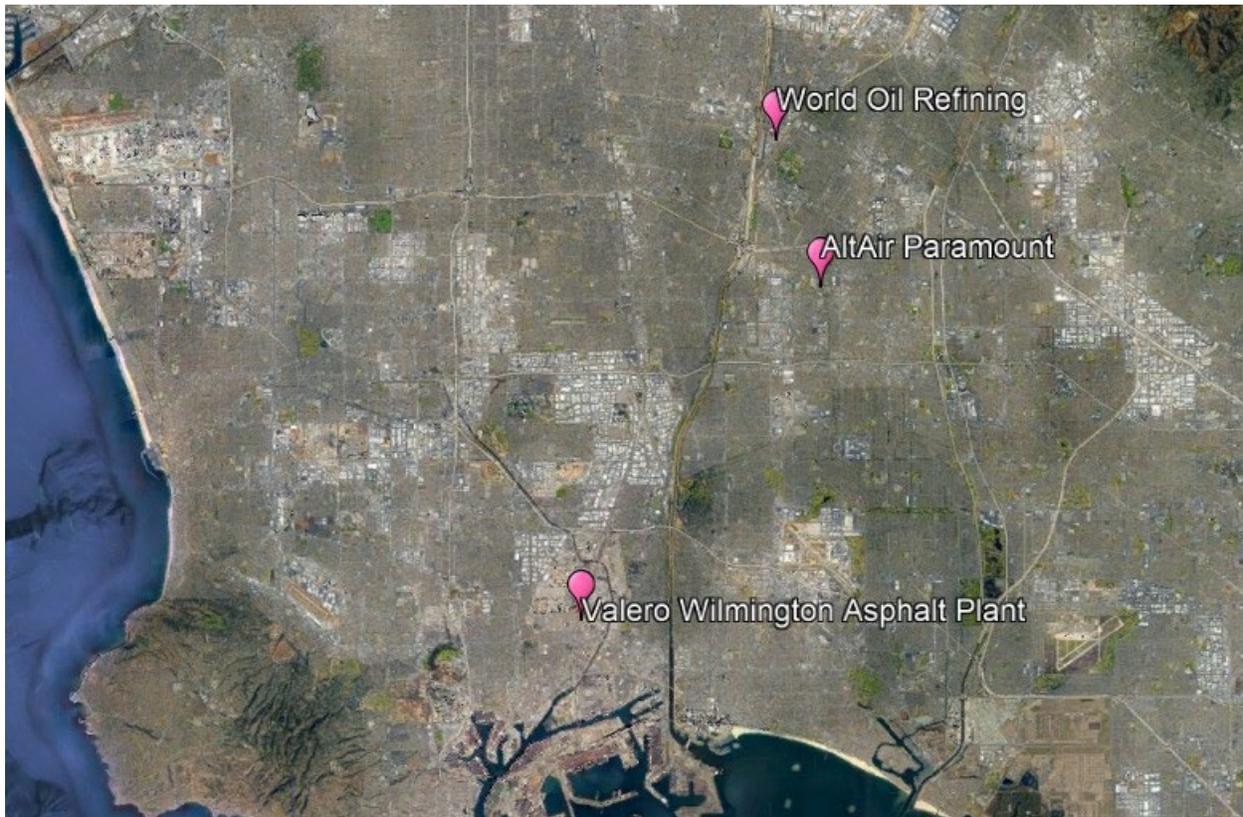
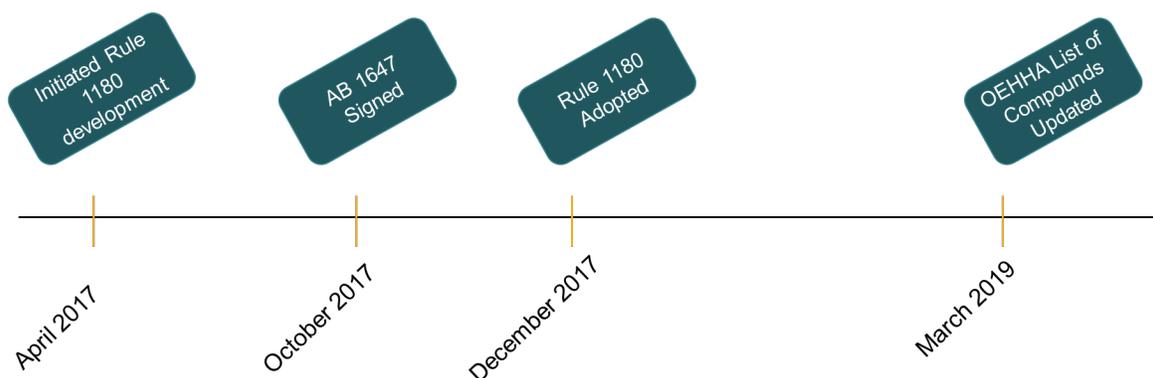


Figure 2-7: Map of PR 1180.1 Facilities

### TARGET COMPOUND LIST

Rule 1180 target compound list was based on the Office of Environmental Health Hazard Assessment (OEHHA) report “Analysis of Refinery Chemical Emissions and Health Effects.” At the Rule 1180 adoption on December 1, 2017, only the September 2017 draft OEHHA report was available, based on which current Rule 1180 requires 18 pollutants in total to be addressed by refinery fenceline air monitoring. In March 2019, OEHHA finalized the report and updated the

compound list<sup>6</sup>. Figure 2-4 presents the timeline of PR 1180 development and OEHHA's Final Report (Analysis of Refinery Chemical Emissions and Health Effects).



**Figure 2-8: Rule 1180 and OEHHA's Final Report Timeline**

In the OEHHA's Final Report, 188 chemicals are identified as emitted from California refineries and 18 air pollutants are listed as the top candidates for air monitoring based on their toxicity level, average levels of emissions from refineries statewide, and involvement in multiple refinery processes and incidences (hereafter the updated list will be called "OEHHA priority list"). Out of the 18 compounds identified in the OEHHA priority list, eight air pollutants are not addressed in Rule 1180 which are: Particulate Matter (PM), Naphthalene, Polycyclic Aromatic Hydrocarbons (PAHs), diethanolamine, sulfuric acid, nickel, manganese, and cadmium. The table below provides a comparison for the chemicals included in Rule 1180 versus the OEHHA priority list, compounds highlighted in red are not currently required to be monitored by Rule 1180:

<sup>6</sup> OEHHA, "Analysis of Refinery Emissions and Health Effects," March 2019, <https://oehha.ca.gov/media/downloads/faqs/refinerychemicalsreport032019.pdf>.

Table 2-3: Existing Rule 1180 vs. OEHHA Priority List of Air Pollutants

	2019 OEHHA list of Air Pollutants Included in Rule 1180?
Acetaldehyde	Y
Acrolein	Y
Ammonia	Y
Benzene	Y
Black Carbon	Y
1,3-butadiene	Y
<b>Cadmium</b>	N
Carbonyl Sulfide	Y
<b>Diethanolamine</b>	N
Ethylbenzene	Y
Formaldehyde	Y
Hydrogen Cyanide	Y
Hydrogen Fluoride	Y
Hydrogen Sulfide	Y
<b>Manganese</b>	N
<b>Naphthalene</b>	N
<b>Nickel</b>	N
Nitrogen Oxide	Y
<b>Polycyclic aromatic hydrocarbons (PAH)</b>	N
<b>Particulate Matter</b>	N (Only BC is currently measured)
Styrene	Y
Sulfur Dioxide	Y
<b>Sulfuric Acid</b>	N
Toluene	Y
Total VOCs (Non-Methane Hydrocarbons)	Y
Xylenes	Y

Staff is proposing to update the existing air pollutants list for PAR 1180 and PR 1180.1 based on the OEHHA 2019 report but will consider the feasibility to monitor the additional air pollutants based on existing technology. There are technical challenges for real-time, continuous monitoring for some air pollutants, such as PAHs, which will be discussed in the Fenceline Air Monitoring Technologies section. Staff is proposing criteria for the potential exclusion of an air pollutant, for example when the chemical is not emitted from the process and cannot be measured at normal operation or equipment breakdowns.

### Fenceline Air Monitoring Technologies

#### *Use of point and open path monitors*

A petroleum refinery fenceline air monitoring systems require a combination of equipment that measures and records air pollutant concentrations at or near the property boundary of a petroleum refinery. Conventional air monitoring approaches rely on point monitors that are limited to providing information about concentrations at single point, thereby, increasing the chances of missing emissions hotspots or plumes. Given the potential challenges of spatial data that is provided by point monitors it is necessary to employ additional technologies that contribute to a more comprehensive understanding of emissions from large area sources like petroleum refineries.

Open-path technology is a well-established method to measure path-integrated trace gas absorptions and concentrations in the open atmosphere making it ideal for long-term fenceline air monitoring of emissions from refineries or other large area sources. Open-path technology is a type of Optical Remote Sensing (ORS) that measures air emissions along an open-path, significantly improving the spatial coverage. ORS instruments use a light signal to continuously detect and measure concentrations of chemical compounds along the distance covered by the light signal in real-time. As a result, open-path technologies can provide greater spatial resolution compared to conventional air monitoring techniques; for example, narrow pollutant plumes can be detected by an open-path fenceline air monitoring system that might otherwise be missed by point monitors. 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 by a reflector, providing path-averaged concentrations of multiple pollutants, simultaneously. Although the open-path ORS techniques have been used for over 20 years and are well-established, they are constantly improving and gaining use for large area-source monitoring that is not conducive to traditional point source testing methods. Improvements often include changes to technologies that improve detection limits, or the type of compounds detected.

Another advantage of open-path measurements is the capability of monitoring pollutant concentrations from point source and fugitive emissions at or near the property boundary of a petroleum refinery operation. Fugitive emissions can occur from gaseous or vapor leaks in pressurized process equipment (e.g., valves, pipe connections, mechanical seals, or related equipment) and from other accidental releases. Fugitive emissions can also emanate from storage tanks used to store crude oil, intermediates generated during the refining processes, and product streams. These emissions are best monitored using open-path systems given the numerous potential sources, their distribution over large areas and the challenges with immediate detection and repair of the equipment that is the source of emissions.

The U.S. EPA has published a comprehensive assessment of various open-path ORS technologies, outlining the advantages and limitations of each measurement method<sup>7</sup>. South Coast AQMD also conducted a comprehensive technology demonstration study to evaluate several ORS technologies for various applications, including fenceline air monitoring<sup>8</sup>. Based on the advantages that open-path technologies provide over conventional air monitoring techniques, staff recommends the use of open-path technology for implementing a fenceline air monitoring system required by PAR 1180 and PR 1180.1. In accordance with the Guidelines, a refinery owner or operator has the option to use other air monitoring techniques and/or technologies based on the pollutant(s) that are monitored. Alternative or emerging monitoring technologies may be acceptable only to cover areas along the perimeter of a refinery that are not suited for other monitors such as open-path technologies or traditional point monitors. The refinery operator or owner must demonstrate the proposed alternative air monitoring technology(s) will meet the requirements of PAR 1180 and PR 1180.1 and provide adequate sensitivity and adequate temporal and spatial coverage for the compounds being monitored.

#### *Technologies currently used for Rule 1180 monitoring*

Rule 1180 refineries utilize open-path instruments and point monitors for real-time fenceline air monitoring. Open-path instruments transmit light or infrared energy across a long open path and

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<sup>7</sup> U.S. EPA, "EPA Handbook: Optical Remote Sensing for Measurement and Monitoring of Emissions Flux," December 2011, <https://www3.epa.gov/ttnemc01/guidlnd/gd-052.pdf>.

<sup>8</sup> South Coast AQMD, "SCAQMD Optical Remote Sensing Program," <http://www.aqmd.gov/ors-study>.

absorption of light relates to the average concentration of gases of interest along the path according to the Beer-Lambert absorption law. Detectors include Fourier-transform infrared spectroscopy (FTIR) and Ultra-Violet Differential Optical Adsorption Spectrometer (UV-DOAS). Point monitors are used to measure black carbon and hydrogen sulfide; detector for black carbon is an aethalometer that measures the attenuation of a beam of light transmitted through a filter, while the filter is continuously collecting an aerosol sample; and for hydrogen sulfide cavity ring-down spectroscopy (CRDS), UV fluorescence, or reaction-based detectors may be used. Table 2-4 shows the existing technologies used by refineries to comply with Rule 1180.

**Table 2-4: Real-Time Fenceline Air Monitoring Technologies Used by Rule 1180 Facilities**

Existing Rule 1180 Compounds	Monitoring Technology
Acetaldehyde	Open-path FTIR
Acrolein	Open-path FTIR
Ammonia	Open-path FTIR
Benzene	Open-path FTIR, Open-path UV
Black Carbon	Aethalometer
1,3-butadien	Open-path FTIR
Carbonyl Sulfide	Open-path FTIR
Ethylbenzene	Open-path FTIR, Open-path UV
Formaldehyde	Open-path FTIR
Hydrogen Cyanide	Open-path FTIR
Hydrogen Fluoride	Open-path FTIR
Hydrogen Sulfide	CRDS, UV Fluorescence, or reaction-based detector
Nitrogen Oxide	Open-path FTIR
Styrene	Open-path FTIR
Sulfur Dioxide	Open-path FTIR, Open-path UV
Toluene	Open-path FTIR, Open-path UV
Total VOCs	Open-path FTIR
Xylenes	Open-path FTIR, Open-path UV

### PAH monitoring

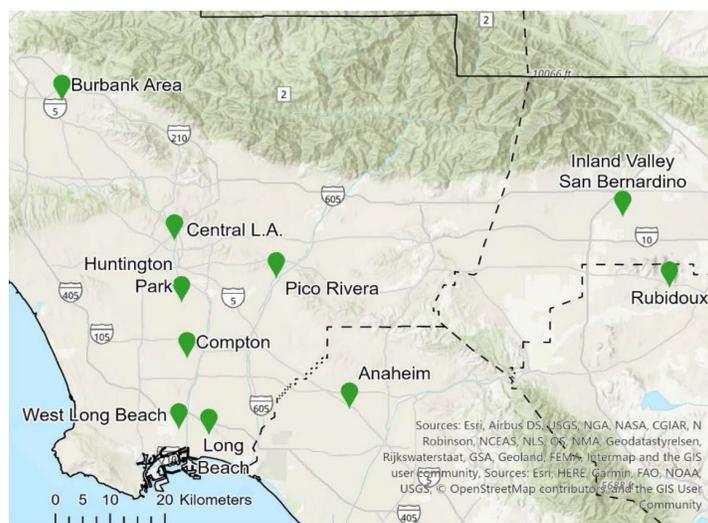
PAHs consist of up to 24 hydrocarbons; mainly formed from incomplete combustion of fossil fuels. Based on the OEHHA 2019 report on refinery chemical emissions and health effects, PAH emissions from refineries are relatively small and the emissions result from routine and non-routine refinery operations. PAHs are not in the top ten routine and non-routine chemical pollutants

emitted by California refineries. Based on staff's research, naphthalene is the only PAH that can be reliably measured using real-time monitoring technologies, namely open-path UV-DOAS.

South Coast AQMD monitors PAH for the Multiple Air Toxics Exposure Study (MATES) and National Air Toxics Trends Stations (NATTS) programs; however, those measurements rely on time-integrated samples collected on a certain schedule (e.g. once every six days), and cannot be conducted using real-time monitoring technologies. PAHs are measured according to EPA Compendium Method TO-13A. Ambient air is drawn through a Poly-Urethane Foam (PUF) sampler over a 24-hour sampling period. Considerable sampler preparation is required prior to sampling, then PAHs are extracted from the PUF sampler and samples are analyzed by gas chromatography–mass spectrometry (GC/MS). Sample results are usually obtained within 2-3 weeks after sample collection.

### *MATES*

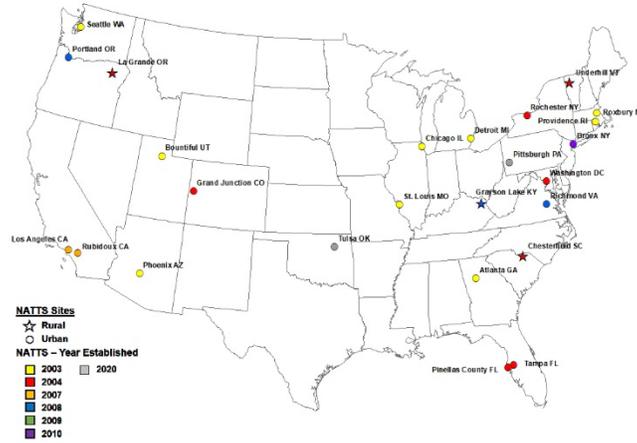
South Coast AQMD has conducted five MATES campaigns. The last MATES campaign (MATES V) in 2018 and 2019 took measurements at ten fixed monitoring sites, and PAHs were measured at the Central LA and Rubidoux stations. Prior MATES studies also measured PAHs at other stations. For example, MATES IV measured PAH at the Long Beach station, which is closer to refinery operations. MATES are designed to provide update to our inventory of toxic air contaminants for modeling localized risks. The studies use advanced monitoring technologies, and technologies providing near real-time data. Staff engages with the local communities, particularly those near refineries.



**Figure 2-9: MATES Program Monitoring Stations**

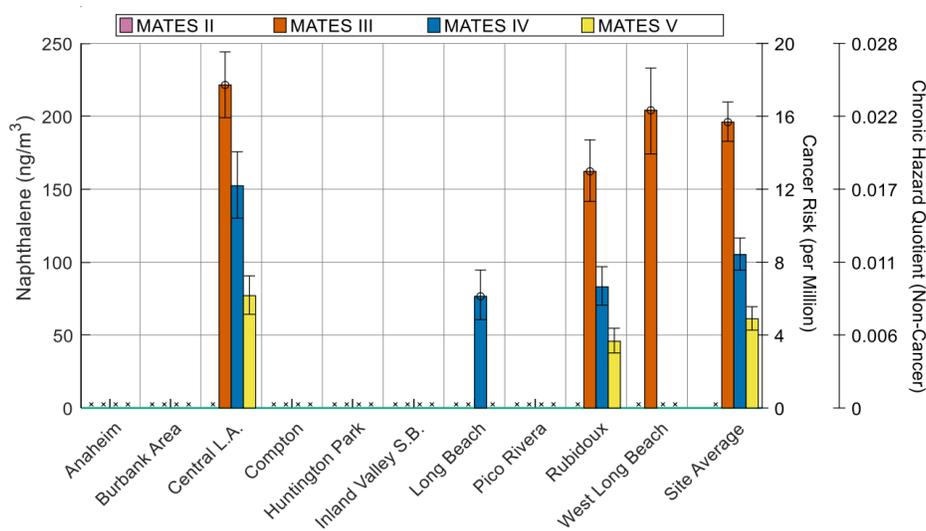
### *NATTS program*

The goal of the federal NATTS program is to develop long-term air toxics monitoring data of consistent quality. NATTS network was initiated in 2003 and the current network configuration has 26 sites across the United States. There are typically over 100 pollutants monitored at each NATTS station, although only 19 of those are required. South Coast AQMD monitors PAHs at two monitoring locations, Central Los Angeles and Rubidoux, with the data utilized for both NATTS MATES programs.



**Figure 2-10: NATTS Network Including Two South Coast AQMD Stations**

Figure 2-7 shows measurements of naphthalene, which is a PAH. Complete measurements can be found in the MATES V Final Report.<sup>9</sup> OEHHA data and South Coast AQMD data shows naphthalene is the most emitted PAH. As shown in the graph, the PAH emissions have declined compared to previous MATES studies (as shown in the graph, measurements were taken only at Central L.A., Long Beach, Rubidoux, and West Long Beach during different MATES studies). During the MATES IV campaign, the Long Beach station, which is closer to refineries, was added to measure PAHs and measured PAH concentrations were similar to other two stations.



**Figure 2-11: Naphthalene Measurements in Different MATES Studies**

In a summary, there is no real-time air monitoring technology currently available to measure PAHs. PAHs measurements by MATES and NATTS programs take considerable amount of time for sample preparation and lab testing. The measurements indicate that naphthalene is the most emitted PAH and the PAHs emissions have declined over the years. Naphthalene is the only PAH

<sup>9</sup> South Coast AQMD, “Multiple Air Toxics Exposure Study in the South Coast AQMD,” August 2021, <http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf>.

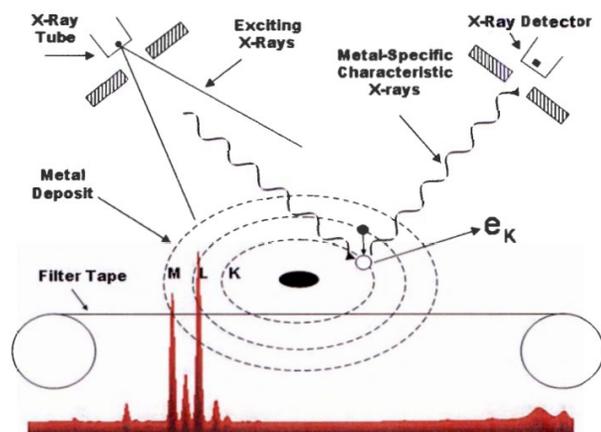
that can be monitored in real-time and current open-path systems installed at refinery fencelines can reliably to detect and report naphthalene in real-time. Staff will continue to monitor and assess the development of real-time air monitoring technologies for PAHs and report the results of the assessment to the Stationary Source Committee every five years. If staff determines real-time air monitoring is feasible, the facilities would be required to revise their FAMPs and QAPPs and start monitoring for PAHs according to the timeline specified by PAR 1180 and PR 1180.1.

## Metal Monitoring

### *X-Ray Fluorescence (XRF) technology for metal monitoring*

Cadmium, manganese, and nickel are identified in the OEHHA 2019 report as candidates for air monitoring. Their toxicity-weighted emissions scores are among the highest of emissions from refineries. Exposure and bioaccumulation of metals have been shown to lead to numerous health problems. Those metals are associated with many refinery process units. However, a Fluid Catalytic Cracking Unit (FCCU) is the only unit capable of emitting high concentrations of metals as part of spent catalyst. A speciated metals analyzer is commonly utilized for real-time monitoring of multiple metals in air samples, including cadmium, manganese, and nickel.

XRF technology can be used to detect particulate metals. As shown in the figure below, in the XRF chamber, the X-ray tube emits high energy X-rays that bombard the filter tape deposit. The metal atoms in the tape deposit are excited by the incoming radiation and emit X-rays with energies characteristic of the elements present in the sample. These sample X-rays are detected and the resulting pulses are processed by a digital pulse processing unit. The digital pulse processor relays the counts/channel/second to a software package located on the computer. Each spectrum, plotted as intensity versus energy, is interpreted by the software's least-squares fitting package to determine the metals contributing to the spectral peak intensities of the sample deposit. This spectral deconvolution process uses multiple reference spectra stored in an electronic reference spectra library to fit the unknown spectrum.



**Figure 2-12: XRF Technology**

A facility expressed concern regarding potential radiation exposure to workers from XRF technology proposed for metal detection. XRF detectors for fenceline monitoring would be placed in a shelter on the refinery property for the safety of the community and workers. Safety procedures are set by federal and state regulations, manufacturer recommendations, and workplace policies to protect workers. XRF detectors are used in a wide variety of industries to measure the elemental

composition of materials including for metals and are safely utilized in many South Coast AQMD community air monitoring stations.

### **Sulfuric Acid and Diethanolamine Monitoring**

Sulfuric acid is a colorless, oily liquid that exists in air in water vapor and particulates. It is corrosive to metals and organic materials and emits toxic sulfur trioxide-containing fumes or vapors when heated. In refineries, sulfuric acid is used as a catalyst during alkylation and in various treatment processes. This chemical has also been detected in large amounts in refinery air emissions and reported in multiple fire and non-fire incidents. However, sulfuric acid has a very high boiling point, around 356 degrees Celsius (°C); therefore, it is not very volatile. If sulfuric acid is released into the atmosphere, it would quickly fall to the ground as a liquid. Due to the nature of the compound, it would not remain in the vapor state long enough to be transported to the fenceline. For this reason, refineries will not be required to measure sulfuric acid at the fenceline.<sup>10</sup>

Diethanolamine is a hydrocarbon found in air in water vapor and particulate phases. In refineries, diethanolamine has been detected at multiple refinery process units. Diethanolamine can be measured in air by drawing the air sample through sampling tubes for analysis with ion chromatography. However, diethanolamine has the tendencies to absorb water and to supercool, which is a process of lowering the temperature of a liquid below its freezing point without it becoming a solid. As a result, diethanolamine has a short-lived gaseous phase. Due to the nature of the compound, it would not remain in the vapor state long enough to be transported to the fenceline. Furthermore, currently there is no real-time air monitoring technology for diethanolamine. For those reasons, refineries will not be required to measure diethanolamine at the fenceline.<sup>11</sup>

### **Establishing Informational-Based Notification Thresholds**

The notification thresholds for air pollutants to be addressed by FAMPs are in Table 1 of PAR 1180 and PR 1180.1. For most of the air pollutants, Health Standard-Based notification thresholds are established based on acute RELs by OEHHA, NAAQS, or CAAQS. However, Health Standard-Based notification thresholds have not been established for six air pollutants as they do not have an acute REL, NAAQS, or CAAQS. These six are total VOCs, ethylbenzene, black carbon, naphthalene, PAHs, and cadmium. Staff is proposing to establish a statistical-based notification threshold for pollutants without a Health Standard-Based notification threshold using historical data if data is available. The purpose of establishing informational-based notification thresholds is to notify communities when higher than typical pollutant concentrations are present and consequently, alert facilities to conduct an investigation and ensure normal operation.

Monitoring for total VOCs, ethylbenzene, and black carbon has been required by Rule 1180 since the second quarter of 2020. Staff analyzed the historical data included in the refineries' quarterly reports to establish Informational-Based notification thresholds.

#### *Ethylbenzene*

Facilities reported the quarterly concentration mean and maximum concentration for ethylbenzene for each path in parts per billion (ppb) in their respective quarterly reports. The quarterly

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<sup>10</sup> PubChem, "Sulfuric Acid," <https://pubchem.ncbi.nlm.nih.gov/compound/1118>.

<sup>11</sup> PubChem, "Diethanolamine," <https://pubchem.ncbi.nlm.nih.gov/compound/diethanolamine#section=Vapor-Pressure>.

concentration means and maxima from the first quarter of 2022 through the first quarter of 2023 had an average of 0 parts per billion (ppb), which is below the method detection limit (MDL). MDLs in the quarterly reports range of 0.3 ppb to 17 ppb. Since concentrations are mostly found to be below MDL for ethylbenzene, staff proposes not to establish an informational-based notification threshold for ethylbenzene. It is likely that ethylbenzene would be co-emitted with other pollutants. Benzene, toluene, ethylbenzene, and xylene (BTEX) pollutants are usually emitted together since these compounds all occur naturally in crude oil. Benzene, toluene, and xylene have health-based notification thresholds and would serve as indicators of potential ethylbenzene emission. For these reasons, staff is not proposing to include an informational-based notification threshold for ethylbenzene.

### *Black Carbon*

The quarterly average of black carbon hourly concentrations and quarterly maximum of black carbon hourly concentrations provided in the Quarterly Reports from the first quarter of 2022 to the first quarter of 2023 were used to establish its informational-based threshold. Staff based the determination on data collected by three of the refineries, whose quarterly reports offered the most detailed data summary.

The intention of this informational-based threshold is to indicate when facilities have a pollutant concentration that is above that of typical operation. Two thresholds were proposed, each of which were derived from either the quarterly averages or the quarterly maximums. The highest recorded average for one quarter based on one-hour concentrations is 1.8 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Using this number, the standard deviation was calculated. Approximately  $5 \mu\text{g}/\text{m}^3$  is within two standard deviations, where 95 percent of the quarterly average data will lie. Staff considered that concentrations above a 90<sup>th</sup> percentile of quarterly maximum of one-hour average concentrations would indicate that a facility is potentially not operating within typical parameters. Therefore, the 90<sup>th</sup> percentile of the quarterly maximums of one-hour average concentrations were calculated to be approximately  $30 \mu\text{g}/\text{m}^3$ . Thresholds ranging from  $5 \mu\text{g}/\text{m}^3$  to  $30 \mu\text{g}/\text{m}^3$  were used to evaluate the number of notifications per quarter. The number of resulting notifications for set thresholds from  $5 \mu\text{g}/\text{m}^3$  to  $30 \mu\text{g}/\text{m}^3$  were analyzed as summarized in Tables 2-5 and 2-6. For the entries labeled >20, the number of notifications would exceed 20. Staff proposes a  $30 \mu\text{g}/\text{m}^3$  informational-based notification threshold for black carbon, which would prompt for an investigation of the facility's operation. With this notification threshold, facilities would be triggered to assess their operation when emissions are significantly above normal but would not generate a significant number of notifications that could overwhelm the community and require substantial resources for the facilities.

**Table 2-5: Number of Potential Black Carbon Notifications for Selected Facilities.**

Facility	Hourly Concentration ( $\mu\text{g}/\text{m}^3$ )	2022				2023
		Q1	Q2	Q3	Q4	Q1
<b>Phillips 66 Carson</b>	<b>5</b>	N/A	2	2	>20	2
	<b>8</b>		1	0	6	1
	<b>10</b>		1	0	1	0
	<b>15</b>		0	0	0	0
	<b>30</b>		0	0	0	0
<b>Phillips 66 Wilmington</b>	<b>5</b>	N/A	2	2	1	2
	<b>8</b>		0	0	0	1
	<b>10</b>		0	0	0	1
	<b>15</b>		0	0	0	0
	<b>30</b>		0	0	0	0
<b>Valero</b>	<b>5</b>	>20	9	20	>20	>20
	<b>8</b>	>20	4	9	4	4
	<b>10</b>	9	3	5	3	5
	<b>15</b>	6	1	3	0	0
	<b>30</b>	3	0	2	0	0

*Total Volatile Organic Compounds (VOCs)*

The quarterly maximum of total VOC hourly concentrations provided in the Quarterly Reports for the first quarter of 2022 through the first quarter of 2023 quarterly reports were used to establish the notification threshold. Staff based the determination on data collected by three of the refineries, whose quarterly reports offered the most detailed data summary. The 90<sup>th</sup> percentile of the maximum quarterly VOC concentrations was calculated, resulting in a 730 ppb notification threshold. Staff believes that concentrations above the 90<sup>th</sup> percentile would indicate above normal concentrations to trigger facilities to assess their operation.

**Table 2-6: Number of Potential Total VOC Notifications for Selective Facilities**

Facility	Hourly Concentration (ppb)	2022				2023
		Q1	Q2	Q3	Q4	Q1
<b>Phillips 66 Carson</b>	<b>300</b>	16	>20	>20	0	2
	<b>400</b>	6	>20	>20	0	1
	<b>730</b>	0	>20	>20	0	0
	<b>1,300</b>	0	12	13	0	0
	<b>9,000</b>	0	2	3	0	0
<b>Phillips 66 Wilmington</b>	<b>300</b>	2	0	0	0	1
	<b>400</b>	2	0	0	0	0
	<b>730</b>	0	0	0	0	0
	<b>1,300</b>	0	0	0	0	0
	<b>9,000</b>	0	0	0	0	0
<b>Valero</b>	<b>300</b>	0	0	0	0	0
	<b>400</b>	0	0	0	0	0
	<b>730</b>	1	0	0	0	0
	<b>1,300</b>	0	0	0	0	0
	<b>9,000</b>	0	0	0	0	0

*Manganese and Particulate Matter (PM)*

There are no one-hour RELs, CAAQS, or NAAQS standards available for manganese and particulate matter (PM); however, current standards include an 8-hour REL for manganese, and a 24-hour NAAQS and CAAQS for PM. Staff proposes to establish a notification threshold for Manganese and PM based on the 8-hour and 24-hour standards respectively and allowing facilities to use the averages with a rolling period consistent with the corresponding standard for notifications. For these rolling averages, the notification will be required within 15 minutes of the monitors detecting the pollutant above the threshold.

National Ambient Air Quality Standards for PM has been most recently revised in 2012 and retained in the most recent review in 2020. Table 2-7 shows federal and state 24-hour standard for PM2.5 and PM10. Staff proposes to set 24-hour rolling average thresholds for PM2.5 and PM10

as 35  $\mu\text{g}/\text{m}^3$  and 50  $\mu\text{g}/\text{m}^3$  respectively and require a notification to the public when measured PM2.5 and PM10 concentration level of 24-hour rolling average exceeds the threshold.

**Table 2-7: PM 2.5 and PM 10 24-Hour Standards**

	PM2.5	PM10
National Ambient Air Quality Standard (24-hour) ( $\mu\text{g}/\text{m}^3$ )	35	150
California Ambient Air Quality Standard (24-hour) ( $\mu\text{g}/\text{m}^3$ )	N/A	50

Manganese has an 8-hour OEHHA REL at 0.17  $\mu\text{g}/\text{m}^3$ . Last 8-hour OEHHA REL revision was in 2008. Staff proposes to set an 8-hour rolling average threshold for manganese as 0.17  $\mu\text{g}/\text{m}^3$  and require a notification sent to the public when measured manganese concentration level of 8-hour rolling average exceeds the threshold.

Table 2-8 shows the proposed notification thresholds required of each air pollutant:

**Table 2-8. Air Pollutants and Notification Thresholds**

Air Pollutants	Health Standard-Based Notification Threshold	Informational-Based Notification Threshold
<b>Criteria Air Pollutants</b>		
Sulfur Dioxide	75 ppb	N/A
Nitrogen Oxides	100 ppb	N/A
<b>Particulate Matter</b>		
PM10	35 $\mu\text{g}/\text{m}^3$	N/A
PM2.5	50 $\mu\text{g}/\text{m}^3$	N/A
<b>Volatile Organic Compounds</b>		
Total VOCs (Non-Methane Hydrocarbons)	N/A	730 ppb
Formaldehyde	44 ppb	N/A
Acetaldehyde	260 ppb	N/A
Acrolein	1.1 ppb	N/A
1,3 Butadiene	297 ppb	N/A
Naphthalene	N/A	N/A
Polycyclic aromatic hydrocarbons (PAHs)	N/A	N/A
Styrene	5,000 ppb	N/A
Benzene	8 ppb	N/A
Toluene	1,300 ppb	N/A
Ethylbenzene	N/A	N/A
Xylenes	5,000 ppb	N/A
<b>Metals</b>		
Cadmium	N/A	N/A
Manganese	0.17 $\mu\text{g}/\text{m}^3$ (8-hour avg.)	N/A
Nickel	0.2 $\mu\text{g}/\text{m}^3$	N/A
<b>Other Compounds</b>		
Hydrogen Sulfide	30 ppb	N/A
Carbonyl Sulfide	270 ppb	N/A
Ammonia	4,507 ppb	N/A
Black Carbon	N/A	30 $\mu\text{g}/\text{m}^3$
Hydrogen Cyanide	309 ppb	N/A
Hydrogen Fluoride <sup>+</sup>	289 ppb	N/A

+ If the facility uses hydrogen fluoride.

### Exclusion criteria

A facility is required to demonstrate one or more of the following criteria to exclude a compound from the required monitoring:

- The pollutant is not emitted and never has been emitted through the facility's activities and processes,
- Real-time air monitors capable of reliably measuring the pollutant are not available;
- Other technical justifications.

The facility must submit a revised FAMP and QAPP to obtain approval for excluding a compound.

*Exclusion criteria - technical feasibility*

Air pollutants may be considered for exclusion if there is no feasible real-time monitoring technology capable of real-time or near-real time measurements. Staff will discuss the feasibility of real-time detection technologies for air pollutants in the relevant section of the staff report. Staff will monitor the progress of real-time and near-real-time air monitoring technologies and conduct a technology assessment every five years for any air pollutant listed in Table 1 in PAR 1180 and PR 1180.1 that had been deemed infeasible to detect in any previously approved, or partially approved, fenceline air monitoring plan and report the results of the assessment to the Stationary Source Committee.

*Exclusion criteria – air pollutant not part of the process*

Compounds that are not used and have never been used at a facility can be excluded based on facility's activities and processes. For example, an asphalt plant that does not use, and has never used, Hydrofluoric Acid could request to exclude it from their FAMP. For a facility with related operations to the petroleum refinery, new monitoring may not be required for compound(s) not generated at that site.

In the case of Rule 1180 where related facilities will require fenceline monitoring, those related facilities will be considered as part of the petroleum refinery. In that case, the refineries would amend their existing FAMP and QAPP instead of submitting new plans for each new related facility and South Coast would evaluate the refinery holistically when considering what would qualify as adequate coverage. For example, a tank terminal could request to exclude NO<sub>x</sub> monitoring if it only stores VOC containing materials, has no combustion sources or nitric acid process, and their refinery already has adequate coverage with the existing NO<sub>x</sub> monitors. Each facility will have to justify excluding compounds when they submit their FAMP which are subject to Executive Officer approval.

*Exclusion criteria for metals*

Currently, Rule 1180 does not require monitoring for the following metal pollutants that were newly included in the 2019 OEHHA report: cadmium, manganese, and nickel. Staff assessed the reported metal emissions at PAR 1180 and PR 1180.1 facilities to determine if there is a potential for metal emissions and therefore a need to install fenceline metal monitoring technology. Table 2-9 shows the 3-year (2019-2021) average of annual emissions for each metal reported by facilities subject to PAR 1180 and PR 1180.1. PAR 1180 facilities emitted significantly higher concentrations of cadmium, manganese, and nickel. Higher throughput and use of refinery gas for combustion contributed to higher metal emissions based on facilities Annual Emission Report (AER).

**Table 2-9: AER Three-Year Average Emissions for PAR 1180 and PR 1180.1 Facilities**

	PAR 1180 Facilities (lbs/year)	PR 1180.1 Facilities (lbs/year)
Cadmium	1 – 44	0.01 – 0.04
Manganese	24 – 719	0.00 – 6.39
Nickel	4 – 205	0.02 – 0.41

FCCU is the unit with the largest potential for metal emissions as part of spent catalyst. The Electrostatic Precipitator (ESP) is a control equipment to remove PM from the FCCU flue gas. A FCCU/ESP breakdown could result in high PM and metal emissions. In November 2022, there was an incident at PBF Martinez refinery in Bay Area where initial assessments estimated 20 tons of spent FCCU catalyst released into the neighborhood due to ESP failure. In February 2015, an explosion occurred in the ExxonMobil Torrance refinery's (Now operates as Torrance Refining Company) ESP, which scattered catalyst dust up to a mile away into the nearby community. Table 2-10 shows that FCCUs and ESPs are operated by most of PAR 1180 facilities but not by any PR 1180.1 facility.

**Table 2-10: FCCU and ESP in PAR 1180 and PR 1180.1 Facilities**

PAR 1180	FCCU	ESP
Tesoro Carson	Yes	Yes
Tesoro Wilmington	No	No
P66 – Carson	No	No
P66 – Wilmington	Yes	Yes
Chevron	Yes	Yes
Torrance	Yes	Yes
Valero	Yes	Yes
PR 1180.1		
AltAir Paramount	No	No
LTR dba World Oil Refining	No	No
Valero Asphalt Plant	No	No

Table 1 in PR 1180.1 will include cadmium, manganese, and nickel; however, based on the current operations at the PR 1180.1 facilities, staff anticipates the facilities will propose to exclude those metal pollutants because they do not operate a FCCU and ESP. All PR1180.1 facilities meet the criteria by their current operations; thus, they would not be required to monitor cadmium, manganese, and nickel. For facilities that operate a FCCU and ESP, staff is considering requiring at least one fenceline metal monitor for each FCCU and ESP. The location and number of the metal monitoring technology installations will be determined upon approval of the FAMP.

## POTENTIAL FENCELINE MONITORING CONFIGURATIONS AT NEW FACILITIES

### *World Oil Refining*

On April 12, 2023, staff conducted a site visit of the LTR dba World Oil Refining facility (Facility ID: 800080). LTR dba World Oil Refining is a small refinery on a 3.4-acre site for refinery operations with a refining capacity of 8,500 bpd of crude oil.<sup>12</sup> Staff identified the potential to have an open path coverage for some of the facility's perimeter and will work with the facility to identify the most complete fenceline coverage as appropriate. Point sensor monitoring for certain pollutant, such as hydrogen sulfide, will be considered similar to the Rule 1180 facilities FAMPs.



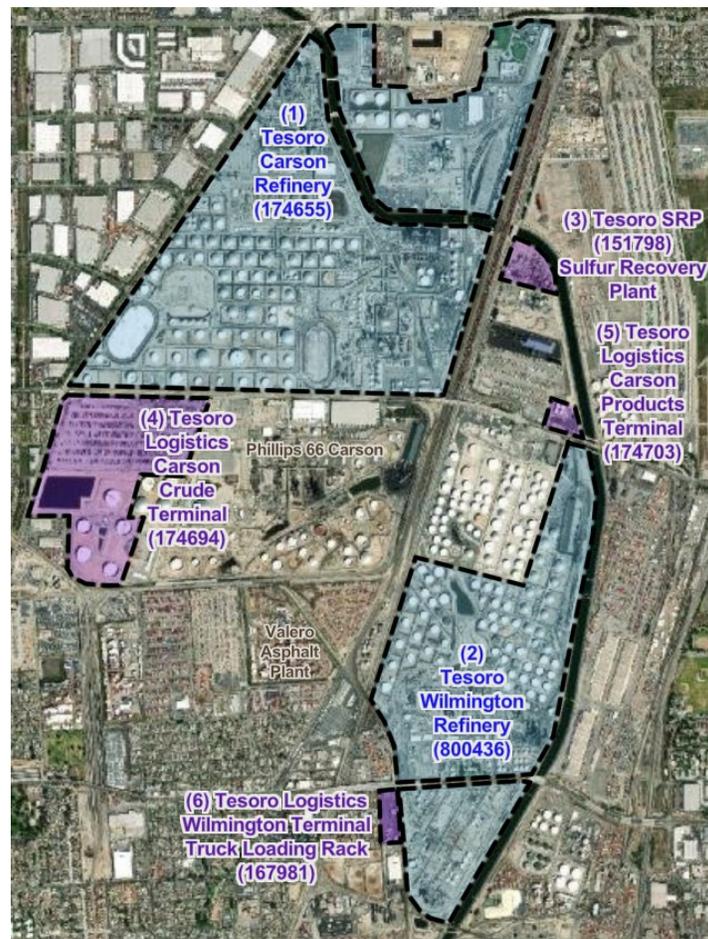
**Figure 2-13: LTR dba World Oil Refining Facility**

### *Tesoro Refining and Marketing Company LLC*

On April 20, 2023, staff conducted a site visit of four contiguous facilities, Tesoro Carson and Tesoro Wilmington. They are Tesoro Sulfur Recovery Plant (SRP) (Facility ID: 151798), Tesoro Logistics Carson Crude Terminal (Facility ID: 174694), Tesoro Logistics Carson Product Terminal (Facility ID: 174703), Tesoro Logistics Wilmington Terminal Truck Loading Rack (Facility ID: 167981) as shown in Figure 2-14.

Existing Rule 1180 fenceline monitoring at the perimeter of Tesoro Carson, Tesoro Wilmington, and Philips 66 Carson could address the coverage for the shared fenceline with those contiguous facilities. For Tesoro Logistics Wilmington Terminal, the east side downwind fenceline is fully covered by an open path monitor operated by Tesoro Wilmington. The east side of the Tesoro Wilmington. That facility may be able to demonstrate there is adequate coverage based on existing monitors and prevailing wind patterns. For other contiguous facilities, preliminary analysis identified potential feasibility for open path coverage. For example, there is potential to have an open path monitor that covers the west and south perimeter of Tesoro Logistics Carson Crude Terminal, and an open path coverage for north and east perimeter of Tesoro SRP. Point monitors for hydrogen sulfide would also be needed for north and east perimeter Tesoro SRP due to the high emissions. During the FAMP preparation and evaluation, optimal sites and adequate fenceline coverage shall be approved according to the Guidelines.

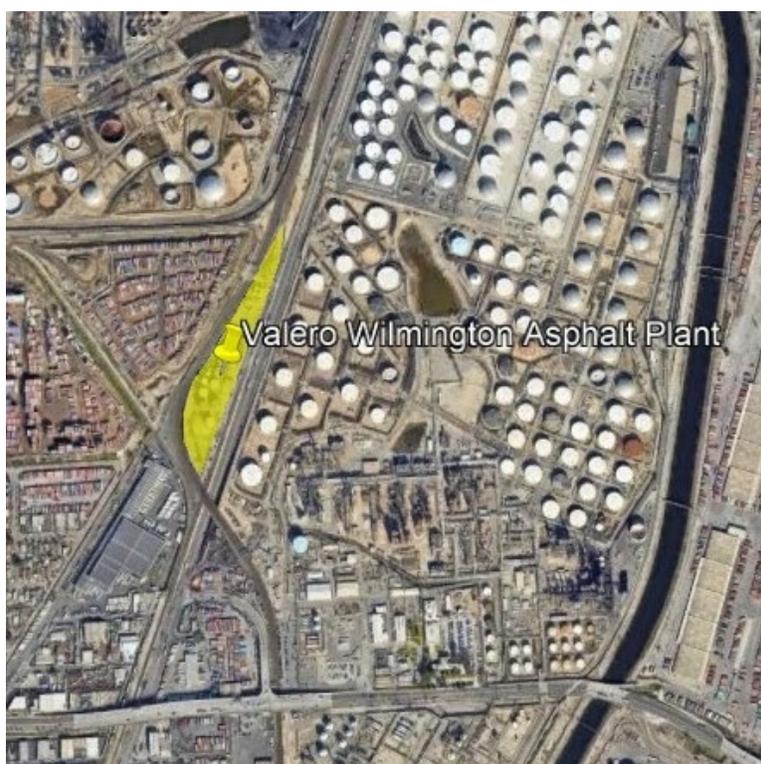
<sup>12</sup> California Energy Commission, "California Oil Refinery History," last modified May 22, 2023, <https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/californias-oil-refineries/california-oil-refineries>.



**Figure 2-14: Related Facilities at Tesoro Refining and Marketing Company LLC**

#### *Valero Asphalt Plant*

On May 12, 2023, staff conducted a site visit of the Valero Asphalt Plant (Facility ID: 800393), which will be subject to PR 1180.1. The eastern perimeter of facility parallels Tesoro Wilmington refinery's fenceline with an open path monitoring coverage, only separated by a roadway, as shown in Figure 2-15. The facility may be able to demonstrate there is adequate coverage on the east side of the property based on existing monitors and prevailing wind patterns. For the west and south side perimeter, preliminary analysis identified feasible options for open path and point monitors.



**Figure 2-15: Valero Asphalt Plant (Yellow Shading)**

#### *Other Potential New Facilities*

A site visit to AltAir Paramount is scheduled for August 24, 2023. Staff is reaching out to more potential new facilities with operations related to refineries for site visits and meetings. Staff will provide further analysis for their potential fenceline monitoring configuration in the Draft Staff Report and in future Working Group or Public Consultation Meetings.

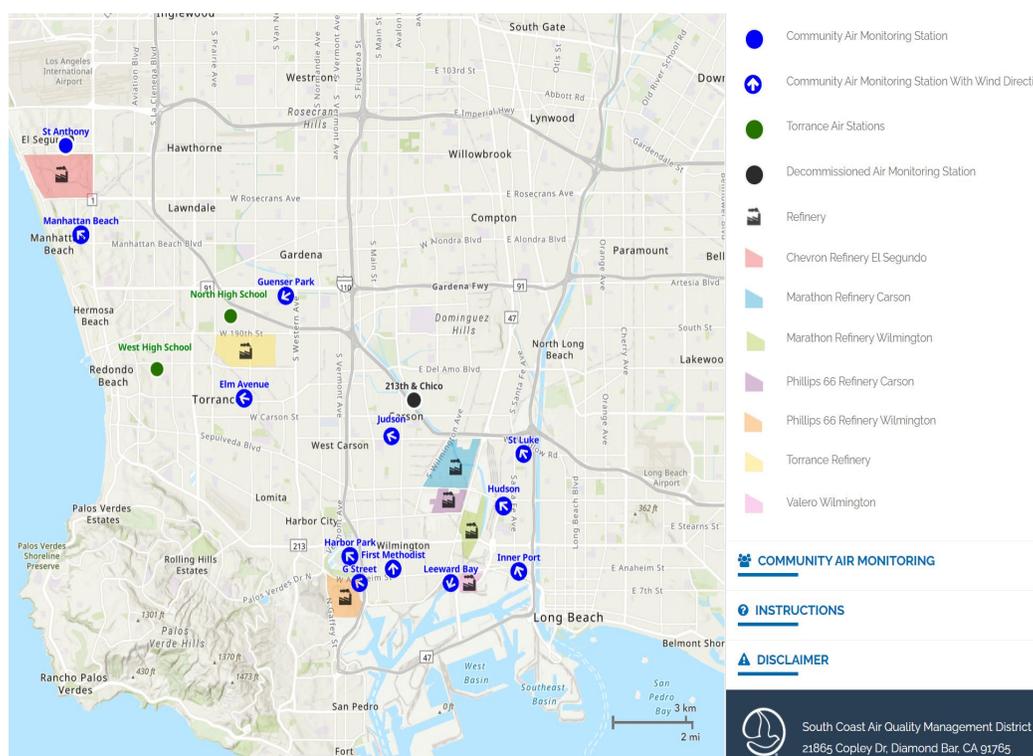
## **COMMUNITY AIR MONITORING**

### **Existing refinery community air monitoring**

Pursuant to Health and Safety Code Section 42705.6, Rule 1180 requires the applicable facilities to install and operate a real-time fenceline air monitoring system in accordance with the approved fenceline air monitoring plan, and pay fees to install, operate, and maintain the refinery-related community air monitoring system. The South Coast AQMD conducts air monitoring in communities adjacent to the refineries according to the Community Air Monitoring Plan (CAMP) <sup>13</sup> as part of Rule 1180 implementation as shown in Figure 2-16.

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<sup>13</sup> South Coast AQMD, "Rule 1180 Community Air Plan," last modified April 2020, [http://www.aqmd.gov/docs/default-source/fenceline\\_monitoring/r1180\\_draft\\_community\\_monitoring\\_plan\\_rev\\_2\\_04022020\\_final\\_use\\_updated1.pdf?sfvrsn=8](http://www.aqmd.gov/docs/default-source/fenceline_monitoring/r1180_draft_community_monitoring_plan_rev_2_04022020_final_use_updated1.pdf?sfvrsn=8).



**Figure 2-16: Existing Rule 1180 Community Air Monitoring Stations**

Air monitoring equipment are placed in climate-controlled enclosures and meet short- and long-term monitoring requirements. Long-term monitoring is essential to assess trends and potential air quality impacts from refinery emissions, and the equipment selected for this purpose should be able to detect typical urban variations of the target pollutants. Short-term monitoring is necessary to evaluate the immediate impact of fugitive emissions (e.g., leaks) and other releases in the surrounding communities and will require monitoring equipment with high time-resolution and reporting data in real-time or near real-time. Air monitoring site selection is another important part of community air monitors. Stations were selected to be representative of typical air quality conditions in communities around the refineries and to characterize air quality and potential impacts that may result from refinery-related operations. Other community air monitoring site selection considerations include proximity to sensitive receptors and environmental justice communities, proximity to refinery and non-refinery sources, long term site availability, meteorology, infrastructure access and safety, and site suitability for air quality monitoring.

Ten fully equipped and two partially equipped community air monitoring stations have been established as shown in figure above. Rule 1180 community air monitoring network is providing continuous measurements of all required pollutants in near real-time via dedicated data portal (<https://xappprod.aqmd.gov/Rule1180CommunityAirMonitoring/>). Public notifications are provided when pollutant concentrations exceed pre-determined health-based notification threshold, section A3 of Rule 1180 CAMP provides a detailed description of threshold selection process and rationale. (Note: notifications are currently not issued for black carbon, VOCs, and ethylbenzene due to a lack of existing short-term health-based standards).

Rule 1180 requires applicable facilities to pay for the community air monitoring fees including installation fee (Table 2 of Rule 1180) and annual operating and maintenance fees (Rule 301 - Permitting and Associated Fees). Table 2-11 lists the specified number of community monitoring stations each facility needs to cover with the fees, which was determined during the 2017 rule

adoption based on the facility's throughput capacity. At this time, staff is evaluating which facilities would be subject to the rule requirements if they are facilities with related operations to petroleum refineries. As such, these facilities would be subject to fenceline and community monitoring, however, in some cases, existing fenceline and community monitoring systems could already be providing adequate coverage of the applicable compounds. Staff will consider the complete list of those facilities and their locations to assess if additional monitoring would be necessary, if addition sites could be secured, and how to distribute the costs among the new facilities.

**Table 2-11: Number of Community Air Monitoring Stations Each Existing Facility Funds**

Existing Facility	Number of stations
Tesoro Carson	3
Tesoro Wilmington	
Torrance Refining Company	2
Chevron – El Segundo	2
Phillips 66 Carson	2
Phillips 66 Wilmington	
Valero Wilmington	1

### New proposed facilities community air monitoring

As presented in Table 2-12, staff is proposing to have at least one community monitoring station for each new potential facility subject to PR 1108.1. The number of community monitoring stations could be increased in future if a facility exceeds the notification threshold continuously. Further analysis will determine if facilities with operations related to petroleum refineries would be subject to new community monitoring requirements or fees.

**Table 2-12: Proposed Community Monitoring Stations for Each New Facility to Fund**

New Potential Facility	Number of stations
LTR dba World Oil Refining	1
AltAir Paramount	1
Valero Wilmington Asphalt Plant	1
Facilities With Operations Related to Petroleum Refineries	TBD

Community monitoring fees estimated at the time of the 2017 rule adoption has been updated for initial installation costs for newly required monitors and annual operation and maintenance, with updated cost for labor, testing, part, etc.

### Community Monitoring QA/QC

The community air monitoring is subject to QA/QC requirements and independent audits will be conducted at those sites. The air monitoring systems QAPP for refinery community air monitoring network has been developed with the following major elements.

- Quality Assurance Procedures for data generated by community air monitoring systems
  - Data quality objectives

- Routine maintenance, calibration, and verification for air monitoring equipment
- Data review, validation and verification
- Project management and responsibilities
- Documentation and recordkeeping
- Data transmittal, including data security
- Training

Similar to Fenceline monitoring systems, the first independent audit for community monitoring systems will commence no later than July 1, 2024.

## CHAPTER 3 : PROPOSED AMENDED RULE 1180

INTRODUCTION

PROPOSED AMENDED RULE

## INTRODUCTION

PAR 1180 applies to petroleum refineries and facilities with operations related to refinery processes located on properties contiguous or adjacent to a petroleum refinery. The amended rule requires petroleum refineries to install and operate continuous, fenceline air monitoring systems to monitor a comprehensive list of criteria pollutants and toxic air contaminants in real-time. The amended rule does not apply to refineries that refine crude oil, alternative feedstocks, or both crude oil and alternative feedstocks, as these refineries are subject to PR 1180.1. PAR 1180 also establishes a fee schedule, to be paid by the petroleum refineries, for the cost of designing, developing, installing, operating and maintaining refinery-related community air monitoring systems. The amended rule PAR 1180 implements Health and Safety Code §42705.6.

## PROPOSED AMENDED RULE 1180

The purpose of PAR 1180 is to require real-time fenceline air monitoring systems and to establish a fee schedule to fund refinery-related community air monitoring systems that collect and provide air quality information to South Coast AQMD and 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. PAR 1180 does not directly reduce emissions from the facilities but will provide information that could be useful to address emissions reductions in the future, as well as to comply with and enforce certain existing rules, for example, leak detection requirements. As previously discussed, PAR 1180 will establish fenceline air monitoring requirements for petroleum refineries and facilities with operations related to petroleum refineries located on contiguous or adjacent properties. The amended rule will require the submittal and approval of a fenceline air monitoring plan that provides detailed information about the fenceline air monitoring systems such as siting, wind data collection, maintenance procedures, temporary measures for equipment failures, quality assurance and auditing, and data reporting methods. Additionally, the proposed rule will set-forth requirements for the plan review process, notifications and recordkeeping. The amended rule does not apply to refineries that refine crude oil, alternative feedstocks, or both crude oil and alternative feedstocks, as these refineries are subject to PR 1180.1.

### PAR 1180 (a) – Purpose

The purpose of PAR 1180 is to require real-time fenceline air monitoring systems and to establish a fee schedule to fund refinery-related community air monitoring systems that provide air quality information to the South Coast AQMD and the public about levels of various criteria air pollutants, volatile organic compounds, metals, and other compounds, which result from petroleum refinery emissions at or near the property boundaries of petroleum refineries and in nearby communities.

### PAR 1180 (b) – Applicability

PAR 1180 applies to petroleum refineries, and facilities with operations related to petroleum refineries located on contiguous or adjacent properties. Contiguous or adjacent properties include, but are not limited to, hydrogen production plants, terminals, and sulfur recovery plants. Moreover, PAR 1180 does not apply to Refineries subject to PR 1180.1.

Seven petroleum refineries, and several facilities with operations related to petroleum refineries located on contiguous or adjacent properties of petroleum refineries with related operations have been identified to be applicable to this rule. .

### PAR 1180 (c) – Definitions

Below lists the definitions that have been added in PAR 1180:

- Corrective Action Plan
- Data Quality Flags
- Facilities with Operations Related to Petroleum Refineries
- Facility
- Fenceline Air Monitoring Plan (FAMP)
- Hydrogen Production Plant
- Independent Audit
- Notification Threshold
- Root Cause Analysis
- Sulfur Recovery Plant
- Terminal

Some definitions were added for terms related to Facilities with Operations Related to Petroleum Refineries on contiguous or adjacent properties. The definition for Facility was added to address either a Petroleum Refinery or a Facility with Operations Related to Petroleum Refineries. Corrective Action Plan, Independent Audit, and Root Cause Analysis are defined due to new requirements in the rule. Other new definitions clarify the terms that have been used in the rule and/or the Guidelines.

The Guidelines are revised to be the reference for both PAR 1180 and PR 1180.1 facilities.

### Requirements

Subdivision (d) through (k) establish requirements for FAMP submittal, the fenceline air monitoring system, the plan review process, web-based fenceline data display and notification program, notifications for equipment failure, independent audits, recordkeeping and reporting, community air monitoring fees, and exemptions. PAR 1180 Table 1 identifies the air pollutants to be addressed by the FAMP.

### PAR 1180 (d) – Plan Requirements

For new Petroleum Refineries, the owner or operator of the Facility must submit a written FAMP outlining the operation of a Real-Time Fenceline Air Monitoring System no later than [Date of Rule Adoption] or at least one year prior to operation commencement.

For Facilities with an existing FAMP, the owner or operator of the Facility must submit a revised FAMP within six months of [Date of Rule Adoption]. Facilities with an existing FAMP may need to revise their FAMP to address the additional applicability of Facilities with Operations related to Petroleum Refineries located on contiguous or adjacent properties for PAR 1180.

For facilities with operations related to petroleum refineries without an existing FAMP, the owner or operator of the Facility must submit a FAMP no later than one year after [Date of Rule Adoption].

The FAMP should also address the following air pollutants added to PAR 1180 Table 1:

- Particulate Matter
- Naphthalene

- Polycyclic aromatic hydrocarbons (PAHs)
- Cadmium
- Manganese
- Nickel

Facilities with operations related to petroleum refineries without an existing FAMP shall submit to the Executive Officer a written FAMP for establishing and operating a real-time fence-line air monitoring system within one year.

In addition, collected near real-time and historical data that includes all historical measurements from each monitor for all air pollutants measured as one-hour averages, including time, date, and windspeed data, must be made available to the public in a timely and accessible manner that is easy to find on the website, and can be understood by the general public according to subparagraph (d)(4)(H). And according to subparagraph (d)(4)(I), the facility owner or operator must make the collected near-real-time and historical data available to the executive officer in an approved format.

Some other revisions are for clarification and streamlining purposes. For example, some specifications from the Guidelines are moved to paragraph (d)(4) to clarify what to include in the FAMP. The rationale for health standard-based notification thresholds is also explained.

#### **PAR 1180 (e) – Fence-line Air Monitoring Compliance Schedule**

Subdivision (e) lists the timeline in which a facility should complete installation and begin operation of the fence-line air monitoring system. The facility should complete installation and begin operation according to the timeline listed below:

1. One year after a FAMP has been approved or partially approved pursuant to paragraph (d)(1), (d)(2), or (d)(3),
2. Six months after the Executive Officer approves or partially approves a revised FAMP pursuant to paragraph (d)(5); or
3. Prior to commencing operations at a new petroleum refinery..

#### **PAR 1180 (f) – Plan Review Process**

Subdivision (f) outlines the FAMP review process. The Executive Officer is responsible to notify facility owners or operators in writing regarding the approval status of their submitted FAMP or revised FAMP. The determination of approval status is based on the submission of information that satisfies the criteria outlined in paragraphs (d)(4) for what the plan should include, and the Guidelines, at a minimum.

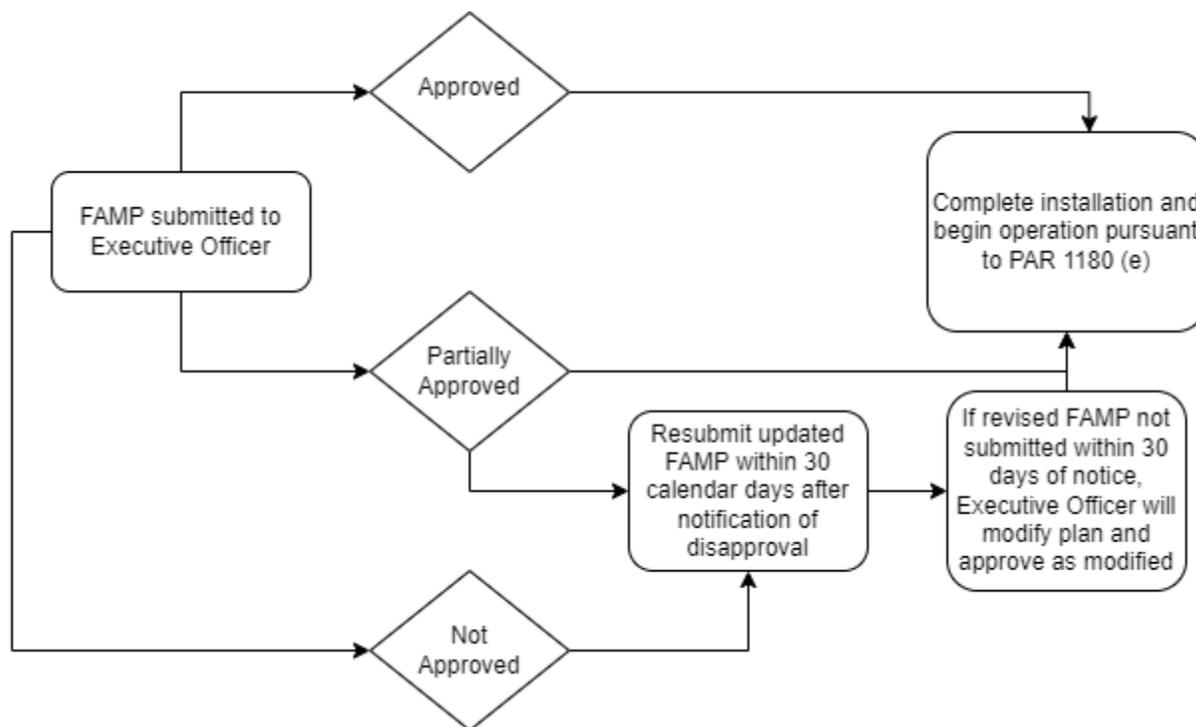
If the FAMP or revised FAMP is disapproved, the facility owner or operator must submit an updated FAMP within 30 calendar days of receiving the disapproval notification. The updated plan should include all necessary information to address the deficiencies identified in the disapproval letter.

The Executive Officer will either approve the revised FAMP or modify it and approve it. In the case of dissatisfaction in the modified FAMP, the facility owner or operator has the option to appeal to the Hearing Board.

Any FAMP or revised FAMP submitted under subdivision (d) must be made available for public review by the Executive Officer 14 days prior to approval.

The review, approval, and modifications of FAMPs and revised FAMPs are subject to plan fees as specified in Rule 306 – Plan Fees.

Staff proposes a new requirement under paragraph (f)(3) that if the facility does not submit the revised FAMP within 30 calendar days after notification of disapproval of the plan, the Executive Officer will modify the plan and approve it as modified. This proposal is to ensure no further delays by revising the plan. A summary of the plan review process is shown in below.



**Figure 3-1: Plan Review Process Flowchart**

**PAR 1180 (g) – Web-based Fenceline Data Display and Notification Program**

Subdivision (g) is a new subdivision for existing requirements specified in the Guidelines that lists the features that the web-based fenceline data display and notification program should have publicly available. Table 3-1 lists the data display feature and requirement to comply for the web-based fenceline data display.

**Table 3-1: Web-based Fenceline Data Display Features and Requirements**

Data Display Feature	Requirement to Comply
Description of all pollutants measured and measurement technique	
Real-Time and historic concentrations, which includes at least five years of data of all air pollutants measured on the Fenceline Air Monitoring System including Data Quality Flags	As required pursuant to paragraph (j)(1),

Data Display Feature	Requirement to Comply
Real-Time and historic wind speed and wind direction data	
Definition of Data Quality Flags	Examples of Data Quality Flags may include: Valid, Invalid, Suspect/Questionable
The most recently approved, or partially approved, FAMP and QAPP	A link to the document shall be accessible vis the web-based system
Report(s) generated from Independent Audit conducted	Pursuant to subdivision (i)
Root Cause Analysis	As required pursuant to paragraph (j)(2);
Quarterly report	As required pursuant to paragraph (j)(3)
Corrective Action Plans	Pursuant to paragraph (i)(4)
A mechanism for the public to provide comments and feedback and procedures to respond	Comments and/or feedback can be provided via a contact form, email, or phone number listed on the website

The web-based fenceline notification system operated by the owner or operator of a Facility shall, at a minimum:

- Describe all instances when air pollutant was measured above a notification threshold, measurement techniques, notification thresholds, and source of the notification threshold;
- Include all the data collected by the fenceline air monitoring system pursuant to the requirements in the Guidelines;
- Automatically generate and issue a notification as soon as technologically feasible, but no longer than 15 minutes after any air pollutant listed in Table 1 is detected at a level that exceeds the applicable notification thresholds in the approved, or partially, approved FAMP;
- Include a mechanism for public to opt-in to receive fenceline notifications; and
- Send the fenceline notifications, by email and/or text message, to members of the public who opted-in to receive notifications.

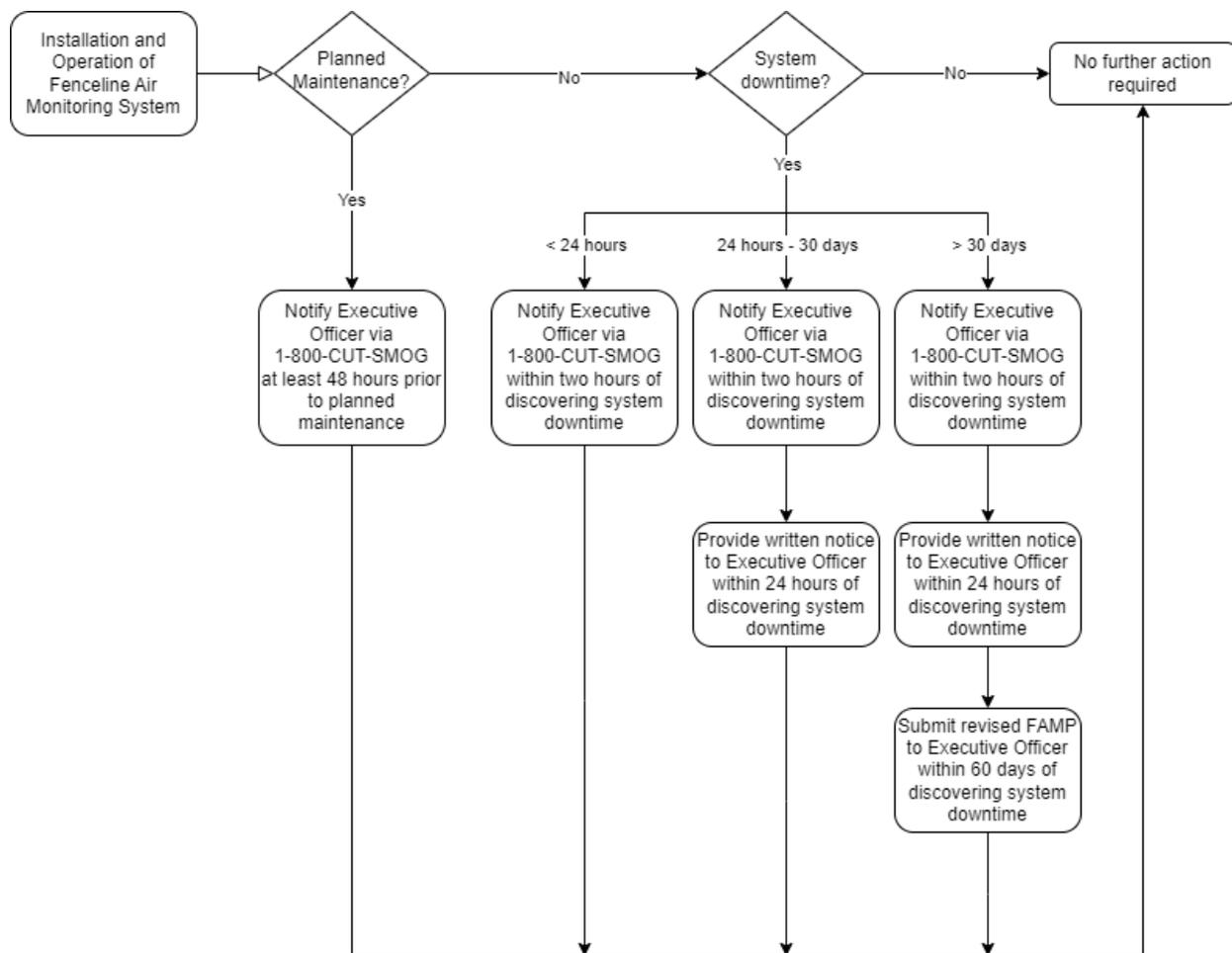
### **PAR 1180 (h) – Notifications to the Executive Officer for Fenceline Air Monitoring System Downtime**

Subdivision (h) provides information on how to notify the Executive Officer for fenceline air monitoring system downtimes. This subdivision has no new requirements proposed, except that the definition for fenceline air monitoring system is revised to include data systems that store historical data, public websites where data is displayed, and public fenceline notification systems. Therefore, data system downtime will also be subject to this notification requirement.

Briefly, the owner or operator should call 1-800-CUT-SMOG to notify the Executive Officer:

1. At least 48 hours prior to a planned maintenance activity or
2. Within two hours of discovering that fenceline air monitoring system described in the FAMP fails to provide Real-Time monitoring information

Written notification to the Executive Officer is required for fenceline air monitoring system downtime to provide continuous, real-time monitoring information of 24 hours or longer. The information needed in the written notification are listed in subparagraphs (h)(2)(A), (h)(2)(B), and (h)(2)(C) of PAR 1180. A revised FAMP must be submitted to the Executive Officer if the fenceline air monitoring system described in the FAMP fails to provide continuous, real-time monitoring information for more than 30 days. An updated FAMP should be submitted no longer than 60 days from the initial fenceline air monitoring system. A summary of the notifications required for fenceline air monitoring system failure is detailed in .



**Figure 3-2: Overview of Process for Notifications for Fenceline Air Monitoring System Downtime**

### PAR 1180 (i) – Independent Audits

Facility owners or operators must conduct independent audits of their fenceline air monitoring systems to identify deficiencies and ensure quality assurance. These audits need to follow an

approved protocol and be conducted by qualified independent parties. The independent audit shall result in an audit report signed by the qualified independent party, submitted to the South Coast AQMD, the owner or operator of a facility, and made available to the web-based fenceline data display and notification system within 90 days after the audit has been performed.

For petroleum refineries, the schedule for independent audits depends on the installation date of the fenceline monitoring system. For systems installed before [Date of Rule Adoption], the initial audit must be initiated no later than by July 1, 2024, and subsequent audits are required every three years. For systems installed on or after [Date of Rule Adoption], the initial audit must be completed within one year, followed by audits every three years.

If the independent audit report identifies deficiencies, the facility owner or operator must develop a Corrective Action Plan. The plan should address all deficiencies, with the exception of safety concerns that may be proposed for exemption from corrective action. The plan must be submitted to the Executive Officer for review within one month of receiving the audit report.

The corrective action plan must be made available to the public within two months of finalizing the audit report.

Based on the results of a Request for Proposals (RFP), South Coast AQMD selected a qualified contractor to develop an auditing protocol and implement the first independent audit of all existing Rule 1180 fenceline air monitoring systems. The petroleum refineries included in this audit could use it to satisfy the initial audit requirement.

#### **PAR 1180 (j) – Recordkeeping and Reporting**

Subdivision (j) requires five years of recordkeeping for all information required in this rule. Staff proposes a reporting requirement for root cause analyses and quarterly reports under this subdivision.

A root cause analysis must be initiated within 24 hours when a pollutant is measured above its notification threshold and initiate corrective actions as soon as practicable once the root cause has been determined. Root cause analysis report must be submitted to the South Coast AQMD and posted on the refinery's data display website within 14 days. Subparagraph (j)(2)(C) specifies what should be include in the report. If a corrective action is required, a reinspection of the source shall be conducted within 14 days if the corrective action.

Quarterly report is an existing requirement specified by the Guidelines. The applicable facilities are posting the quarterly reports on their data display websites. For streamlining, staff proposes to move the specifications to the rule and require a report due date which is 60 calendar days after the conclusion of each quarter.

#### **PAR 1180 (k) – Community Air Monitoring Fees**

Subdivision (k) lists the fees associated with the installation of a refinery-related community air monitoring system in addition to permit and other fees authorized to be collected. Petroleum refineries have paid the phase one and phase two fees by existing requirements, which is deleted from the rule as the required submittal date is in the past. PAR 1180 includes the new required fees that addresses the cost of installing newly required monitors. Those fees must be paid no later than July 1, 2024. Annual operating and maintenance fees for the community air monitoring system are to be paid pursuant to Rule 301 – Permitting and Associated fees when applicable. Table below specifies the fees associated with each facility.

**Table 3-2: PAR 1180 Related Community Air Monitoring System Fees**

Facility ID	Facility Name* and Location	Fees Due no later than July 1, 2024
174655	Tesoro Carson**	\$231,736
800436	Tesoro Wilmington**	\$115,868
800030	Chevron (El Segundo)	\$231,736
171109	Phillips 66 Company (Carson)	\$115,868
171107	Phillips 66 Company (Wilmington)	\$115,868
181667	Torrance Refining Company (Torrance)	\$231,736
800026	Valero (Ultramar Inc)	\$115,868
<b>Further analysis will determine if facilities with operations related to petroleum refineries would be subject to a community air monitoring fee</b>		

\* Based on the current facility names. Any subsequent owner(s) or operator(s) of the above listed facilities shall be subject to this rule unless exempted pursuant to its terms.

\*\* Includes Tesoro Carson (Facility ID: 174655), Tesoro Wilmington (Facility ID: 800436), Tesoro SRP (Facility ID: 151798), Tesoro Logistics Carson Crude Terminal (Facility ID: 174694), Tesoro Logistics Carson Product Terminal (Facility ID: 174703), Tesoro Logistics Wilmington Terminal Truck Loading Rack (Facility ID: 167981)

### **PAR 1180 (l) – Exemptions**

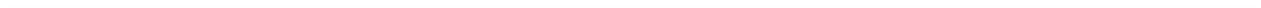
An owner or operator of a petroleum refinery subject to Rule 1180.1 is exempt from the requirements of the rule. In addition, an owner or operator of a facility is exempt from the requirement of operating an existing real-time fence-line air monitoring system for 96 hours if this system is on the same fence-line path for a new installation during the compliance schedule. That exemption was made to accommodate existing facilities that may have to take monitoring equipment offline to install new equipment for facilities with related operations to the petroleum refinery.

Several exemptions are provided to facilities with operations related to petroleum refineries. If a facility locates entirely within the boundary of a petroleum refinery with an existing real-time fence-line air monitoring system, its entire fence-line has been covered and thus exempt from the requirements of this rule. An owner or operator of a facility with operations related to petroleum refineries is exempt from monitoring black carbon, and an owner or operator of a terminal is exempt from monitoring cadmium, manganese, and nickel.

## CHAPTER 4 : PROPOSED RULE 1180.1

INTRODUCTION

PROPOSED RULE 1180.1



## INTRODUCTION

PR 1180.1 holds several parallels to PAR 1180 since PR 1180.1 was developed to address refineries exempt by the original Rule 1180 adopted December 1, 2017. The original Rule 1180 exempted refineries that had a maximum capacity of processing less than 40,000 barrels per day of crude oil. PR 1180.1 will also be applicable to refineries processing alternative feedstocks, regardless the throughput capacity. The differences between the two rules are summarized in Table 4-1.

**Table 4-1: Summary of Differences Between PAR 1180 and PR 1180.1**

Subdivision	Title	Difference from PAR 1180
<b>a</b>	Purpose	None
<b>b</b>	Applicability	Applies to refineries that refine crude oil, Alternative Feedstocks, or both; with a focus on facilities not covered by PAR 1180
<b>c</b>	Definitions	Includes Alternative Feedstock, Refine, and Refinery
<b>d</b>	Plan Requirements	None
<b>e</b>	Fenceline Air Monitoring Compliance Schedule	Installation schedule
<b>f</b>	Plan Review Process	None
<b>g</b>	Web-based Fenceline Data Display and Notification Program	None
<b>h</b>	Notifications to the Executive Officer for Fenceline Air Monitoring System Downtime	None
<b>i</b>	Independent Audit	None
<b>j</b>	Recordkeeping and Reporting	None
<b>k</b>	Community Air Monitoring Fees	Fee schedule
<b>l</b>	Exemptions	PAR 1180 Refineries are exempt
<b>Table 1</b>	Air Pollutants and Notification Thresholds to be Addressed by FAMPs	Metals and Black Carbon not required for 1180.1 facilities
<b>Table 2</b>	Refinery-Related Community Air Monitoring System Fees	Specifies the fees for each PR 1180.1 facility

**PROPOSED RULE 1180.1**

The differences between PAR 1180 and PR 1180.1 are discussed below. Several key concepts are derived from PAR 1180 and modified for PR 1180.1 refineries.

**PR 1180.1 (a) – Purpose**

The purpose of PR 1180.1 is the same as PAR 1180.

**PR 1180.1 (b) – Applicability**

One key difference between PAR 1180 and PR 1180.1 is applicability. PR 1180.1 applies to Refineries that refine crude oil, alternative feedstocks, or both crude oil and alternative feedstocks. PR 1180.1 does not apply to Facilities subject to PAR 1180. In short, the intention of PR 1180.1 is to apply to the facilities exempted by PAR 1180. Table 2-2 in Chapter 2 lists the refineries that will be subject to PR 1180.1.

**PR 1180.1 (c) – Definitions**

PR 1180.1 definitions include asphalt plant, alternative feedstock, refine, and refinery, which help differentiate between the applicability of PR 1180.1 and PAR 1180.

**Requirements**

Similar to PAR 1180, PR 1180.1 subdivisions (d) through (k) establish requirements for fenceline air monitoring plan submittal, the fenceline air monitoring system, the air monitoring plan review process, web-based fenceline data display and notification program, notifications to the Executive Officer for Fenceline Air Monitoring System downtime, independent audits, recordkeeping and reporting, community air monitoring fees, and exemptions. As summarized in Table 4-1, PR 1180.1 is identical with PAR 1180 for majority of the requirements. The sections below discuss the key differences between PR 1180.1 and PAR 1180, which are the provisions on schedules for plan submittal, installation, and fees.

**PR 1180.1 (d) – Plan Requirements**

Both PAR 1180 and PR 1180.1 have the same plan requirements. However, because the PR 1180.1 facilities are on different implementation status without an existing FAMP, they have one year from [Date of Rule Adoption], to submit a FAMP. In the future for the revision of an existing by adding more air pollutant for monitoring, the Refineries would have six months to submit the revised plan, as required for PAR 1180 facilities with an existing FAMP.

**PR 1180.1 (e) – Fenceline Air Monitoring Compliance Schedule**

PR 1180.1 refineries would have up to two years after their new FAMP is approved or partially approved to complete installation and begin operation of a real-time fenceline air monitoring system. For including any new air pollutant, PR 1180.1 refineries with an existing FAMP would have up to one year after their revised FAMP is approved or partially approved to complete installation. This provision is in the event that monitoring technology becomes available to measure PAHs in real-time. In that case, the refineries are expected to update their FAMPs and commence real-time monitoring within one-year.

PR 1180.1 Refineries are provided more time for the installation than PR 1180 facilities as the PR 1180 installation schedule was very challenging.

### PR 1180.1 (k) – Community Air Monitoring Fees

Subdivision (k) details the different implementation phases and when Refineries should submit payment to the South Coast AQMD. Phase One implementation requires a minimum payment to be made to the South Coast AQMD no later than July 1, 2024. Phase Two implementation requires the remaining balance to be paid to South Coast AQMD no later than January 30, 2025. The combined cost of Phase One and Phase Two for each facility is the estimated cost for one community monitoring station. PR 1180 Table 2 lists the Phase One and Phase Two fees for each refinery.

**Table 4-2: PR 1180.1 Community Air Monitoring Fees**

Facility ID	Facility Name and Location	Phase One Implementation (No later than July 1, 2024)	Phase Two Implementation (No later than January 30, 2025)
187165	AltAir Paramount (Paramount)	\$316,343	\$738,132
800080	LTR dba World Oil Refining (South Gate)	\$316,343	\$738,132
800393	Valero Wilmington Asphalt Plant (Wilmington)	\$316,343	\$738,132

### PR 1180.1 (l) – Exemptions

Refineries subject to PAR 1180 are exempt from PR 1180.1.

## CHAPTER 5 : IMPACT ASSESSMENT

AFFECTED SOURCES

EMISSIONS IMPACT

SOCIOECONOMIC ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE

COMPARATIVE ANALYSIS

## AFFECTED SOURCES

### PAR 1180

PAR 1180 applies to petroleum refineries and facilities with operations related to petroleum refineries located on contiguous or adjacent properties. Based on South Coast AQMD permits, there are seven petroleum refineries and several facilities with operations related to petroleum refineries that would be affected by PAR 1180 as listed in the table below.

**Table 5-1: PAR 1180 Affected Sources**

Facility ID	Facility Name	Location	Type of Facility
<b>Major Petroleum Refineries</b>			
174655	Tesoro Carson (Tesoro Refining & Marketing Co, LLC)	Carson	Petroleum Refinery
800436	Tesoro Wilmington (Tesoro Refining & Marketing Co, LLC)	Wilmington	Petroleum Refinery
171109	Phillips 66 Carson (Phillips 66 Company/Los Angeles Refinery)	Carson	Petroleum Refinery
171107	Phillips 66 Wilmington (Phillips 66 Company/LA Refinery Wilmington Pl)	Wilmington	Petroleum Refinery
800030	Chevron, (Chevron Products Co.)	El Segundo	Petroleum Refinery
181667	Torrance (Torrance Refining Company LLC)	Torrance	Petroleum Refinery
800026	Valero (Ultramar Inc)	Wilmington	Petroleum Refinery
<b>Facilities with Related Operations to Petroleum Refineries – Under Common ownership</b>			
151798	Tesoro SRP (Tesoro Refining & Marketing Co, LLC)	Carson	Related Operations
167981	Tesoro Logistics, Wilmington Terminal Truck Loading Rack	Wilmington	Related Operations
174694	Tesoro Logistics, Carson Crude Terminal	Carson	Related Operations
174703	Tesoro Logistics, Carson Product Terminal	Carson	Related Operations
<b>Facilities with Related Operations to Petroleum Refineries – Not Under Common ownership</b>			
3417	Air Products Carson (Air Products and Chemicals)	Carson	Related Operations
68344	Chemoil Refinery Corp.	Carson	Related Operations
800057	Kinder Morgan Liquids Terminal LLC	Carson	Related Operations
101656	Air Products Wilmington (Air Products and Chemicals)	Wilmington	Related Operations

Facility ID	Facility Name	Location	Type of Facility
182735	Torrance Logistics Company LLC	Torrance	Related Operations
Additional Facilities with Related Operations may be added upon further evaluation			

PR 1180.1 applies to refineries that refines crude oil, alternative feedstocks, or both crude oil and alternative feedstocks. Based on South Coast AQMD permits, there are three (petroleum refineries that would be affected by PR 1180.1:

**Table 5-2: PR 1180.1 Affected Sources**

Facility ID	Facility Name	Location	Type
800393	Valero Wilmington Asphalt Plant	Wilmington	Asphalt Plant
800080	LTR dba World Oil Refining	South Gate	Asphalt Plant
187165	AltAir Paramount LLC	Paramount	Alternative Feedstock

## EMISSIONS IMPACT

PAR 1180 and PR 1180.1 do not directly reduce emissions from the applicable facilities. Indirect emissions benefits may be realized due to the potential for early detection of leaks and quick action to control such fugitive emissions.

## SOCIOECONOMIC ASSESSMENT

A socioeconomic impact assessment will be conducted and released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1180 and PR 1180.1, which is anticipated to be heard on November 3, 2023.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, is reviewing the proposed project (PAR 1180 and PR 1180.1) to determine if it will result in any potential adverse environmental impacts. Appropriate CEQA documentation will be prepared based on the analysis.

## DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE

### Requirements to Make Findings

Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

### **Necessity**

There is a need to adopt PAR 1180 and PR 1180.1 to address issues identified in the SJVAPCD and South Coast AQMD lawsuits, by removing the 40,000-bpd exemption, and including facilities with operations related to petroleum refineries located on contiguous or adjacent properties and refineries that refine alternative feedstocks. PAR 1180 and PR 1180.1 are also needed to provide more specifications on compliance schedule, web-based fence-line data display and notification program, independent audits, and quarterly reports. Further, PAR 1180 and PR 1180.1 are needed to set notification thresholds for several new compounds and compounds with historical fence-line monitoring data and require root cause analysis of threshold exceedances and corrective action and community air monitoring fees for new facilities.

### **Authority**

The South Coast AQMD Governing Board has authority to adopt PAR 1180 and PR 1180.1 pursuant to Health and Safety Code Sections 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41700 and 42705.6.

### **Clarity**

PAR 1180 and PR 1180.1 are written or displayed so that its meaning can be easily understood by the persons directly affected by it.

### **Consistency**

PAR1180 and PR 1180.1 are in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

### **Non-Duplication**

PAR1180 and PR 1180.1 do not impose the same requirements as any existing state or federal regulation and is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

### **Reference**

By adopting PAR 1180 and PR 1180.1, the South Coast AQMD Governing Board will be implementing, interpreting, or making specific the provisions of the Health and Safety Code Sections 39002, 40001, 40702, 42705.6 (refinery air monitoring) 40725, and 40728.5, and Federal Clean Air Act Section 116 (Retention of State authority).

## **INCREMENTAL COST-EFFECTIVENESS**

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option that would achieve the emission reduction objective of the proposed amendments, relative to ozone, carbon monoxide, sulfur oxides, NOx, and their precursors. PAR 1180 and PR 1180.1 do not include new BARCT requirements; therefore, this provision does not apply to the proposed project.

## **COMPARATIVE ANALYSIS**

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable. A comparative analysis will be prepared and released at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1180 and PR 1180.1, which is anticipated to be heard on November 3, 2023 [subject to change].

## REFERENCES

Bay Area Air Quality Management District, 2016. *Regulation 12, Rule 15: Refining Emissions Tracking*. [<http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/reg-12/rg1215-pdf.pdf?la=en>]

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U.S. EPA, 2015. *AP-42: Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Chapter 5: Petroleum Industry*. [<https://www3.epa.gov/ttn/chief/ap42/ch05/index.html>]

U.S. EPA, 2015. *40 CFR Part 63, Section 63.658, Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards, Final Rule*. [[https://www.gpo.gov/mwginternal/de5fs23hu73ds/progress?id=fWtuxRlXTAaYakX8c5F8\\_Pl\\_yYekAYelh2YhFnpX17Y,&dl](https://www.gpo.gov/mwginternal/de5fs23hu73ds/progress?id=fWtuxRlXTAaYakX8c5F8_Pl_yYekAYelh2YhFnpX17Y,&dl)]