



Proposed Amended Rule 1180

Refinery Fenceline and Community Air Monitoring

Working Group Meeting #1
January 25, 2023, 1:00 PM

Join zoom meeting:

<https://scaqmd.zoom.us/j/93729802015>

Meeting ID: 937 2980 2015

Agenda

Overview of Rule Development Process

Background

California Air Monitoring Rules

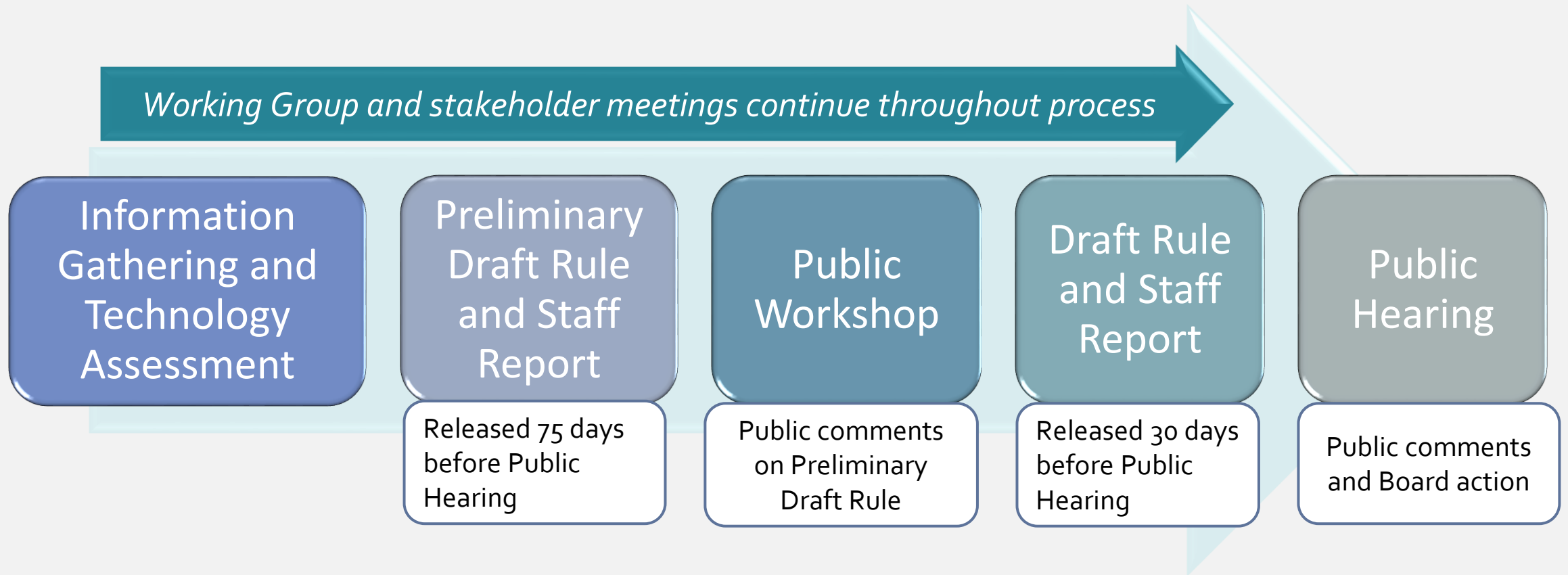
Proposed Amended Rule 1180

Additional Considerations

Next Steps



Overview of Rule Development Process



Working Group Meetings



Stakeholder Input

- Stakeholders can provide input during working group meetings and rulemaking process
- Early input is strongly encouraged to help develop proposed rule amendments and to address issues
- Working Group Meetings, Individual Meetings, and Site Visits allow staff to dialogue directly with stakeholders and discuss individual issues



Background on Monitoring Mandates



- Petroleum refineries are some of the most significant stationary sources of criteria and air toxic pollutants in the South Coast Air Basin (Basin)
- Community concerns from routine facility operations and potential releases due to upset conditions or emergency situations increased in the recent years
- Assembly Bill 1647 was signed by Governor of California on October 8, 2017
 - An act to add Section 42705.6 (the Monitoring Mandate) to the California Health and Safety Code

Health and Safety Code section 42705.6

- Community air monitoring system
 - On or before January 1, 2020, a refinery-related community air monitoring system shall be installed near each refinery that meets all the following requirements:
 - 1) A district shall design, develop, install, operate, and maintain the refinery-related community air monitoring system, which shall be operated and maintained in accordance with guidance from the appropriate district
 - 2) The refinery-related community air monitoring system shall include equipment capable of measuring compounds emitted to the atmosphere from refinery processes, as determined by the appropriate district
 - The owner or operator of a petroleum refinery shall be responsible for the costs associated with implementing this section
- Fenceline monitoring system
 - On or before January 1, 2020, the owner or operator of a petroleum refinery shall develop, install, operate, and maintain a fence-line monitoring system in accordance with guidance developed by the appropriate district

Background on South Coast AQMD Rule 1180

- Rule 1180 was adopted on December 1, 2017
 - Applicable to petroleum refineries that process more than 40,000 barrels per day (bpd) of crude oil
 - All the major Petroleum Refineries in South Coast AQMD are subject to Rule 1180
 - Requires facilities to submit a plan and conduct real-time fenceline monitoring for specific compounds
 - Requires a fee to cover the cost for the South Coast AQMD to install, operate and maintain community air monitoring systems
- A Refinery Fenceline Air Monitoring Plan Guideline* was developed during the 2017 rulemaking process
- A Community Air Monitoring Plan (CAMP)* was prepared as part of Rule 1180 implementation

* <https://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1180-refinery-fenceline-monitoring-plans>



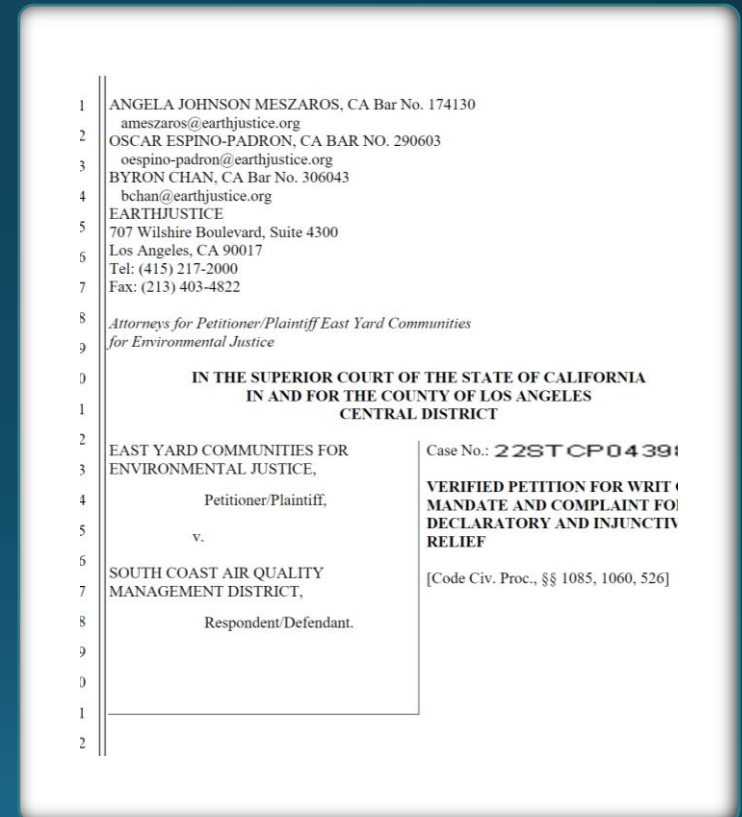
California Air Monitoring Rules and Litigation

- South Coast AQMD and SJV APCD Lawsuits
- Bay Area AQMD Fenceline Monitoring Rule



South Coast AQMD Rule 1180 Lawsuit

- On December 19, 2022, East Yard Communities for Environmental Justice filed a lawsuit against South Coast AQMD claiming for at least three refineries with capacities below 40,000 bpd, the Air District failed to:
 - Install a community air monitoring system near each refinery
 - Prepare refinery fence line and community air monitoring guidance documents
 - Require fence line monitoring for each refinery due to the 40,000-bpd exemption
 - Collect fees for community air monitoring systems from each refinery





San Joaquin Valley Air Pollution Control District (SJV APCD) Refinery Air Monitoring Rules

- In December 2019, SJV APCD adopted Rule 4460 – Petroleum Refinery Fence-line Air Monitoring and Rule 3200 – Petroleum Refinery Community Air Monitoring Fees
- In 2020, Earthjustice and the Center on Race, Poverty, and the Environment filed a lawsuit in Fresno County Superior Court against SJV APCD’s regulations that exempted:
 - Petroleum refineries not currently refining crude oil
 - Facilities with a refining capacity of 40,000 bpd or less from certain monitoring
- Court ordered SJV APCD to remove compliance exemptions for non-crude oil refining facilities and to remove the 40,000-bpd exemption
- In October 2022, SJV APCD amended the Rules 4460 and 3200 which:
 - Require monitoring the list of compounds recommended by OEHHA for monitoring, unless a refinery can provide sufficient justification for not monitoring a specified pollutant
 - Remove the exemption for refineries not currently engaged in refining crude oil





Bay Area Air Quality Management District (BAAQMD) Fenceline Monitoring Rule

- In April 2016, BAAQMD adopted Regulation 12 Rule 15 – Petroleum Refining Emissions Tracking
- In 2020 and 2021, two of the five petroleum refineries in the Bay Area submitted permit applications to modify the facility operation to process alternative feedstocks with the intention of producing “renewable” product
- On November 3, 2021, BAAQMD amended Regulation 12 Rule 15, including:
 - Changing the definition of “Petroleum Refinery” to “Refinery”; and
 - Adding alternative feedstock in the definition of “Refinery” for the same emission standards

“~~Petroleum~~ 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...”



Proposed Amended Rule 1180 Applicability



Industry: SIC 2911—Petroleum Refining

- Rule 1180 applies to petroleum refineries defined in SIC 2911
- SIC 2911* Petroleum Refining Facilities are:
 - 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
- Establishments primarily engaged in producing natural gasoline from natural gas are classified in mining industries
- Those manufacturing lubricating oils and greases by *blending and compounding* purchased materials are included in Industry 2992
- Establishments primarily re-refining used lubricating oils are classified in Industry 2992

[*SIC Industry: 2911 Petroleum Refining | NAICS Association](#)



Industry: 2911—Petroleum Refining (cont.)

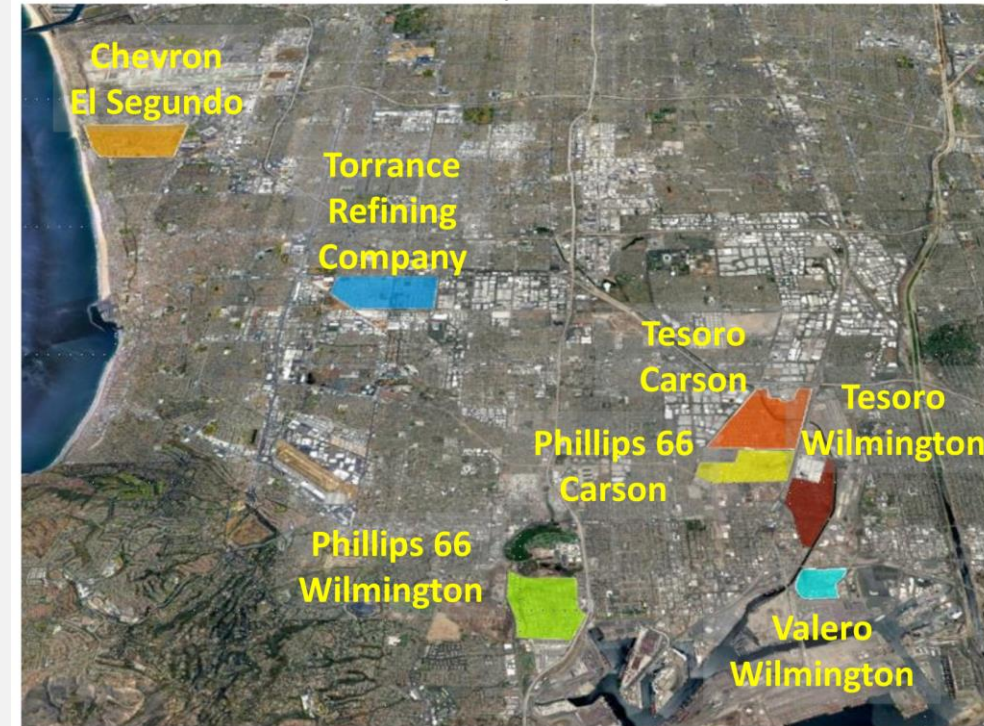
Acid oil, produced in petroleum refineries	Kerosene
Alkylates, produced in petroleum refineries	Mineral jelly, produced in petroleum refineries
Aromatic chemicals, made in petroleum refineries	Mineral oils, natural: produced in petroleum refineries
Asphalt and asphaltic materials: liquid and solid produced in	Mineral waxes, natural: produced in petroleum refineries
Benzene, produced in petroleum refineries	Naphtha, produced in petroleum refineries
Butadiene, produced in petroleum refineries	Naphthenic acids, produced in petroleum refineries
Butylene, produced in petroleum refineries	Oils fuel, lubricating, and illuminating produced in petroleum
Coke, petroleum produced in petroleum refineries	Oils, partly refined sold for rerunning produced in petroleum
Ethylene, produced in petroleum refineries	Paraffin wax, produced in petroleum refineries
Fractionation products of crude petroleum, produced in petroleum	Petrolatums, produced in petroleum refineries
Gas, refinery or still oil produced in petroleum refineries	Petroleum refining
Gases, liquefied petroleum produced in petroleum refineries	Propylene, produced in petroleum refineries
Gasoline blending plants	Road materials, bituminous: produced in petroleum refineries
Gasoline, except natural gasoline	Road oils, produced in petroleum refineries
Greases, lubricating: produced in petroleum refineries	Solvents, produced in petroleum refineries
Hydrocarbon fluid, produced in petroleum refineries	Tar or residuum, produced in petroleum refineries



Proposed Amended Rule 1180 Applicability

- Proposed Amended Rule 1180 (PAR 1180) applicability:
 - Remove 40k exemption so all petroleum refineries identified under SIC 2911 will be subject to the rule including:
 - Asphalt refineries
 - Refineries that produce lubricating oils
 - Non-petroleum refineries
 - Amend “Petroleum Refinery” definition to “Refinery” to include facilities that process alternative feedstocks
 - Other considerations
 - Expand applicability to include operations related to refineries that are contiguous to the property of the refinery, e.g., tank farms and sulfur recovery plants
- At least seven additional facilities may be included

Seven facilities currently subject to Rule 1180



PAR 1180 Facility Universe

Existing 1180 Facilities	Potential New 1180 Facilities
Chevron El Segundo Refinery	AltAir Paramount
Phillips 66 Carson	Carson Crude Terminal
Phillips 66 Wilmington	Carson Product Terminal
Tesoro Carson Refinery	Lunday-Thagard (World Oil Refining)
Tesoro Wilmington Refinery	Tesoro Sulfur Recovery Plant (SRP)
Torrance Refinery	Valero Wilmington Asphalt Plant
Valero Refinery	World Oil (DeMenno-Kerdoon)



Community and Fenceline Monitoring



Refinery Community and Fenceline Air Monitoring

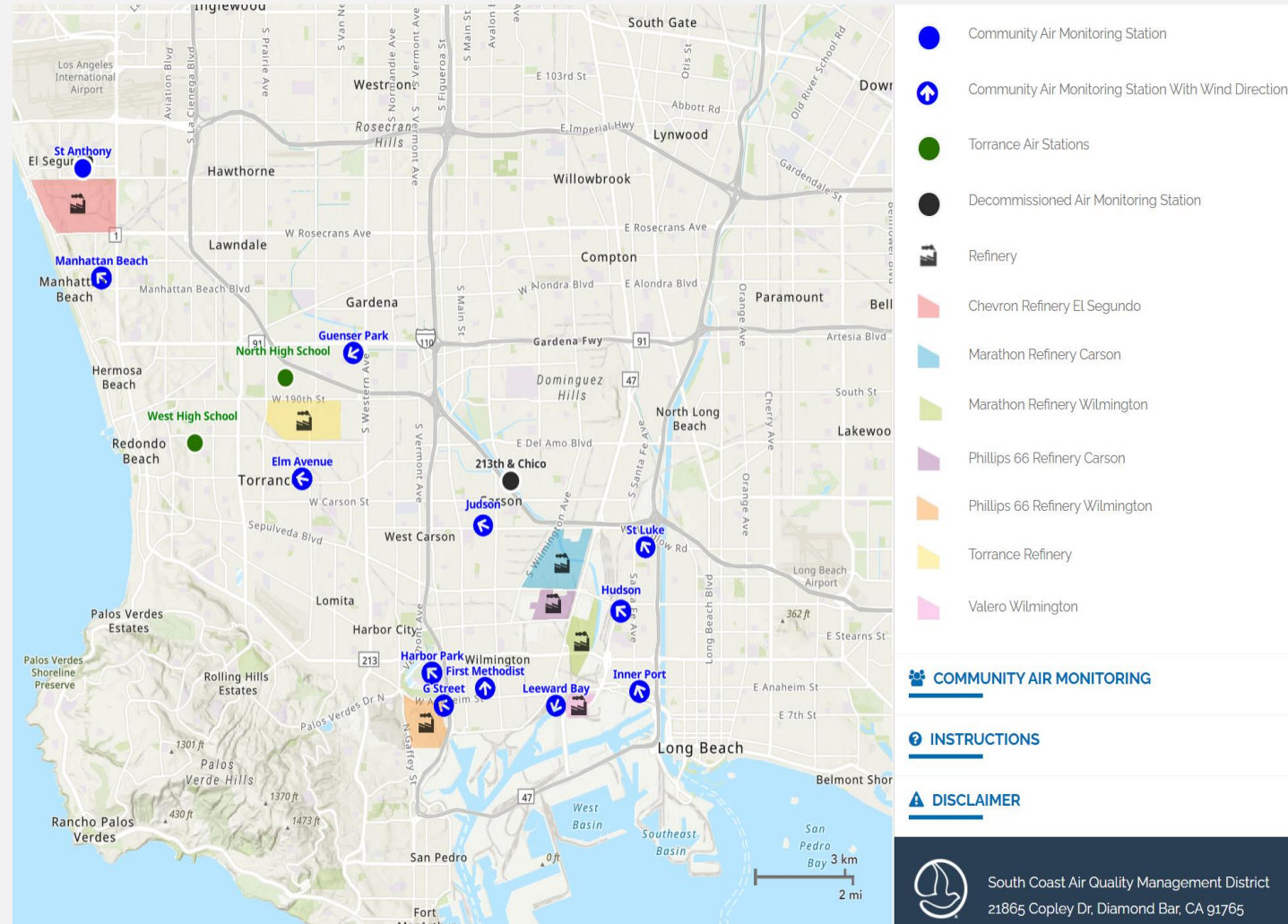
- Pursuant to CA Health and Safety Code §42705.6, Rule 1180 requires the applicable facilities to:
 - Install and operate a real-time fenceline air monitoring system in accordance with the approved fenceline air monitoring plan
 - Pay to install, operate, and maintain fees for the refinery-related community air monitoring system
 - The South Coast AQMD conducts air monitoring in communities adjacent to the refineries according to the Community Air Monitoring Plan (CAMP) as part of Rule 1180 implementation



Current Refinery Community Air Monitoring

- Ten fully equipped fixed-site community air monitoring stations have been established
- Public notification* is provided for each target compound exceeding a notification threshold based on the lowest of the following standards:
 - 1-hour National Ambient Air Quality Standards (NAAQS)
 - California Ambient Air Quality Standards (CAAQS)
 - Acute 1-hour Office of Environmental Health Hazard Assessment (OEHHA) Reference Exposure Level (REL)

* No notifications are currently issued for Black Carbon (BC), VOCs, and ethylbenzene due to a lack of existing short-term health-based standards



[Rule 1180 Community Air Monitoring Home Page \(aqmd.gov\)](http://aqmd.gov)

Community Air Monitoring Fees

- Current applicable facilities are subject to the following community air monitoring fees:
 - Installation fee _ Table 2 of Rule 1180
 - Annual operating and maintenance fees _ Rule 301- Permitting and Associated Fees

Table 2 – Refinery-Related Community Air Monitoring System Fees

Facility Name* and Location	Effective Dates and Fee Requirements	
	No later than July 1, 2018, petroleum refineries shall make the following initial minimum payment required by paragraph (j)(2)	No later than January 30, 2019, petroleum refineries shall make the following final payment required by paragraph (j)(3)
Andeavor Corporation (Carson)	\$429,078	\$1,001,181
Andeavor Corporation (Wilmington)	\$214,539	\$500,591
Chevron U.S.A, Inc. (El Segundo)	\$429,078	\$1,001,181
Delek U.S. Holdings, Inc. (Paramount)	\$107,269	\$250,295
Phillips 66 Company (Carson)	\$214,539	\$500,591
Phillips 66 Company (Wilmington)	\$214,539	\$500,591
PBF Energy, Torrance Refining Company (Torrance)	\$429,078	\$1,001,181
Valero Energy (Wilmington)	\$214,539	\$500,591

*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.

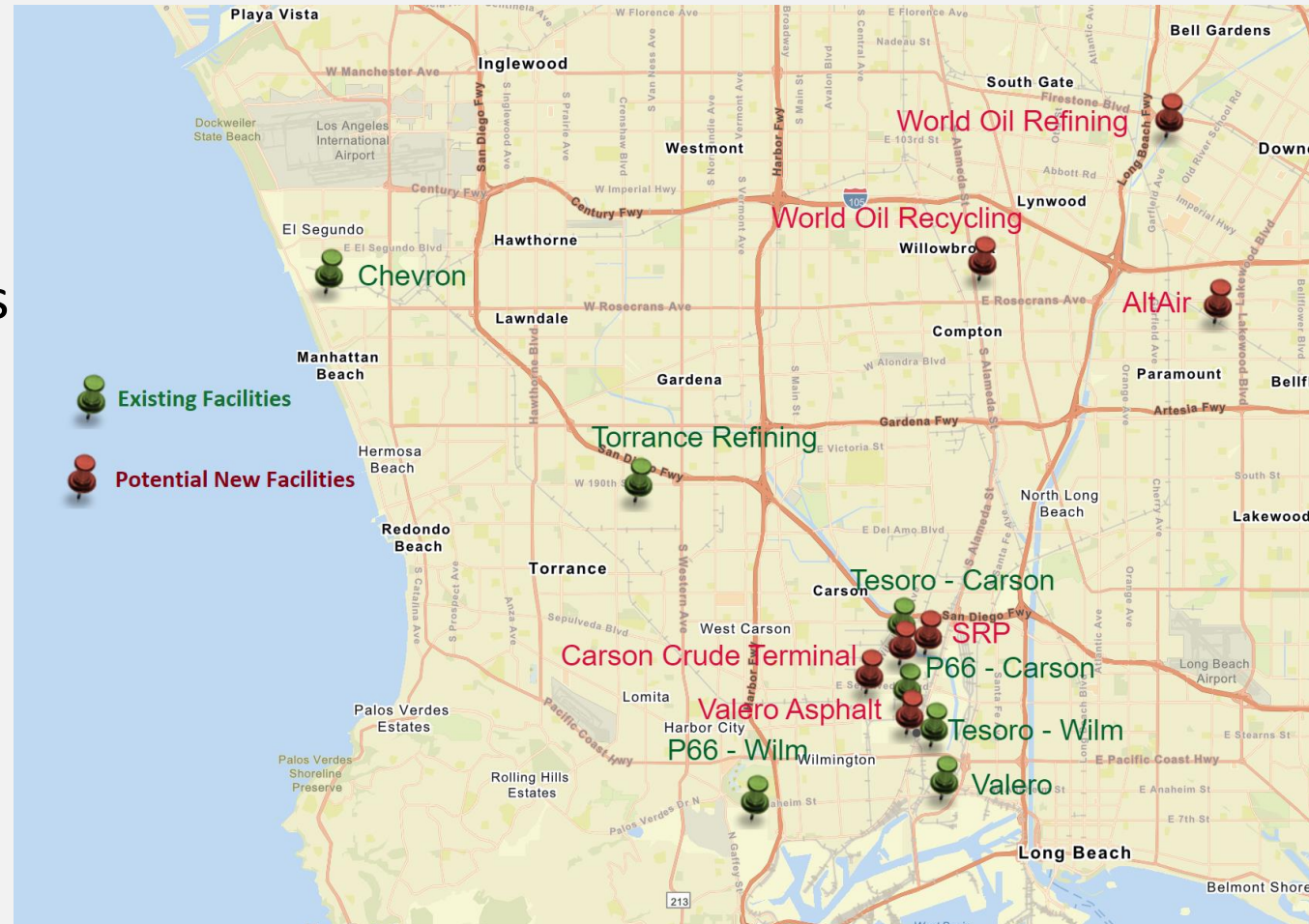
Facility Name* and Location	FY 22-23	FY 23-24	FY 24-25 (and thereafter)
	Annual Operating and Maintenance Fee	Annual Operating and Maintenance Fee	Annual Operating and Maintenance Fee
Andeavor Corporation (Carson)	\$917,253.56	\$936,417.46	\$954,710.26
Andeavor Corporation (Wilmington)	\$458,626.78	\$468,208.73	\$477,355.13
Chevron U.S.A, Inc. (El Segundo)	\$917,253.56	\$936,417.46	\$954,710.26
Phillips 66 Company (Carson)	\$458,626.78	\$468,208.73	\$477,355.13
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*Based on the current facility names. Any subsequent owner(s) or operator(s) of the above listed facilities shall be subject to this rule.



Community Monitoring Near New Facilities

- For the newly applicable facilities, staff will work with stakeholders to identify the following:
 - Communities near each facility
 - Locations within these communities appropriate for a community monitoring station
 - Selection of air monitoring instrumentation
- Staff will work with stakeholders to evaluate the required monitoring fees



Fenceline Monitoring Requirements for New Facilities

- A fenceline air monitoring system must be representative of the size of the affected facility and its emissions
- The refinery operators are required to submit a written fenceline air monitoring plan based on Refinery Fenceline Air Monitoring Plan Guidelines, providing:
 - Layout of the proposed fenceline air monitoring system, including detailed information about the installation, operation, and maintenance of this system
 - Quality Assurance Project Plan describing quality control measures and data quality assurance
 - Detailed description of the proposed public data display and notification
- New facilities will be subject to the same compound list for existing refineries
 - Justification must be provided for excluding any compound
 - Any new compound identified for a new process should be included for monitoring

Target Compound List



Existing Rule 1180 Target Compound List

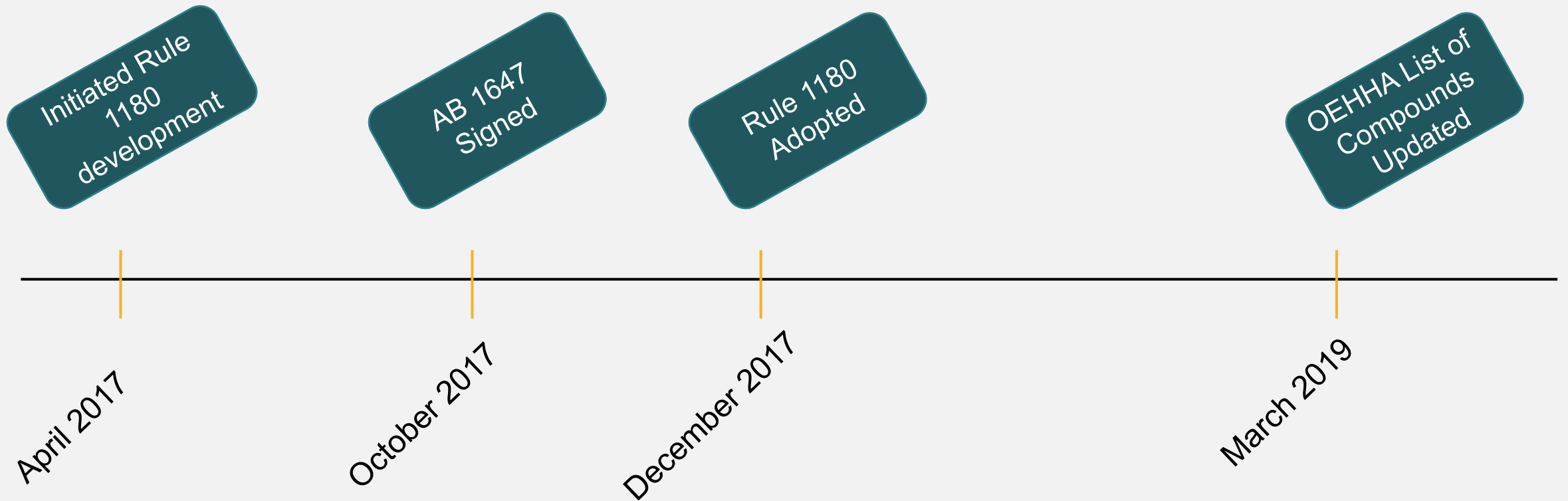
- Rule 1180 target compound list was based on the September 2017 Office of Environmental Health Hazard Assessment (OEHHA) draft report “Analysis of Refinery Chemical Emissions and Health Effects.”
- In March 2019, OEHHA finalized the report and updated the compound list
 - 188 chemicals identified as emitted from California refineries 18 chemicals listed as the top candidates for air monitoring based on
 - Toxicity level
 - Average levels of emissions from refineries statewide
 - Involvement in multiple refinery processes and incidences

Table 1– Air Pollutants to be Addressed by Fenceline Air Monitoring Plans

Air Pollutants
Criteria Air Pollutants
Sulfur Dioxide
Nitrogen Oxides
Volatile Organic Compounds
Total VOCs (Non-Methane Hydrocarbons)
Formaldehyde
Acetaldehyde
Acrolein
1,3 Butadiene
Styrene
BTEX Compounds (Benzene, Toluene, Ethylbenzene, Xylenes)
Other Compounds
Hydrogen Sulfide
Carbonyl Sulfide
Ammonia
Black Carbon
Hydrogen Cyanide
Hydrogen Fluoride ⁺

⁺ If the facility uses hydrogen fluoride.

Timeline



Rule 1180 Compound List

- Table provides a comparison for the chemicals included in Rule 1180 versus the OEHHA priority list
- The highlighted compounds in red are not currently required to be monitored by Rule 1180

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



Fenceline Monitoring Technical Feasibility

- Preliminary assessment of the monitoring technologies for the 8 new compounds

Open path detectors already installed at existing facilities can measure the following compound:

- Naphthalene

New point source detectors will be required to measure the following compounds:

- PM
- Metals
 - Cadmium
 - Manganese
 - Nickel

Staff is not aware of any technology capable of real-time measurements for the following compounds:

- PAHs
- Sulfuric Acid
- Diethanolamine

Approach for Target Compound List

- Update the current compounds list to the 2019 OEHHA priority list for Rule 1180
 - Considering the feasibility of the new compounds for monitoring
 - Ability of existing technology to monitor additional compounds
 - The additional cost and maintenance
 - There may be a technical challenge for real-time, continuous monitoring for some compounds, such as Polycyclic aromatic hydrocarbons (PAHs)
 - Further analysis will be conducted to determine if monitoring of those compounds should be required
- May include criteria for the exclusion/inclusion of a compound by any facility, for example
 - The chemical is not emitted from the process and cannot be measured at normal operation or equipment breakdowns; or
 - A new process that may emit chemicals not identified in the list for traditional process
 - Some of the chemicals identified in OEHHA priority list may be co-emitted with chemicals already measured as part of Rule 1180 implementation



Summary of the Proposal



Remove the 40,000-bpd exemption from Rule 1180

For Existing 1180 Facilities

- Update the current compounds list to monitor at least the 2019 OEHHA priority list unless the facility provides justification for including additional or excluding any of the listed compounds
- Update fee to incorporate these compounds into the community air monitoring plans (one time and ongoing maintenance)

For New 1180 Facilities

- Install and operate a real-time fenceline air monitoring system in accordance with the approved fenceline air monitoring plan; and
- Pay for the installation, operation and maintenance fees for the refinery-related community air monitoring system
- Monitor at least the 2019 OEHHA priority list compounds unless the facility provides justification for including additional or excluding any of the listed compounds

Additional Considerations



Hydrofluoric Acid (HF) Notifications

- Two refineries currently use HF in their alkylation process
 - HF is included in their fence line and community monitoring systems
- Refineries also have additional HF sensors near and around their alkylation units
 - Open path and point sensors
 - Systems automatically notify South Coast AQMD when sensor detects HF
- Staff considering formalizing the current notification procedure in PAR 1180

Fenceline Monitoring Reports

- Fenceline Air Monitoring Plan Guidelines specify a notification system that automatically generates and issues notification to subscribers when each of the pollutant levels exceed corresponding thresholds
- Staff is considering including a rule requirement for facilities to submit a report to the South Coast AQMD following an exceedance that includes:
 - Cause of the exceedance;
 - Mitigation actions taken; and
 - Corrective actions to prevent a future exceedance
- Reporting the cause and corrective actions taken will improve enforceability and ensure timely follow-ups

Fenceline Monitoring Quarterly Report

- Fenceline Air Monitoring Plan Guidelines require each facility design a data display website that includes quarterly data summary reports, including relationship to health thresholds, data completeness, instrument issues, and quality control efforts
- Staff is considering including a rule requirement for facilities to submit the quarterly data summary reports to the South Coast AQMD in addition to posting them on their websites



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