

Rule 1180 Implementation Update

December 2019

Rule 1180: Need and Purpose









- Petroleum refineries are some of the most significant stationary sources of criteria and air toxic pollutants in the South Coast Air Basin (Basin)
- These pollutants include: NO2, SO2, VOCs (e.g., benzene),
 HF, H2S, and BC
- The main purpose of Rule 1180 is to measure the concentration of these pollutants continuously and in near real-time at the <u>fenceline</u> and in <u>nearby</u> <u>communities</u>. This will allow to quickly identify leaks and unplanned emissions

Rule 1180: Refineries

 Applies to all petroleum refineries in the Basin with a throughput capacity over 40,000 barrels of crude oil per day



Paramount Petroleum (now owned and operated by Delek U.S. Holdings Inc.) voluntarily accepted a permit condition limiting its throughput of crude oil to no more than 39,500 barrels per day and, thus, is exempt from Rule 1180 requirements 3

Rule 1180: Approach

Fenceline Air Monitoring

- Refineries to submit a Fenceline Air Monitoring
 Plan in accordance with approved Guidelines
- Refineries to install and operate near real-time and continuous fenceline air monitoring systems one year after Plan approval
- Refineries to make data available to the public through a dedicated website
- Refineries are subjected to:
 - Data notification requirements if pollutant concentration spikes above a pre-determined threshold level (<u>NOTE: Not intended for emergency notification</u>)
 - Quality assurance / quality control requirements (e.g., backup plan in case of potential equipment failure / downtime)



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⁺		
+For Torrance and Valero refineries only		

*For Torrance and Valero refineries only

Rule 1180: Approach

Community Air Monitoring

- South Coast AQMD to develop, install and operate a network of air monitoring stations in in accordance to a Community Air Monitoring Plan (CAMP)
- Near real-time and continuous air monitoring in communities most impacted by refinery emissions
- Data made available to the public through a dedicated website
- South Coast AQMD to adopt data notification and quality assurance / quality control requirements



Refinery	# of Stations
Tesoro Carson	2
Tesoro Wilmington	3
Torrance Refining Company	2
Chevron El Segundo	2
Phillips 66 Carson	2
Phillips 66 Wilmington	2
Valero Wilmington	1

Fenceline Air Monitoring Plan Review and Approval



Community Air Monitoring Plan (CAMP)

Community Network

Data

QA/QC

- Community air monitoring locations
- Measured pollutants and measurement methods
- Meteorological analysis
- Overview of each community
- Data presentation to the public
- Public notification system
- Education and data interpretation
- Quality Assurance (upcoming in a separate document)

Draft CAMP has been released for public comments (review period ends on December 11) <u>www.aqmd.gov/Rule1180</u>

Community Air Monitoring (Site Selection Criteria)



Community Site Selection Criteria (Wilmington / Carson / Long Beach)

\circ 5 refineries

- Marathon Carson and Wilmington
- Phillips 66 Carson and Wilmington
- Valero Wilmington
- Complex wind patterns
- South Coast AQMD staff evaluated ~30 potential sites



Community Site Selection Criteria (Torrance / El Segundo / Manhattan Beach / Hawthorne)

\circ 2 refineries

- Chevron El Segundo
- Torrance Refining Company
- Consistent wind patterns
- South Coast AQMD staff evaluated 15 potential sites in Torrance and 19 in El Segundo/Manhattan Beach/Hawthorne



Community Air Monitoring (Pollutants)

o Rapid Response Measurements (5 minutes or less)

- BTEX, formaldehyde, 1,3-butadiene, acetaldehyde, acrolein, NH3, HCN, total VOC's, SO2
 - Optical multi-pollutant analyzers (UV-DOAS and FTIR)
- H2S
 - o Chemiluminescence/Pulsed fluorescence
- HF and H2S (for refineries with HF)
 - Off-axis integrated cavity output spectroscopy (OA-ICOS)
- o Black Carbon (BC)
 - o Aethalometer
- Wind speed and direction
 - Meteorological station

o Time Integrated Measurements (1 hour)

- BTEX and extensive list of other VOC's with 0.1 ppb detection limits
 - \circ Automated mini GC





Community Air Monitoring (Timeline)



Community Air Monitoring (Data Portal and Reporting)

• Data reporting / display (Phase I, implemented by January 2020)

- o 5-min data in near real-time (for most pollutants; else 1-hr data)
 - \circ 1-hr rolling averages updated every 5 minutes
 - o 24-hr averages
- o Meteorological data
- Graphical data display
 - Time series of air pollutant concentrations
 - Air quality standards and notification thresholds (e.g., acute REL)
- Historical data download
- Data reporting / display (Phase II, under development)
 - Integrate community and fenceline air monitoring data (web display, data analysis and download)

Community input on other desired attributes for data reporting is welcomed

Community Air Monitoring (Notification)

Notification Thresholds

- Based on 1-hr rolling averages updated every 5 minutes
- Triggered by exceedance of well established one-hour health-based standards: NAAQS, CAAQS, or OEHHA 1-hour acute RELs (whichever is lower)
- Instructions on how to sign-up provided on Rule 1180 webpage and in email announcement



Community input on notification thresholds and other desired attributes for community education is welcomed

Community Air Monitoring (Notification Template)

Air Quality Notification for [Refinery or Community Monitoring Name]

Levels of **benzene** have exceeded a 1-hour standard or short-term health-based threshold

An air pollution monitor located at [description of location] measured high levels of *benzene* on *[date]* at *[time]*. The 1-hour average level

measured at this location was:

Pollutant Name	1-hour Average Level	Notification Level
benzene	20 ppb	8.6 ppb

The notification level for each pollutant corresponds to either a short-term health-based threshold (Acute Reference Exposure Level), or the California or Federal air quality standard.

A second notification will be sent when the measurements from this same location show that the levels are no longer exceeding the notification level.

This notification is for information purposes only.

What does this mean?

What can I do?

Information about this pollutant

Links to Rule 1180 community and fenceline monitoring websites and contact information

Community Air Monitoring (Community Education)

 Educational materials and links to other agencies websites and other resources to better understand / interpret the collected fenceline and community data

WHAT ARE THE SOURCES OF AIR POLLUTION?

Outdoor air pollution affects urban and rural areas and is caused by multiple factors:



How Air Pollution Affects Health

Exposure to air pollution can cause health problems that include coughing and shortness of breath; eye, nose, and throat irritation; and heart attacks, strokes, and aggravation to asthma and lung diseases. Older adults, children, and people with heart and respiratory issues are at greater risk of adverse effects from polluted air, but all people can experience adverse effects from breathing high levels of pollution over long periods of time.



Example from Torranceair.org (South Coast AQMD sponsored project)

Next Steps

- Finalize refinery fenceline air monitoring plans and CAMP
 - Public comments period ends on December 11, 2019 but additional input will be considered in the future
- Refinery and community monitoring to begin in January 2020
- o Email announcements
 - When community air monitoring will go live
 - Instructions on how to sign-up for notifications
- Additional information on refinery fenceline and community air monitoring can be found @ <u>www.aqmd.gov/Rule1180</u>

South Coast AQMD would like to thank community and stakeholders for their input

Questions?

Dr. Andrea Polidori

Advanced Monitoring Technologies Manager Email: <u>apolidori@aqmd.gov</u> Office: 909-396-3283

Dr. Olga Pikelnaya Program Supervisor Email: <u>opikelnaya@aqmd.gov</u> Office: 909-396-3157