Development of District Rule 4460 (Petroleum Refinery Fenceline and Community Air Monitoring)

November 5, 2019

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Why are we here?

- Safety incidents at large refineries in Bay Area and South Coast raised concerns about safety practices, public health, and emergency preparedness.
- As a result, state legislation developed to require additional safety precautions at petroleum refineries – “California Refinery Jobs and Safety Action Plan” (includes AB 1647, Muratsuchi).
Assembly Bill (AB) 1647

- AB 1647 (signed by governor 10/8/17) requires that by January 1, 2020:
  - Petroleum refineries develop, install, operate and maintain a fenceline air monitoring system at and near refineries in accordance to guidance developed by CARB and local air district
  - Air districts design, develop, install, operate and maintain a refinery-related community air monitoring system
  - Real-time data be made accessible to the public
  - AB 1647 requires that petroleum refineries implement fenceline air monitoring according to guidance developed by District
  - District guidance shall take into account technological capabilities and incorporate input from affected parties, and be informed by refinery-related guidance developed by CARB (will need to consider unique characteristics of Valley refineries)
  - Per AB 1647, the owner or operator of a petroleum refinery shall be responsible for the costs of implementing AB 1647 requirements
Public Process to Date

- New District Rule 4460 (Petroleum Refinery Fenceline and Community Air Monitoring) and Rule 3200 (Petroleum Refinery Community Air Monitoring Fees) being developed through a public process to address AB 1647 requirements.
- District has held focus group meetings with Valley refineries throughout 2019 to understand potential air monitoring options and associated costs.
- District has researched air monitoring costs in other regions, and has met with air monitoring technology vendors to understand equipment capabilities and estimate Valley-specific costs.
- District held scoping meeting on October 3, 2019, to discuss initial concepts and seek stakeholder input.
California Petroleum Refineries by Air Basin


- **SCAQMD**
- **BAAQMD**
- **SLOAPCD**
- **SJVAPCD**

Throughput (barrels per day):

- Smallest Refinery
- Largest Refinery
Alon USA

• Currently non-operating independent oil refining company located in Bakersfield, CA
• Permitted capacity of 60,000 barrels of oil per day
• When operating, key areas of production include ultra-low sulfur diesel, gasoline, jet fuel, and asphalt products
Kern Oil & Refining Co.

• Independent oil refining company located in Bakersfield, CA
• Produces up to 27,000 barrels of oil per day
• Gasoline and diesel production (key supplier for Southern San Joaquin Valley)
• Co-processes and blends various biofuels with fossil fuel production process
• Currently employs 155 employees
San Joaquin Refining Co.

- Independent oil refining company located in Bakersfield, CA
- One of smallest refineries in state, produces up to 15,000 barrels of various petroleum-based products per day
- Distribution network ships products for a variety of industries through the Port of Los Angeles
- Majority of product used in asphalt production
- Also serves industries with applications for diesel fuel, drilling fluids, fuel additives, hydraulic fluids, lubricants, tires, etc.
- Currently employs 130 employees
Air Quality Regulations – Petroleum Refineries

- Valley petroleum refineries currently subject to multiple District rules, shown to be most stringent rules feasible for implementation
- Refineries subject to variety of performance standards under local, state, and federal regulations to reduce emissions of air pollutants
  - Refineries required to continuously monitor for leaks
  - Ongoing reporting required
  - Regular District inspections to ensure compliance
- Various federal New Source Performance Standards apply to new and modified equipment at refineries
  - Subparts J and Ja Standards of Performance for Petroleum Refineries
  - Subparts K, Ka, Kb Volatile Organic Liquid Storage Vessels
  - Subpart XX Bulk Gasoline Terminals
  - Subpart GGG and GGGa Equipment Leaks of VOC at Petroleum refineries
  - Subpart QQQ VOC Emissions from Refinery Wastewater Systems
Air Quality Regulations – Petroleum Refineries (cont’d)

- Valley petroleum refineries subject to stringent District regulations, including:
  - Rule 2201 – New and Modified Stationary Source Review Rule
  - Rule 4101 – Visible Emissions
  - Rule 4012 – Nuisance
  - Rule 4311 – Flares
  - Rules 4305 - 4307, 4320, 4351 – Boilers, Steam Generators, and Process Heaters
  - Rule 4453 – Refinery Vacuum Producing Devices or Systems
  - Rule 4454 – Refinery Process Unit Turnaround
  - Rule 4455 – Components at Refineries, Gas Liquids Processing Facilities, and Chemical Plants
  - Rule 4623 – Storage of Organic Liquids
  - Rule 4624 – Transfer of Organic Liquid
  - Rule 4651 – Soil Decontamination Operations
  - Rules 4701 and 4702 – Internal Combustion Engines
  - Rule 4703 – Stationary Gas Turbines
Valley Petroleum Refinery Emissions Trends

- Refinery criteria and toxics emissions reduced through enhanced control measures, including vapor recovery, lower-emitting combustion, and other process upgrades.
- Valley refinery toxics emissions reduced under AB 2588 “Air Toxics Hot Spots” program.
Monitoring Equipment: Open Path-FTIR Technology

• Used for fenceline monitoring at large industrial facilities
• Significant up-front cost, up to $2,000,000 per open path system (continuous monitoring along refinery boundary), plus ongoing maintenance and data processing costs

Image courtesy of CEREX, 2019
Monitoring Equipment: Point Monitors

• Can be used upwind/downwind of refinery for fenceline monitoring and community monitoring
• Up-front cost up to $700,000 per unit, plus ongoing maintenance and data processing costs
• Capable of monitoring wide range of pollutants

Image courtesy of airpointer, 2019
AB 1647 Implementation in Other Districts

• Bay Area AQMD Rule 12 Regulation 15 adopted April 20, 2016
  – Applies to 5 active refineries (range in size from 88,000 bpd – 240,000 bpd)
  – Requires open path and point monitors for fenceline air monitoring plans

• South Coast AQMD Rule 1180 adopted December 1, 2017
  – Applies to 8 active refineries (range in size from 54,000 bpd – 363,000 bpd)
  – Requires open path and point monitors for fenceline air monitoring plans
  – Exempts refineries that produce 40,000 barrels per day of crude oil or less

• San Luis Obispo County APCD evaluating implementation of AB 1647
  – One refinery in air basin (throughput of 44,500 bpd)

• Santa Barbara County APCD evaluating implementation of AB 1647
  – One small asphalt production facility in air basin (throughput of 10,000 bpd)
Proposed Rule 4460 Requirements

• District is not proposing to incorporate South Coast AQMD 40,000 barrels per day of crude oil exemption for small refineries

• District is proposing to include specific requirements for Valley refineries for the following categories:
  – Refineries with permitted production capacity greater than or equal to 40,000 barrels/day of crude oil
  – Refineries with permitted production capacity less than 40,000 barrels/day of crude oil
Refineries with Permitted Production Capacity Greater than or equal to 40,000 barrels/day of Crude Oil

• Require fenceline monitoring consistent with South Coast AQMD Rule 1180
  – Open path monitoring around facility
• Require community monitoring consistent with South Coast AQMD Rule 1180
  – Community air monitoring fee to support stationary air monitoring site with criteria and toxics monitoring (GC-MS)
• Alon USA expected to fall in this category, if resuming refining operations
Refineries with Permitted Production Capacity Less than 40,000 barrels/day of Crude Oil

• Require fenceline monitoring
  – Open path or point source monitoring at facility
• Require community monitoring
  – Community air monitoring fee to support stationary air monitoring site with criteria and targeted toxics monitoring (NOx, PM2.5, VOCs, SO2, H2S, Benzene, Toluene, Ethylbenzene, Xylenes)
• Kern Oil, San Joaquin refineries expected to fall in this category
Fenceline Air Monitoring Plan Process

• Affected refineries to submit fenceline air monitoring plan to District for review and approval (consistent with South Coast Rule 1180)
• District to provide guidance to assist in plan submittal process
• Required fenceline air monitoring plan elements include:
  – Pollutants to be measured based on facility emissions (start with OEHHA refinery pollutant list)
  – Equipment to be used to conduct air monitoring
  – Location of air monitoring system on property
  – How facility will ensure the quality and validity of the collected data
  – Real-time public display of monitoring data
Fenceline Air Monitoring Plan Compliance Schedule

• Fenceline monitoring plans submitted to District by July 1, 2020
• Plan available for public review/input 30 days prior to approval
• Must install and begin operating monitoring within 1 year of District approval
• For affected facilities currently not refining:
  – Must submit notification to District within 30 days of adoption of rule to establish non-refining status
  – Must submit proposed fenceline monitoring plan at least six (6) months prior to planned resumption of refining operations
  – Must have approved fenceline monitoring plan and install system prior to resumption of refining operations
Rule 3200 – Petroleum Refinery Community Air Monitoring Fees

- As required by AB 1647, refineries to pay fee to cover capital cost of community monitoring by July 1, 2020
- As required by AB 1647, refineries to pay fee to cover ongoing operation and maintenance costs annually starting in 2021
- Estimated fees – District continuing to evaluate through public process:

<table>
<thead>
<tr>
<th>Refinery Category</th>
<th>Initial Capital Cost Fee</th>
<th>Annual Operating and Maintenance Fee</th>
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<tr>
<td>Refineries with permitted production capacity greater than or equal to 40,000 barrels/day of crude oil</td>
<td>~$700,000</td>
<td>~$150,000</td>
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<tr>
<td>Refineries with permitted production capacity less than 40,000 barrels/day of crude oil</td>
<td>~$250,000</td>
<td>~$75,000</td>
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Next Steps: Public Engagement Process for Refinery Fenceline and Community Air Monitoring Rule Development

Public Workshop #2
11/5

Workshop Public Comments Due
11/13

Publication of proposed rule package to the District web
11/19

Public comment period
11/19 – 12/3

Governing Board Public Hearing
12/19

Public Participation and Comment Invited throughout Process
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