Public Workshop for District Rule 4460 (Petroleum Refinery Fenceline and Community Monitoring)

October 3, 2019

webcast@valleyair.org
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

- As part of Assemblymember Al Muratsuchi’s bill package, AB 1647 approved by the Governor of California on October 8, 2017
- AB 1647 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
- New Valley Air District Rule 4460 (Petroleum Refinery Fenceline and Community Monitoring) being developed through a public process to require these monitoring systems at Valley petroleum refineries
  - Kern Oil & Refining Co. and San Joaquin Refining only two operating petroleum refineries in San Joaquin Valley (Alon Refining currently not operating)
California Petroleum Refineries by Air Basin


Smallest Refinery

Largest Refinery

Throughput (barrels per day)
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
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
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
Air Quality Regulations – Petroleum Refineries

• Kern and San Joaquin 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 4454 – 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
Valley Air District Approach to AB 1647 Implementation

• AB 1647 requires that petroleum refineries implement fenceline 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)
• District to implement community monitoring near refinery facilities
• District and owner/operator of petroleum refinery to collect real-time data and make this data publicly accessible
• Per AB 1647, the owner or operator of a petroleum refinery shall be responsible for the costs of implementing AB 1647 requirements
Ongoing Work to Implement AB 1647 Requirements

• Extensive research to better understand refinery processes ongoing by Office of Environmental Health Hazard Assessment (OEHHA), California Air Resources Board (CARB), SJVAPCD, and other air pollution control districts
• Discussions with CARB about requirements and potential strategies to satisfy AB 1647
• Research on monitoring methods and equipment
• Engagement with Valley refinery representatives regarding legislative requirements and potential monitoring options and costs
• Public process to develop new rules necessary to implement AB 1647 requirements
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 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 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)
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, or community monitoring
• Up-front cost up to $150,000 per unit, plus ongoing maintenance and data processing costs
Next Steps: Public Engagement Process for Refinery Fenceline and Community Air Monitoring Rule Development

Public Workshop #1
October 3

Public Workshop #2
TBD-October

Publication of Proposed Rule
November 19

Governing Board Public Hearing
December 19

Public Participation and Comment Invited throughout Process
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Potential Rule Concepts

• Require open-path/FTIR fenceline monitoring, and community monitoring for largest SJV refineries
• Consider alternative monitoring methods for smaller refineries to monitor for specific pollutants of concern
• For any facilities currently not refining petroleum products, require the implementation of air monitoring upon resumption of refining operations
Key Issues for Discussion and Input

• What approach and type of equipment should be used for refinery fenceline air monitoring?
  – What pollutants should be monitored (focus on pollutants of concern specific to Valley refineries)?
  – Recognize relative sizes and characteristics of Valley refineries
  – Recognize wide range of potential monitoring options and associated costs/socioeconomic impacts/feasibility (open path vs. point)

• What should be considered in implementing community air monitoring?
  – New District refinery fee Rule 3200 would recover District costs of installing/maintaining required community air monitoring system

• Other questions or input?
Open Discussion

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