

## Presentation Outline

1. Background
2. Purpose of new rule being developed
3. Description of new rule
  - Emissions Tracking
  - Air Monitoring
4. Remaining rule development process
5. Comments / Questions

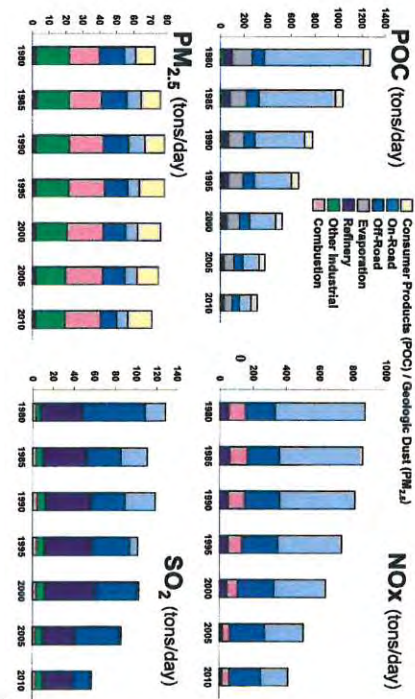


## Background

- The Air District regulates “stationary sources” of air pollution
- Bay Area refineries are subject to over 20 separate air quality rules
  - Accidental Release Prevention Programs are carried out by local Administering Agencies
- Significant air emission reductions have been achieved in the Bay Area, including at refineries
- Bay Area air quality has greatly improved, but additional improvements are needed



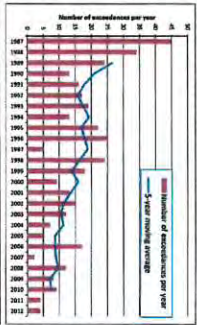
## Bay Area Air Emission Trends (All Sources)





## Trends in Bay Area Air Quality

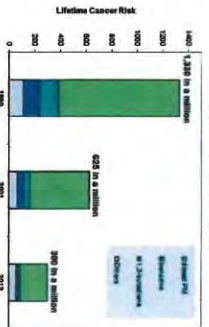
Summer days over national 8-hour ozone standard



Winter days over national 24-hour PM<sub>2.5</sub> standard

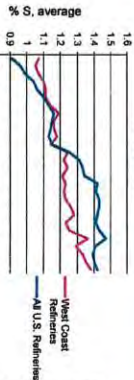


Lifetime cancer risk from Toxic Air Contaminants

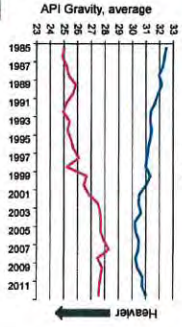


## Trends in Crude Oil Quality

Sulfur Content



Density



- API gravity is a measure of the density of a liquid. It is expressed in degrees, where a higher number indicates lower density.
- Crude oil with an API gravity greater than about 31 degrees is considered "light".
- Average crude slate of California refineries (2011):
  - Sulfur content: 1.49%
  - API Gravity: 28.6 degrees

## Crude Slate and CO<sub>2</sub> Emissions

Effects of Possible Changes in Crude Oil Slate on U.S. Refinery Sector's CO<sub>2</sub> Emissions



- 2011 Product Slate
- 2025 Product Slate
- Refineries emit about 3% of U.S. GHG emissions

Crude Oil Scenario	API Gravity	Sulfur Content (%)	CO <sub>2</sub> Emissions (Million Metric Tons)	Change from Base %
2011 Actual	30.5	1.41	253	-
Estimation for 2025 Product Slate	30.5	1.41	233	-
Base (same as 2011)	30.5	1.49	268	15%
Extremely Heavy	26.3	2.94	260	11%
Very Heavy	28.2	1.80	250	7%
Heavy	34.2	1.02	213	-9%
Light	38.5	0.83	210	-10%

Source: Effects of Possible Changes in Crude Oil Slate on the U.S. Refinery Sector's CO<sub>2</sub> Emissions. Final Report prepared for International Council on Clean Transportation by MapInfo Inc., March 25, 2013.

## Purpose of Petroleum Refinery Emissions Tracking Rule

- Changing crude oil slates (or other factors) may lead to increased air emissions at refineries over time
- More energy is needed to refine heavier, and more sour, crudes
- Sulfur or other contaminants, if not removed, could be emitted
- Lower quality crudes can be more corrosive – if not properly managed, this could lead to incident-based emissions
- Approach
  - Improve tracking of refinery air emissions, and community air quality near refineries
  - High quality tracking data will better inform Air District staff of additional regulatory measures that may need to be developed





## Air District Rule Development Process

1. Develop regulatory concept
2. Prepare draft rule
3. Seek public comment
4. Brief and seek input from Board of Directors
5. Revise as appropriate into proposed rule
6. Compile information needed for rule adoption
  - Address socioeconomic and environmental impacts
7. Board of Directors hold public hearing and consider rule adoption
8. Implement and enforce adopted rule

9



## Emissions Tracking Provision

- On-going Refinery Emissions Inventory Reports
  - Calendar year annual emissions starting with the year 2014
  - Pollutant coverage: All regulated air pollutants (i.e., criteria, toxics, and greenhouse gases)
  - Source coverage: Stationary sources and cargo carriers
  - Types of emissions covered: Routine/predictable and accidental
  - Methodology for determining emissions must be consistent with Refinery Emissions Inventory Guidelines (being developed)
    - EPA "Emissions Estimation Protocol for Petroleum Refineries" (2011)
  - Report must document methodology for each source of emissions / pollutant
  - Methodological improvements used in most recent on-going inventory must also be applied to revise previously submitted on-going inventories
  - Public review/comment period
  - Approved inventory reports to be posted on Air District website
  - Emissions from 2014 to 2016 will establish Total Refinery Emissions Profile

10



## Air Monitoring Provision

- Air Monitoring Plans
  - Must include fence-line and community air monitoring systems
  - System design and operation must be consistent with Air Monitoring Guidelines (being developed)
    - Desert Research Institute (DRI) report
    - Recommendations from Expert Panel
  - Public review/comment period
  - Approved air monitoring plans to be posted on Air District website
  - Monitoring systems must be operational within 1-year of plan approval
  - Monitoring systems must be operated, and data reviewed and reported, in accordance with approved air monitoring plan
    - Data reporting will include website posting
  - Plans need to be revised if guidelines are updated

11



## Rule Development Process Milestones

- Oct. 2012: "Work Plan for Action Items Related to Accidental Releases from Industrial Facilities" adopted
- Mar. 2013: Workshop report and initial draft rule issued
- Apr. 2013: Public workshops held (Martinez, Richmond, District office – webcast)
- May 2013: Stationary Source Committee briefing
- Jul. 2013: Desert Research Institute (DRI) report on air monitoring finalized
- Jul. 2013: Expert Panel on air monitoring convened – webcast
- Sep. 2013: Draft refinery emissions inventory guidelines issued
- Sep. 2013: Stakeholder Technical Work Group meeting
- Jan. 2014: Revised draft rule and preliminary responses to comments issued
- Jan. 2014: Stakeholder Technical Work Group meeting
- Feb. 2014: Stationary Source Committee briefing
- May 2013 – Apr. 2014: Additional meetings with stakeholders held
- Apr. 2014: Stationary Source Committee briefing
- May 2013 – Aug. 2014: Additional meetings with stakeholders, public workshops
- Oct. 2014: Anticipated timeframe for Board consideration of adoption

12



## Comments / Questions

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For additional information, including workshop report, draft rule, public comments, preliminary responses to comments, see:

<http://www.baaqmd.gov/Divisions/Planning-and-Research/Rule-Development/Rule-Workshops.aspx>