

Proposed Rule 1118.1 - Control of Emissions from Non-Refinery Flares

Working Group Meeting #2

October 24, 2017

SCAQMD Headquarters – Conference Rm CC2

Diamond Bar, California

Purpose of Proposed Rule 1118.1

- Seek opportunities for cleaner alternatives to traditional flares at non-refineries
- Minimize emissions from flaring
- Fulfill CMB-03 in the 2016 Air Quality Management Plan

Flares & Emissions

- Flares emit Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOCs)
- Permit data shows ~ 266 flares in SCAQMD
- Emissions data
 - Actual based on Annual Emission Reports (AER), permit conditions, or 0.06 lbs/MMBtu emission factor
 - Potential to emit based on maximum flaring allowed in permit



Variables Affecting NOx Emissions

Potential to Emit

- Based on oil production rates and the cost of a barrel of oil
- Siloxane clean-up costs hinders beneficial use of biogas
- Landfill gas diminishes over time for closed facilities

Interconnectivity

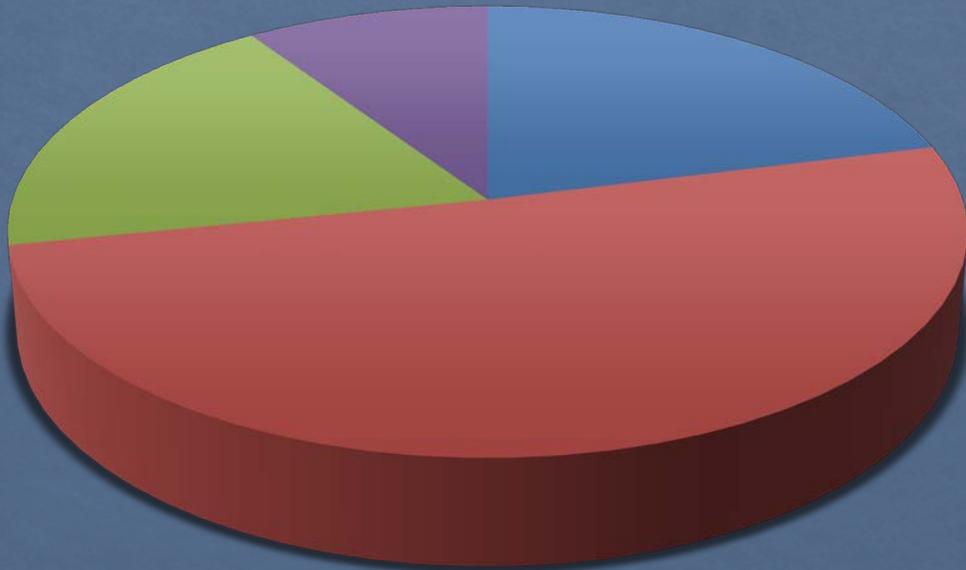
- Pipeline injection requires treatment to remove air, moisture, and contaminants
- Clusters of facilities could treat gas in one location
- A central treatment facility could be more cost effective

Central Gas Treatment

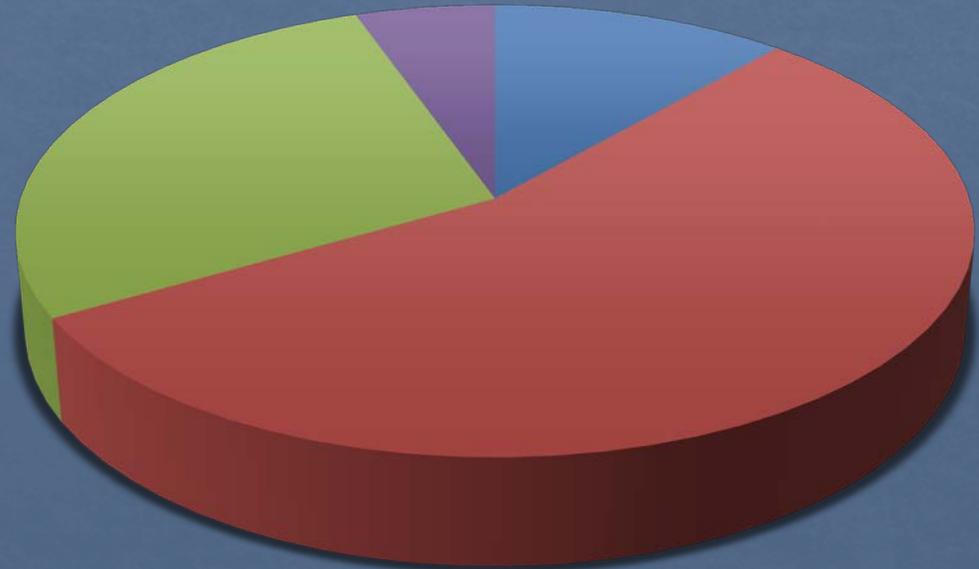
- Facilities that can treat gases from other facilities are in demand, and can reduce the amount of flaring from individual facilities
- The Public Utilities Commission establishes criteria for gas injection

Distribution of Flares and NOx Emissions 2015 Data

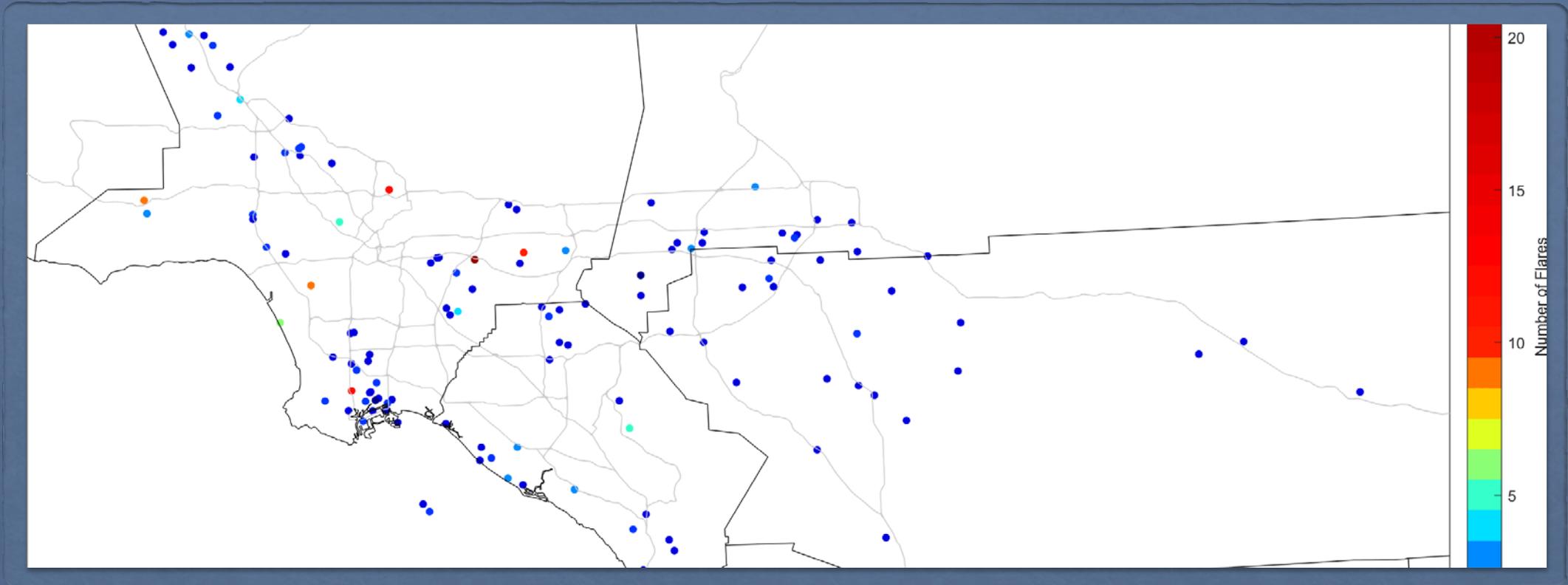
Distribution of Flares



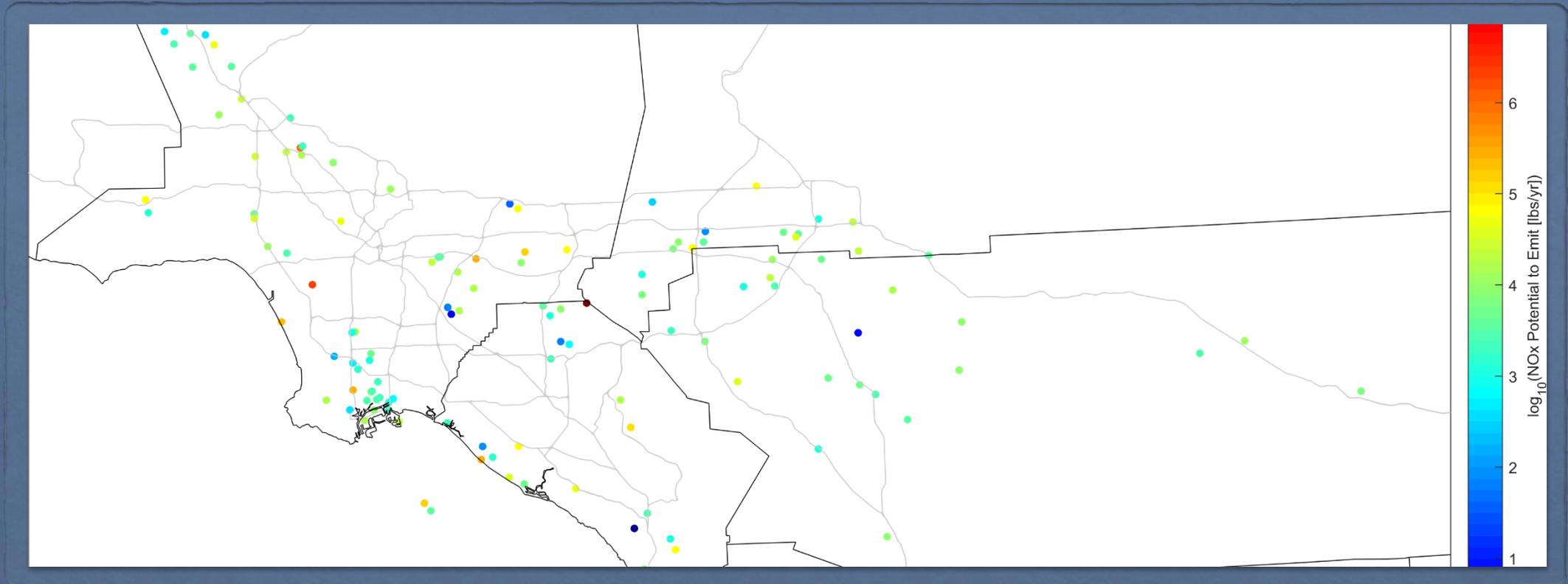
Annual Emissions Reported (lbs./yr.)



■ Wastewater ■ Landfill ■ Oil & Gas ■ Industrial



Location & Number of Flares



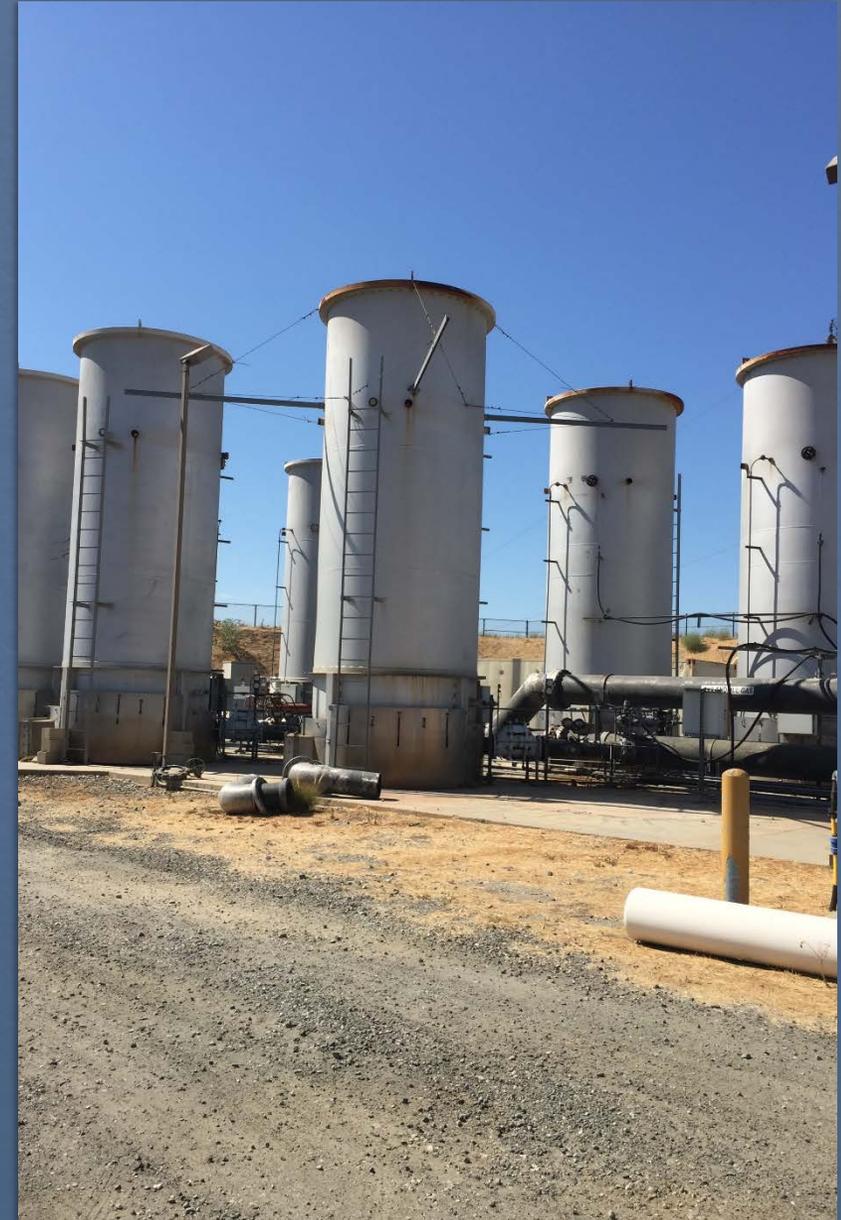
NOx Potential to Emit

(Based on Permit Conditions, New Source Review or 0.06 lbs/MMBTU)

Site Visit

Closed Landfill #1

- Six of seven flares not used
- Micro-Turbines used in past
- Power Plant uses landfill gas to run turbine, generates 3 MW electricity
 - New thermal oxidizer/flare



Site Visit

Closed Landfill #2

Opportunities:

- One of the first closed landfills in the Basin to implement beneficial use of landfill gas to power turbines
- Currently evaluating other options for beneficial use

Challenges:

- Recent pipeline damage ceased export of gas
- Facility now flaring 24/7



Site Visit

Closed Landfill #3 - Hazardous & Municipal Waste

- 10 stand-by flares for breakdowns
- Beneficial use of landfill gas to power steam turbine
- Siloxane not an issue for boiler
- Gas turbine removed due to decreasing gas
- Oil bath compressor removed siloxanes
- Annual maintenance to remove siloxane buildup



Landfill Background

All landfill flares are regulated by Rule 1150.1

- Gas collection and control system for all emissions
- Active collection specifications
- Limits use of open flares after January 1, 2018
- Inspection, operation and maintenance
- AQMD approves protocol & source test reports

Site Visit

Wastewater Treatment

- Two open flares used for digester gas
- 24/7 operation of flares for during construction of co-generation Plant
- Permit conditions indicate “Emergency Only”
- “Emergency” not defined



Other Gas Handling Requirements



Federal

- 40 CFR, Part 60, § 60.759 (Landfill Gas Collection)
- 40 CFR, Part 60, § 60.8 (Annual Source Test)
- 40 CFR, Part 258, § 258.60 (Permanent Closure)



State

- 27 CCR, § 21140 (Closure & Post-Closure of Landfills)
- 27 CCR § 20200 (Liquid Disposal at Class III Landfills)
- AB 1383 (Food Waste Diversion From Landfills)
- Low Carbon Fuel Standard



SCAQMD

- Rule 1150.1 (Municipal Solid Waste landfills)
- Rule 1148.1 and 1148.2 (Oil & Gas)
- Rules 1303 & 1701 (BACT)
- Rule 1118 (Refinery Flares)

Other Air District Flare Regulation

San Joaquin APCD Rule 4311

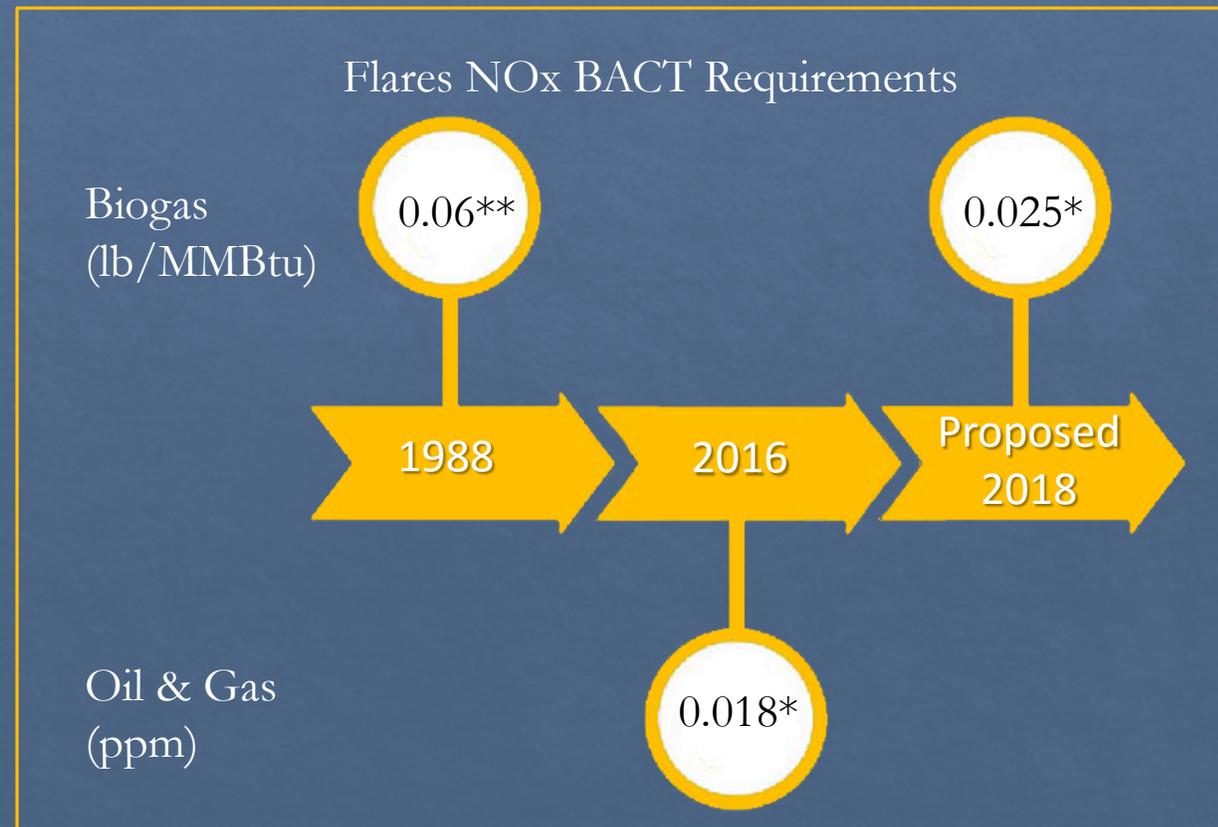
- Applies to operations involving flares
- Exempts landfills subject to Rule 4642 and sources that emit less than 10 tons of VOC and 10 tons of NOx per year
- Flaring is prohibited, unless the flare is consistent with an approved Flare Minimization Plan or caused by an emergency

Santa Barbara APCD Rule 359

- Applies to flares and thermal oxidizers at oil & gas production, petroleum refineries, and related sources
- Exempts the burning of sulfur compounds and gases with heating values of less than 300 BTU per standard cubic foot
- Exempts flares and thermal oxidizers rates at less than 1.7 MMBTU/hour or less

Best Available Control Technology (BACT)

- Required by New Source Review (NSR) since 1976
- Required for new and relocated sources, and for modifications that increase emissions
- Major Sources*
 - Achieved in practice
- Minor Sources**
 - Must be cost-effective



Rule Concepts

Purpose & Applicability

- Reduce NO_x & VOC from non-refinery flares
- Encourage beneficial uses
- Clarify requirements for flares

Definitions

- Thermal Oxidizers
- Afterburners
- Beneficial use

Rule Concepts (cont.)

Requirements

- New flares must meet BACT standards
- Existing flares - seek cleaner alternatives
 - Pre-1988 flares or higher emitters change sooner
 - Post-1988 flares subject to 0.06 lbs/MMBTU have longer phase-out
 - Compliant if achieves BACT standards (0.025-biogas; 0.018 oil & gas)
 - Compliant is low usage or low emissions (annual or monthly basis)
- Compliance Plan
 - Demonstrate feasible alternative (e.g. beneficial use; cost effective)
 - Achieve NOx reductions

Rule Concepts (cont.)

What is required if a pipeline breaks or equipment malfunctions and facility must flare?

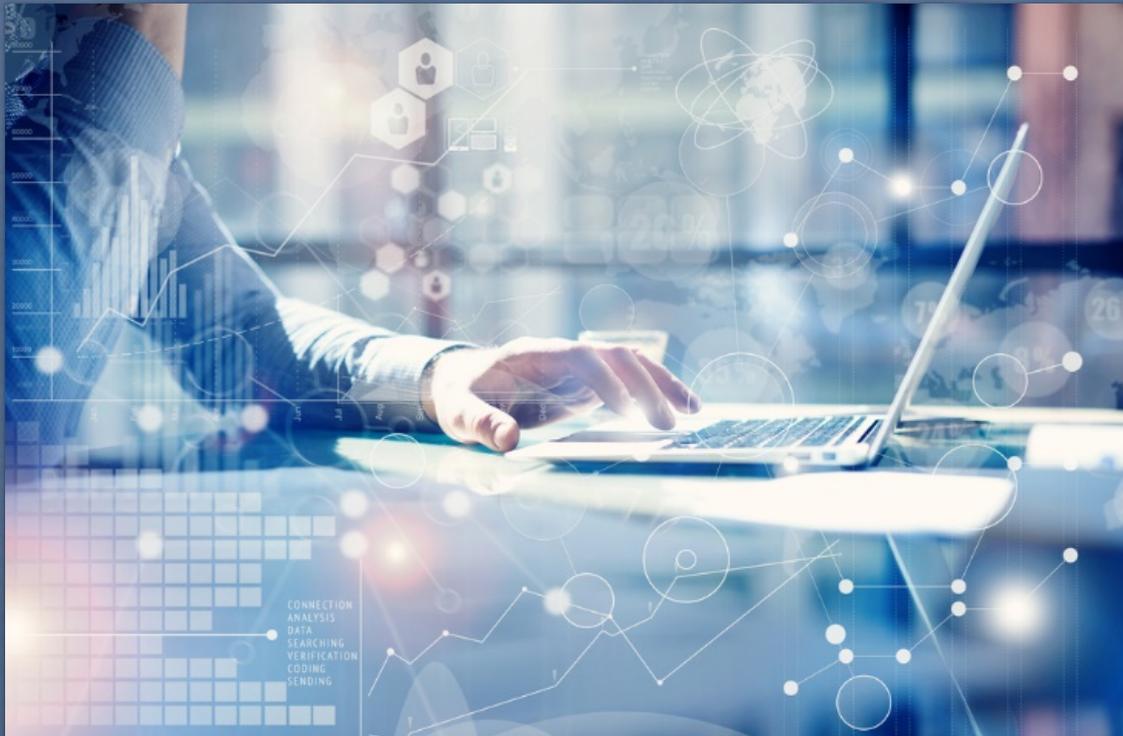
- Current requirement - change of permit condition
- PR1118.1
 - Install new flare?
 - Allow time or set emissions limit before new flare required

Action Items

- Continue site visits
- Release interactive map of flares
- Schedule presentations for next meeting
- Develop preliminary draft rule language
- Schedule next meeting



CONTACT INFORMATION



Steve Tsumura

Air Quality Specialist

909-396-2549

stsumura@aqmd.gov