



Proposed Rule 1147.2

NOx Reductions from Metal Processing Equipment

Proposed Amended Rule 1147

NOx Reductions from Miscellaneous Sources

Proposed Amended Rule 1100

Implementation Schedule for NOx Facilities

Working Group #1

May 16, 2019

3:00 PM

Conference Room GB

Teleconferencing Information

1-719-359-9722

Participant Passcode: 363034

Agenda

- Background
- Overview of Rule Development Process
- Overview of Rule 1147
- Proposed Rule 1147.2
- Equipment Data



Background



Background

- ▶ 2016 Air Quality Management Plan
 - ▶ Control Measure CMB-05 and adopting Resolution called for further NO_x reductions from an assessment of the RECLAIM program, including:
 - ▶ A 5 ton per day NO_x reduction to be achieved no later than 2025; and
 - ▶ Sunsetting the RECLAIM program and transitioning to a command-and-control regulatory structure that requires Best Available Retrofit Control Technology (BARCT) level controls
- ▶ 2017 – AB 617
 - ▶ Applicable to facilities in the state greenhouse gas cap and trade program
 - ▶ Develop BARCT implementation schedule by 1/1/2019
 - ▶ BARCT implementation by 12/31/2023
 - ▶ Prioritize older, higher polluting units



Approach to Rule 1147 Equipment

- ▶ Current Rule 1147 applies to a wide variety of combustion equipment
 - ▶ For example: Ovens, afterburners, remediation units, incinerators, heated process tanks, spray booths, calciners, and furnaces
- ▶ Staff is proposing to remove certain equipment categories from Rule 1147 and to regulate those categories under separate source-specific rules
 - ▶ Approach allows for a more detailed and inclusive technology assessment on the source-specific category
 - ▶ Better ensures emission limits reflect current Best Available Retrofit Control Technology (BARCT)
 - ▶ RECLAIM equipment was not included when Rule 1147 emission limits were established (Rule 1147 was adopted in 2008)



Development of Rule 1147 Series of Rules

- ▶ Proposing to remove three equipment categories from Rule 1147 and develop the following rules:
 - ▶ PR 1147.1 – Large Miscellaneous Combustion Equipment
 - ▶ PR 1147.2 – Metal Processing Equipment
 - ▶ PR 1147.3 – Equipment at Aggregate Facilities
- ▶ This rulemaking will focus on Proposed Rule 1147.2
- ▶ Amendments to Rule 1147 are needed:
 - ▶ Remove equipment categories that will be regulated under Proposed Rules 1147.1, 1147.2, and 1147.3
 - ▶ Remove exemptions for RECLAIM facilities for remaining Rule 1147 equipment
 - ▶ Amendments to Rule 1147 may be needed as each Rule 1147 series rule is adopted



General Approach

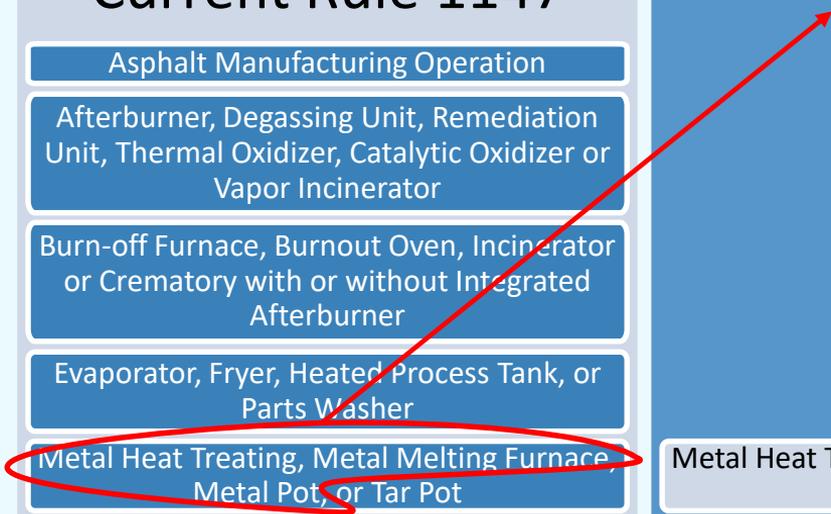
- ▶ Proposed Rule 1147.2 will address metal heat treating, metal melting furnaces, and metal pots
 - ▶ Other categories may be added during the rule development process
- ▶ Rule 1147 will be amended to remove equipment categories covered under Rule 1147.2

Current Rule 1147

- Asphalt Manufacturing Operation
- Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator
- Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner
- Evaporator, Fryer, Heated Process Tank, or Parts Washer
- Metal Heat Treating, Metal Melting Furnace, Metal Pot, or Tar Pot
- Oven, Dehydrator, Dryer, Heater, Kiln, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank
- Make-Up Air Heater or other Air Heater located outside of building with temperature controlled zone inside building
- Tenter Frame or Fabric or Carpet Dryer
- Other Unit or Process Temperature

PR 1147.2

- Metal Heat Treating, Metal Melting Furnace, & Metal Pot



Initial Concept for Proposed Rule 1147.2

- ▶ Initial scope of Proposed Rule 1147.2 would include metal melting and heat treating combustion equipment
- ▶ Objective is to reduce NOx emissions
- ▶ Equipment from RECLAIM facilities were not considered when emission limits were established under Rule 1147
- ▶ Proposed Rule 1147.2 will provide
 - ▶ A more focused BARCT analysis on metal processing combustion equipment
 - ▶ An opportunity to better coordinate other implementation dates for rules under development (such as Proposed Amended Rule 1407 and Proposed Rule 1407.1)



Overview of Rule Development Process



Overview of Rule Development Process



Key Elements of Rule Development Process

Working Group Meetings



Data Gathering and Assessment

- Gather technical and cost information
- Conduct site visits
- Develop initial universe of sources

BARCT Assessment

- Conduct technology assessment
- Perform cost-effectiveness analysis for possible emission standards

Rule Concepts and Proposed Rule Language

- Definitions
- Proposed emission standards and other requirements
- Monitoring, Reporting, and Recordkeeping
- Exemptions

Working Group Meetings

- ▶ Working group meetings held throughout the rule development process and open to the public
- ▶ Objective is to build consensus and work through issues
- ▶ Comprised of stakeholders including industry, environmental groups, community members, and agencies
- ▶ Stakeholders provide direct input to staff on key elements of proposed rule
- ▶ Assists staff in understanding
 - ▶ Key issues and concerns
 - ▶ Industry terms, industry practices, etc.
 - ▶ Applicable technologies

Data Gathering and Assessment

Data Gathering and Assessment

- Gather technical and cost information
- Conduct site visits
- Develop initial universe of sources

- ▶ Data gathering begins well before the first Working Group Meeting
- ▶ Identification of facilities and equipment to establish the universe of affected sources
- ▶ Evaluation of existing data such as:
 - Emissions data which can include annual emissions reporting, source tests, and ambient monitoring
 - SCAQMD permit data
 - Site visits
- ▶ Other information that may be needed
 - Facility specific information – obtained by surveys, rulemaking team, or inspectors
 - Emissions data
 - Pollution control technologies
 - Cost information

Data Gathering and Assessment – Site Visits



- ▶ Primary objective of the site visits are to better educate staff on the variety of operations
- ▶ Provides opportunity to
 - ▶ Observe actual operations
 - ▶ Meet facility operators
 - ▶ Better understand unique circumstances
 - ▶ Collect operational information from operator
 - ▶ Obtain NO_x emission estimates utilizing handheld NO_x analyzer
- ▶ Staff visits a range of sites to provide a complete overview of the affected sources

Data Gathering and Assessment – Facility Equipment Survey

- ▶ Objective of the survey is to collect operational information about equipment type, size, fuel, usage, pollution controls, and emissions data
- ▶ Information is needed to assess the number and type of equipment and pollution controls
- ▶ Information is also used to estimate cost impacts associated with proposed rule
- ▶ On March 22, 2019, surveys were mailed out to RECLAIM and non-RECLAIM facilities that may be subject to Proposed Rule 1147.2

 Rule 1147 Survey – January 2019

Facility ID: _____ Company Name: _____ RECLAIM (Y/N): _____

(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)
				Annual Fuel Usage				
				CY 2017	CY 2018			
Permit or Application No.	Heat Input (MMBtu/HR)	Permit Limit (ppm or % volume)	Fuel Type (a-e)*			Burner Retrofit (Y/N)	Unit Age (Years)	Control Device (if applicable)
1								
2								
3								
4								
5								
6								

*See key (page 2) for additional information

(9)	(10)	
	Source Test Results (if applicable)	
	Date (MM/DD/YYYY)	NO _x Conc. (ppm @ 3% O ₂)
1		Unit Description and Process
2		
3		
4		
5		
6		

Additional Comments

Instructions:

- Please provide data (1) – (10) for each piece of equipment
- Attach most recent source test data for each piece of equipment, if applicable

Prepared by: _____

Contact Phone: _____

Email: _____

Please return survey to:

South Coast Air Quality Management District
 Attn: Shann Wang
 21865 Copley Drive
 Diamond Bar, California 91765-4178
 Or via E-mail: svsurv@saqmd.gov

1

Rule 1147 Facility Equipment Survey

- ▶ Approximately 366 out of 2944 total surveys have been received (~12% return)
 - ▶ 21 out of 243 surveys sent to facilities with metal processing equipment have been received (~9% return)
- ▶ Received requests from survey recipients to allow additional time for completion
 - ▶ Survey deadline has been extended from April 26, 2019 to June 14, 2019
 - ▶ Survey can be electronically accessed <http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules#1147.2>

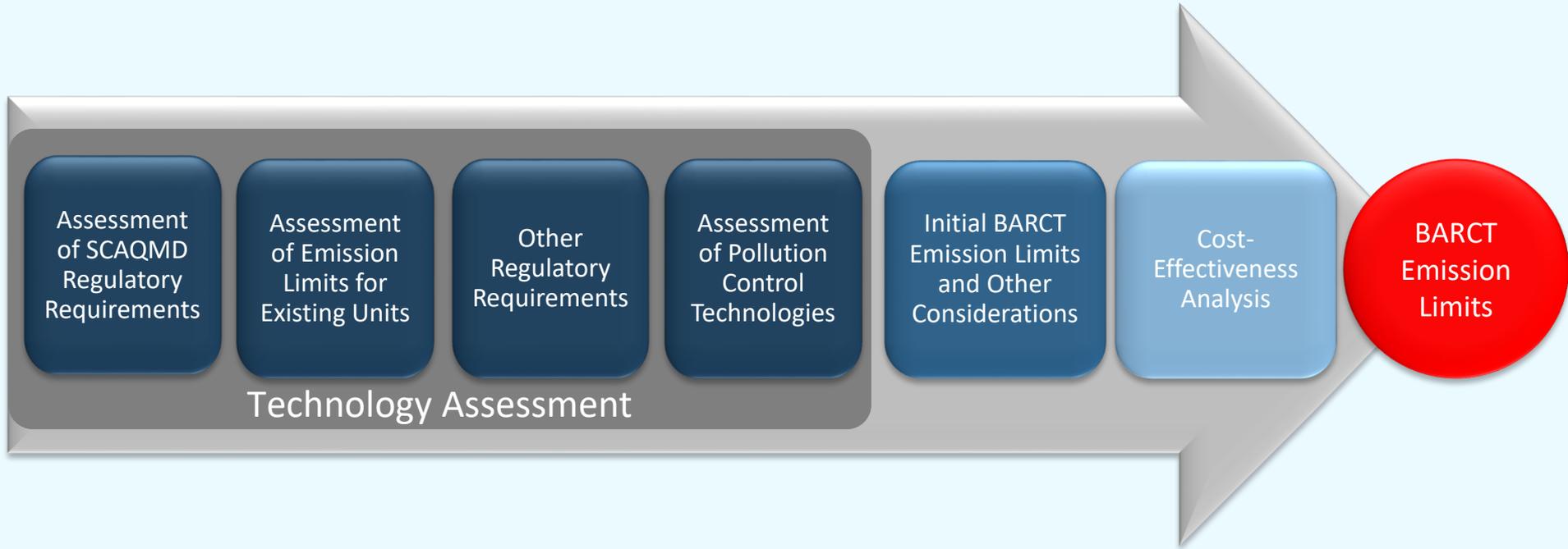


BARCT Assessment

BARCT Assessment

- Conduct technology assessment
 - Perform cost-effectiveness analysis for possible emission standards
- ▶ California Health and Safety Code Section 40406 defines BARCT as:
 - ▶ “...an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.”
 - ▶ Technology assessment conducted periodically to review newest technology and update limits
 - ▶ BARCT assessment includes a cost-effectiveness analysis
 - ▶ Must adhere to California Health and Safety Code Section 40920.6

BARCT Assessment



*BARCT analysis is conducted for each equipment category and fuel type

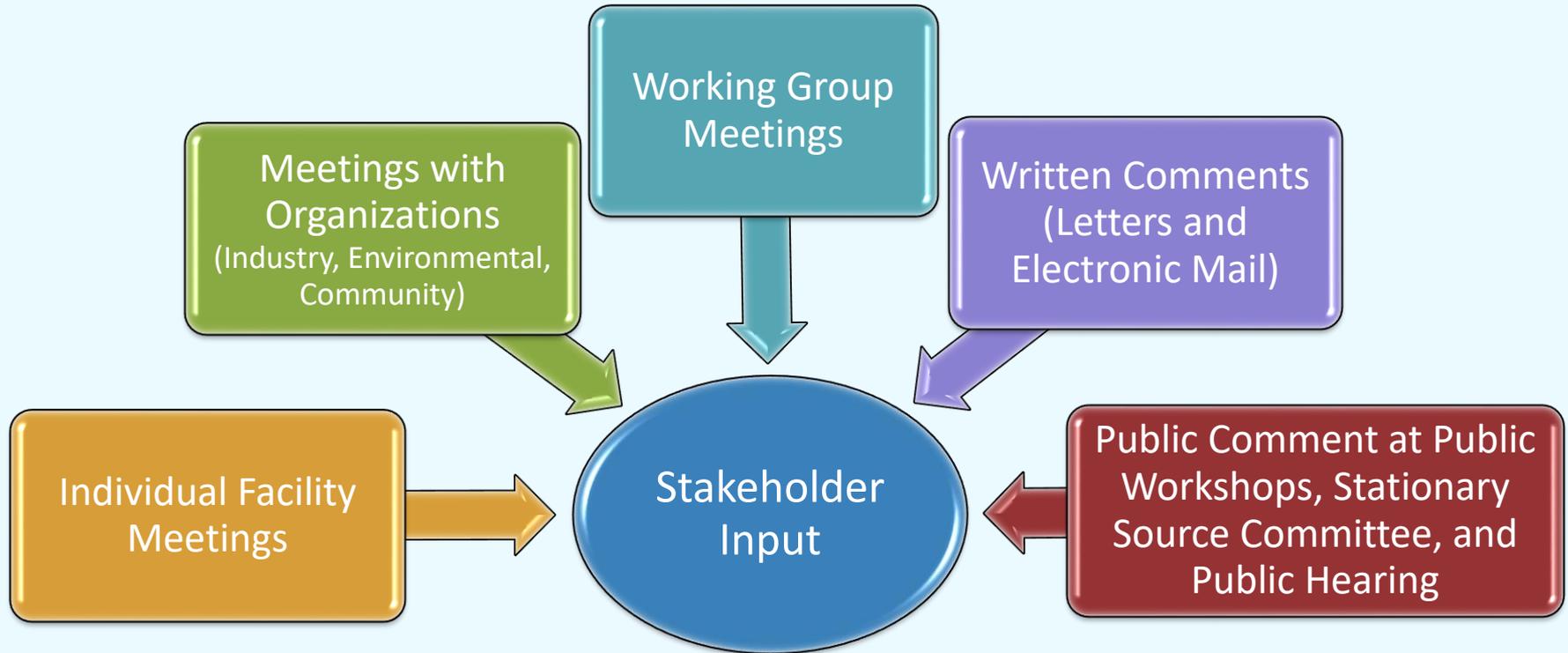
Development of Staff Proposal

Rule Concepts and Proposed Rule Language

- Definitions
 - Proposed emission standards and other requirements
 - Monitoring, Reporting, and Recordkeeping
 - Exemptions
- ▶ Rule concepts are presented in Working Group Meetings
 - ▶ Developing rule concepts and draft proposed rule language is an iterative process with stakeholder input
 - ▶ Preliminary draft rule language and Preliminary Draft Staff Report are released no later than 75 days before the Public Hearing



Stakeholder Input Opportunities



Additional Tips for Stakeholder Input



Stakeholder input provided throughout the rulemaking process – *Early input encouraged*



All input is needed – Technical suggestions, compliance challenges, community concerns, etc.



Goal is a rule that meets air quality objectives and that all facilities can comply with

**Overview of
Rule 1147**
(Provisions for Metal
Processing Equipment)



Rule 1147 Overview

- ▶ Rule 1147 was adopted in 2008 and amended in 2011 and 2017
- ▶ Applies to manufacturers, distributors, retailers, installers, owners, and operators of combustion equipment
- ▶ Establishes NO_x emission limits for well over 20 equipment categories that are:
 - ▶ $\geq 325,000$ Btu/hour;
 - ▶ Not regulated under a Regulation XI rule for NO_x; and
 - ▶ Require a South Coast AQMD permit
- ▶ Establishes either a 30 or 60 ppm NO_x concentration limit based on the equipment type, fuel type, and process temperature
 - ▶ Compliance dates are based on manufacture date, combustion system modification/replacement, or unit replacement/relocation

Rule 1147 – 2011 and 2017 Amendments

2011 Amendment

- Delayed implementation up to two years
- Provided additional compliance flexibility

2017 Amendment

- Based on a Rule 1147 Technology Assessment
 - Delayed compliance for small and low emission units
 - Increased the NOx emission limit for certain equipment categories
 - Exempted units < 325,000 Btu/hr from NOx emission limits

Current Rule 1147 Limits for Metal Processing Equipment

Gaseous Fuel-Fired Equipment	Process Temperature		
	$\leq 800^{\circ} \text{ F}$	$> 800^{\circ} \text{ F}$ $< 1200^{\circ} \text{ F}$	$\geq 1200^{\circ} \text{ F}$
Metal Heat Treating, Metal Melting Furnace, Metal Pot, or Tar Pot	60 ppm		
Liquid Fuel-Fired Equipment			
All liquid fuel-fired Units	40 ppm		60 ppm

* NOx limit corrected to 3% oxygen, by volume on a dry basis

Proposed Rule 1147.2

NO_x Reductions from
Metal Processing Equipment



Initial Concepts for Developing Applicability

- ▶ Metal Melting Furnace
 - ▶ An apparatus in which metal in a container is brought to a liquid state
 - ▶ Does not include any apparatus in which the metal is heated but does not reach a molten state
- ▶ Metal Heat Treating Furnace
 - ▶ An apparatus which applies heat to a solid metal in order to alter the physical or chemical properties
 - ▶ Improves workability for further processing, alters microstructure to achieve desired mechanical properties (strength, hardness, toughness, ductility, and corrosion resistance), or alters surface chemistry
 - ▶ Does not include any apparatus in which heating and cooling occur incidentally during other processes, such as welding or grinding
- ▶ Seeking stakeholder input on applicability

Developing the Universe of Sources

- ▶ Universe of sources is the potential list of equipment that will be applicable to Proposed Rule 1147.2
- ▶ Two Rule 1147 categories used as starting point:
 - ▶ Metal melting furnaces
 - ▶ Heat treating furnaces, including forging furnaces
- ▶ Metal melting and heat treating furnaces are broad categories that include a variety of different furnaces
- ▶ Excluded the following equipment
 - ▶ Combustion equipment that processes metal coated parts
 - ▶ Does not alter the physical or chemical properties of the metal and instead processes the coating (e.g. coating, curing, drying, and baking)
 - ▶ Electric furnaces
 - ▶ No combustion emissions
- ▶ Considering including equipment that is currently exempt pursuant to Rule 219



Types of Metal Melting and Heat Treating Furnaces

Metal Melting Furnaces

- Crucible
- Reverberatory
- Cupola
- Pot
- Vacuum
- Kettle
- Billet Oven
- Immersion
- Pit
- Box
- Rotary
- Stack Melter
- Dual-fuel electric
- Precious Metals Reclamation

Metal Heat Treating Furnaces

- Annealing
- Homogenizing
- Tempering
- Aging
- Hardening
- Extruding
- Holding
- Galvanizing
- Forging
- Reheating
- Pre-heat

Equipment Not Proposed for Inclusion

Equipment that Processes Coated Metals

- Curing Ovens
- Burn-Off Furnaces/Ovens
- Drying Ovens
- Baking Ovens
- Graphitization & Carbonization Furnaces
- Chemical Vapor Deposition Furnaces
- Heated Spray Booths

Electric Furnaces

- Electric Induction Furnaces
- Electric Arc Furnaces

Identifying Facilities

- ▶ A variety of resources were used to identify facilities that are potentially affected by Proposed Rule 1147.2
- ▶ South Coast AQMD databases were used to identify facilities with metal melting or metal heat treat furnaces
- ▶ Since South Coast AQMD databases only include facilities with one or more permitted sources
 - ▶ Internet searches were conducted to identify facilities that may have unpermitted Proposed Rule 1147.2 units



Potentially Applicable Equipment

South Coast AQMD Databases

Industry Codes (SIC and NAICS Codes)

- Foundries, smelters, die-casters, heat treaters, extruders, mills, and forging facilities

Equipment Categories

- Heat treating furnace, furnace, oven, and heater

Other South Coast AQMD Metal Related Source-Specific Rules

- Rules 1147, 1407, 1420, and 1430, and Proposed Rules 1407.1 and 1435

Web Search

For facilities located in the South Coast AQMD conducting metal processing activities with no permitted equipment

Equipment Data

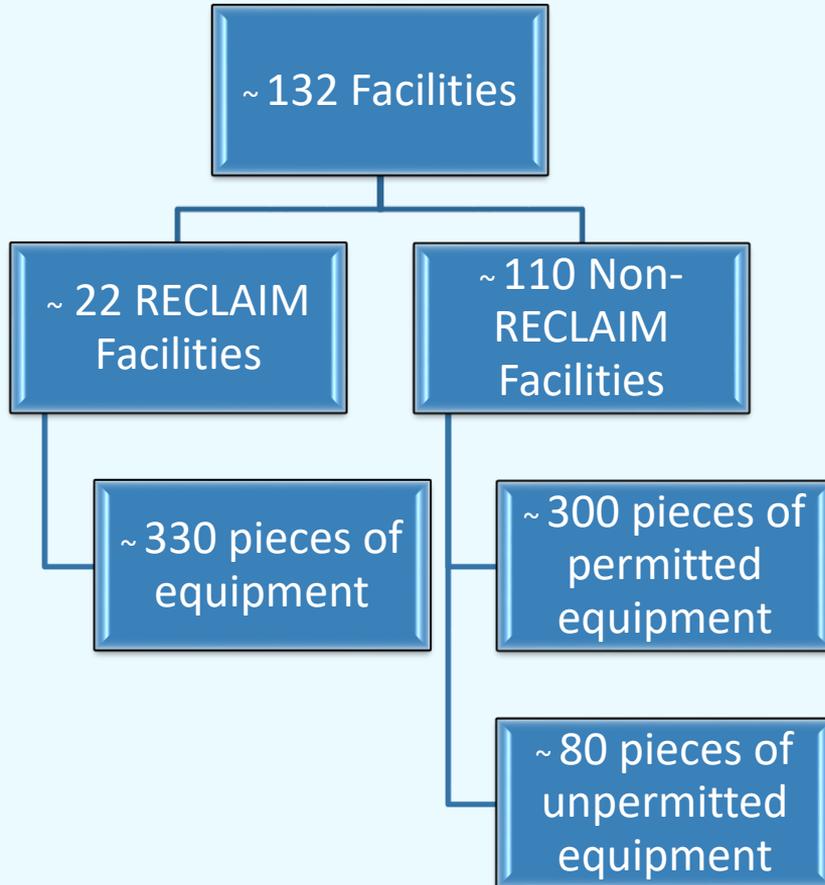


Equipment Data Review

- ▶ Equipment data obtained through South Coast AQMD Databases
 - ▶ Permit Database
 - ▶ Source Test Database
 - ▶ Compliance Database
 - ▶ 2017 Annual Emission Report
- ▶ Considerations
 - ▶ Many pieces of equipment are Rule 219-exempt
 - ▶ Equipment inventory is underrepresented
 - ▶ Equipment does not have a NO_x rule or permit emission limit
 - ▶ Initial data to be updated as more surveys and site visit information becomes available



Facility and Equipment Breakdown*



*Initial data, will be updated as more information becomes available

Rule Development Schedule

Site Visits	Ongoing
Next Working Group Meeting	June 2019
Public Workshop	September 2019
Set Hearing	October 4, 2019
Public Hearing	November 1, 2019

Contacts

PR 1147.2

James McCreary
Assistant Air Quality Specialist
jmccreary@aqmd.gov
909-396-2451

Uyen-Uyen Vo
Program Supervisor
uvo@aqmd.gov
909-396-2238

Mike Morris
Planning and Rules Manager
mmorris@aqmd.gov
909-396-3282

PAR 1147

Shawn Wang
Air Quality Specialist
swang@aqmd.gov
909-396-3319

Gary Quinn, P.E.
Program Supervisor
gquinn@aqmd.gov
909-396-3121

Michael Krause
Planning and Rules Manager
mkrause@aqmd.gov
909-396-2706

RECLAIM Questions

Kevin Orellana
Program Supervisor
korellana@aqmd.gov
909-396-3492

Gary Quinn, P.E.
Program Supervisor
gquinn@aqmd.gov
909-396-3121

General Questions

Susan Nakamura
Assistant
Deputy Executive Officer
snakamura@aqmd.gov
909-396-3105