
PROPOSED AMENDED RULES 1146, 1146.1, 1146.2 &
PROPOSED RULE 1100
WORKING GROUP MEETING #2

JANUARY 16, 2018

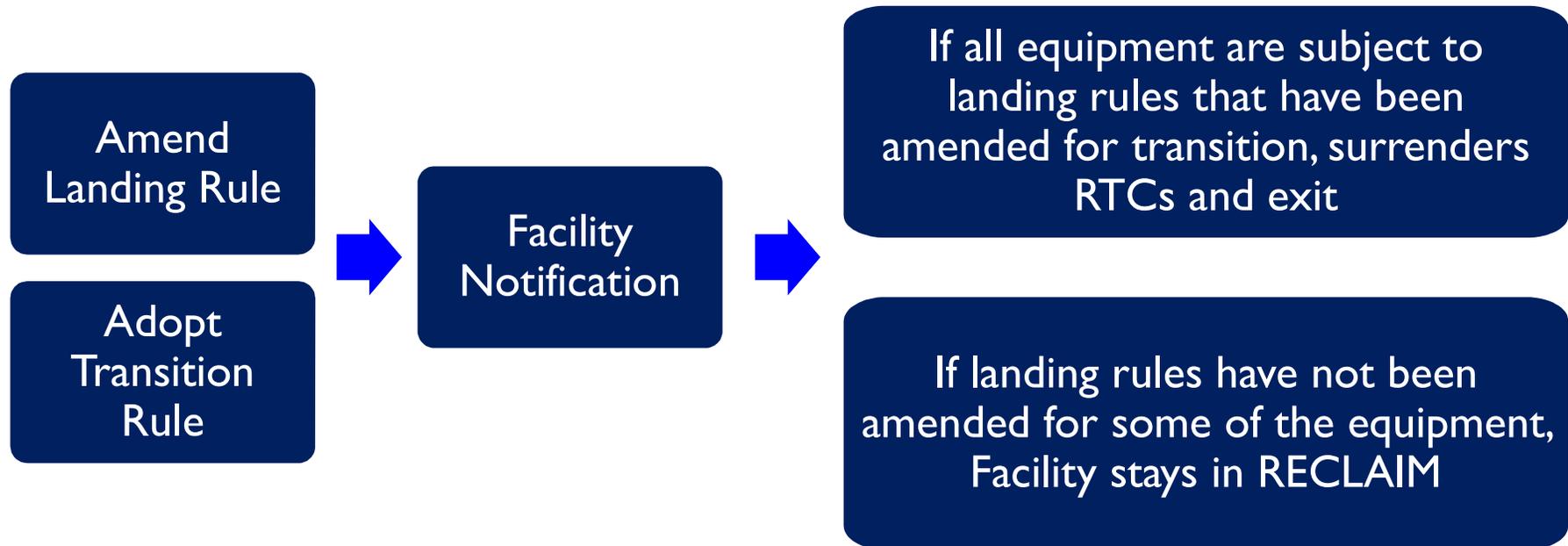
SCAQMD

DIAMOND BAR, CA

Agenda

- ❑ Summary of WG #1
- ❑ Implementation Schedule
- ❑ Monitoring, Recording and Recordkeeping Requirements

RECLAIM Transition



Rule 1146 Series Rules

- Rule 1146 series rules – the first set of landing rules
 - Remove RECLAIM exemptions
 - Add provisions for RECLAIM facilities
 - Will address facilities that will be transitioned under an industry specific rule separately
 - Electricity Generating Facilities (EGFs), refineries, metal operations facilities, aggregate facilities
 - Possibly other industries (to be determined)

Rule	Applicability	Size
Rule 1146	Boilers, steam generators, and process heaters	≥ 5 million Btu per hour
Rule 1146.1	Boilers, steam generators, and process heaters	>2 and <5 million Btu per hour
Rule 1146.2	Natural gas-fired water heaters, boilers, and process heaters	≤ 2 million Btu per hour

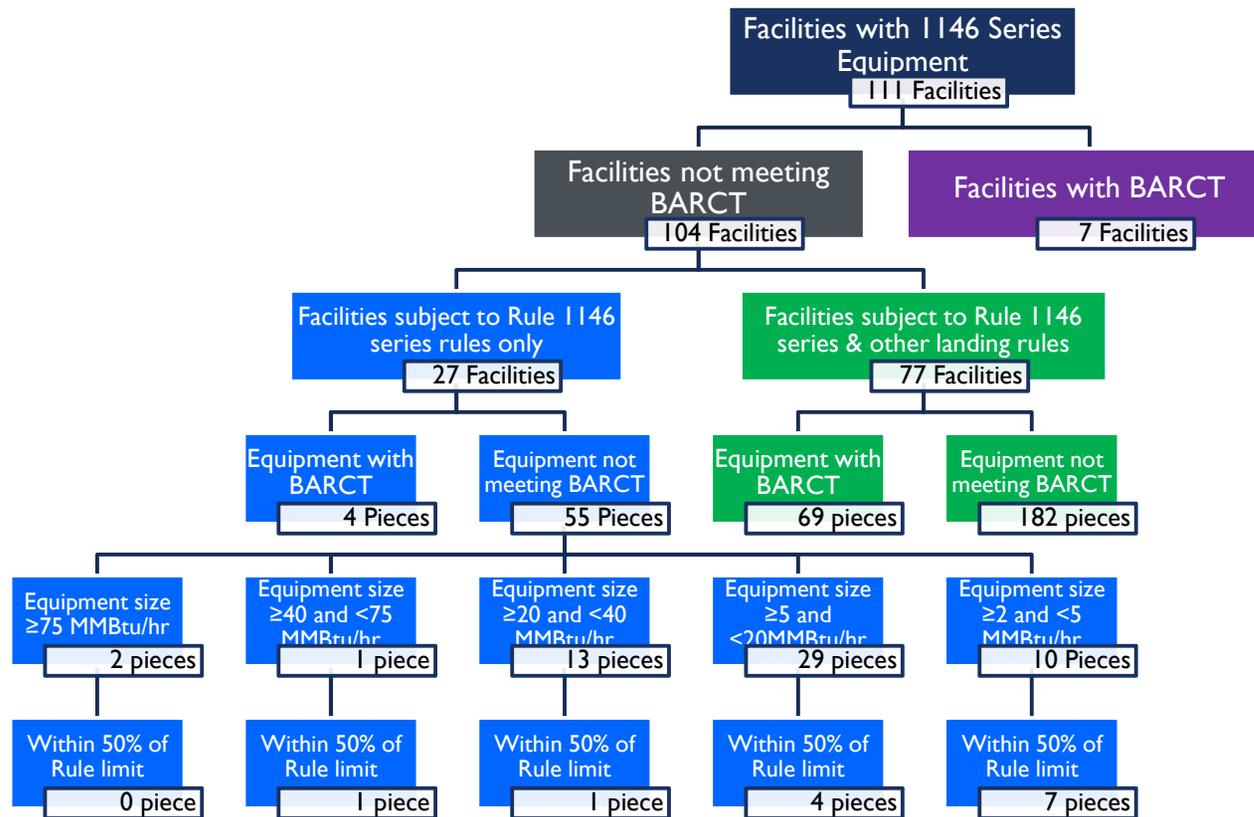
Initial Concepts for PARs 1146 and 1146.1

- ❑ Maintain existing NO_x concentration limits (Emission limits still represent BARCT)
- ❑ Remove the exemption of RECLAIM facilities in the applicability
- ❑ Add a provision that exempts facilities that are transitioning out of RECLAIM from current Rule 1146 and 1146.1 compliance dates
- ❑ PAR 1146 and 1146.1 will reference Proposed Rule 1100 which will include the implementation schedule for compliance with all provisions in Rules 1146 and 1146.1

Initial Concepts for PAR 1146.2

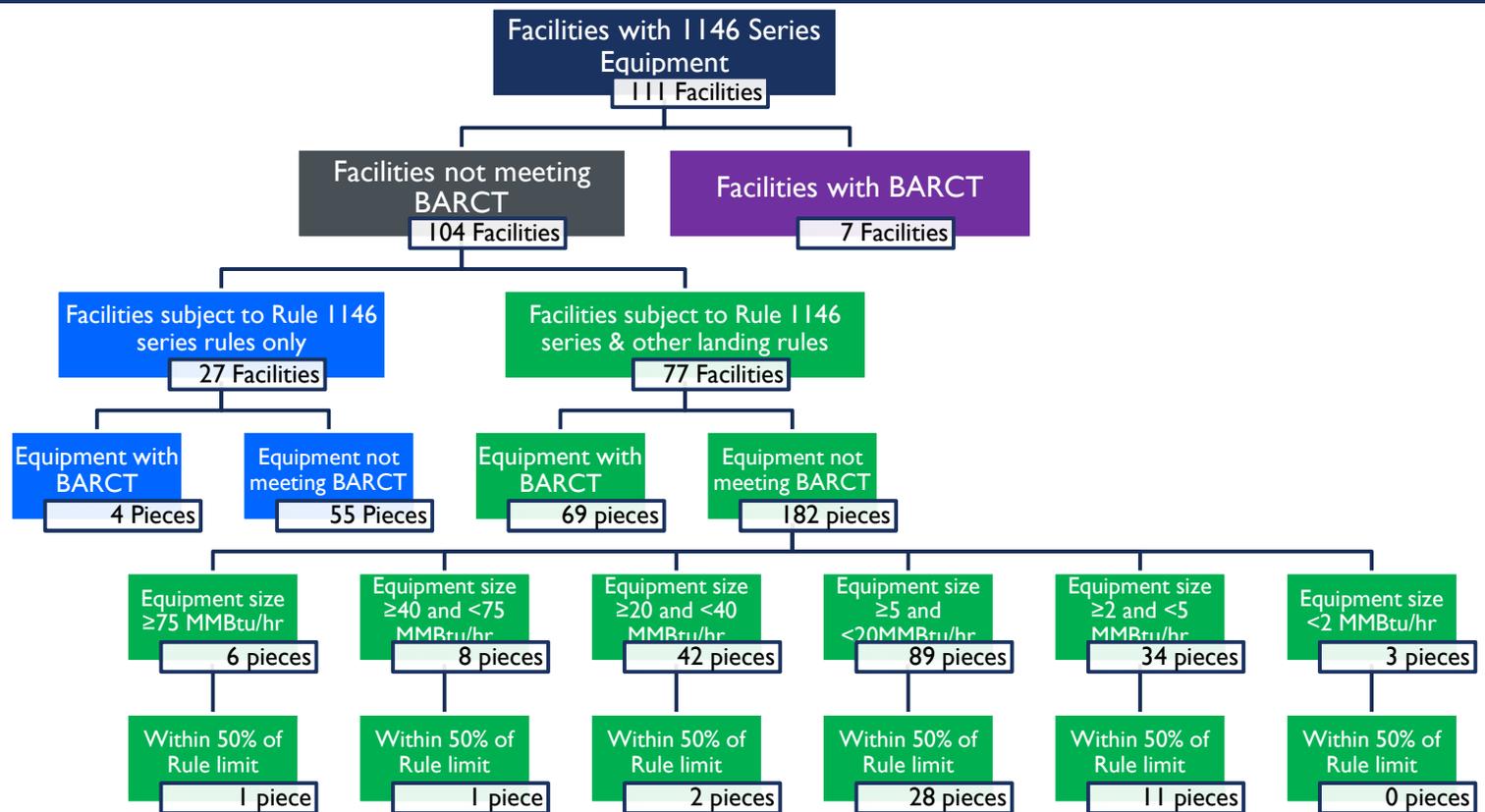
- ❑ NOx concentration emission limit might need to be lowered
- ❑ Amending NOx concentration limit will affect non-RECLAIM sources and requires a more extensive rulemaking process
- ❑ No changes to NOx concentration limit at this time, will revisit later (post transition)
- ❑ RECLAIM facilities with Rule 1146.2 equipment can exit RECLAIM, but will not be subject to end-user limit of 30 ppm
 - Avoids need to install an intermediate technology that would be obsolete upon future amendment to Rule 1146.2
- ❑ Additional information on Rule 1146.2 equipment is needed
 - Non-RECLAIM facilities currently register Rule 1146.2 equipment from 1 up to and including 2 MM Btu/hr under Rule 222 (RECLAIM facilities exempt from this provision)
 - Add a provision in Rule 1146.2 to require RECLAIM facilities to submit a one-time inventory of Rule 1146.2 Type II units (> 400,000 Btu/hr up to and including 2 MM Btu/hr)

Rule 1146 Series RECLAIM Universe (Permitted)*



* Excludes EGFs and refineries.

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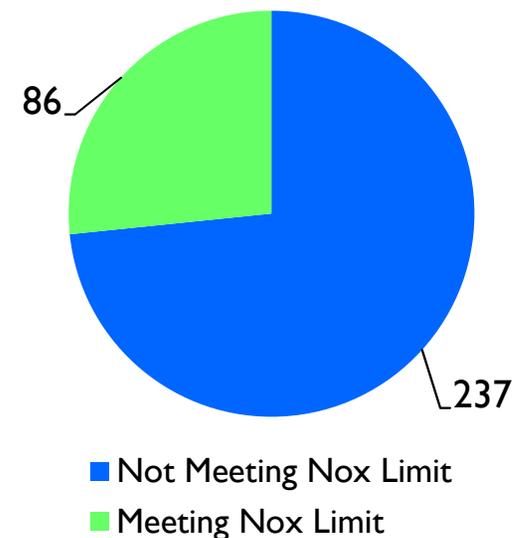
Proposed Rule 1100 – BARCT Implementation Schedule for NOx Facilities

- ❑ Proposed Rule 1100 will:
 - Specify the implementation schedule for facilities
 - Ensure that facilities affected by multiple rules will achieve the greatest emission reductions early
 - Coordinate implementation schedules for multiple rules
 - Reference emission limits in applicable BARCT rules
- ❑ Staff analyzed the RECLAIM data to evaluate facilities with multiple pieces of Rule 1146 and 1146.1 equipment and those with other RECLAIM equipment to:
 - Understand the number of units that need to meet the NOx concentration limits
 - Establish the appropriate compliance schedule for facilities

Data Analysis

- Reviewed permits for all Rule 1146 and 1146.1 units in RECLAIM
 - Identified number of units at each facility that are currently meeting compliance limit
 - Identified number of non-Rule 1146 and 1146.1 units a facility has
 - Focused on units currently not meeting Rule 1146 and/or Rule 1146.1 NOx concentration limits – 237 units
 - Excluded Refineries and EGFs

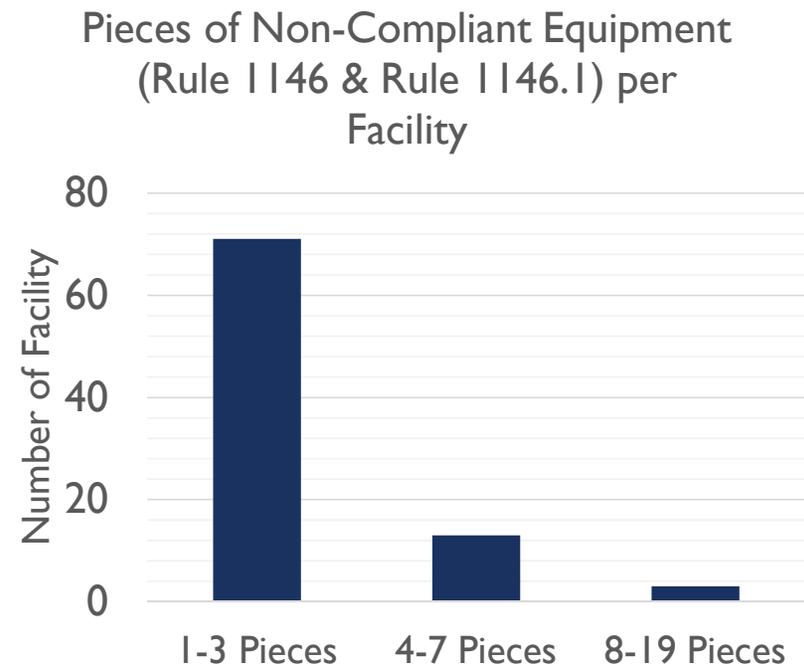
Rule 1146 and Rule 1146.1 Equipment in RECLAIM



323 Rule 1146 and 1146.1 Units in RECLAIM

Analysis of Rule 1146 and 1146.1 Units Currently Not Meeting NO_x Limit Per Facility

- Findings
 - Most facilities had 3 or less Rule 1146 and 1146.1 units
 - 12 facilities had between 4 and 7 units
 - 9 facilities with units from a combination of different size bins (Rule 1146 Group I, II and III, and Rule 1146.1)
 - 3 facilities had between 8 and 19 units
 - 2 facilities with units from a combination of different size bins (Rule 1146 Group I, II and III, and Rule 1146.1)
- Staff believes that facilities with 7 or less units can meet the NO_x concentration limits within 3 years
- Staff will discuss the compliance schedule with the facilities with 8 or more Rule 1146 and/or Rule 1146.1 units



Analysis of Facilities with Rule 1146 and 1146.1 Equipment and Other Landing Rules

- Findings
 - About half of facilities had 3 or less non-Rule 1146 and 1146.1 units* (“other units”)
 - Mostly Rule 1110.2 (IC Engines) or Rule 1147 units (Miscellaneous Sources)
 - 26 facilities had between 4 and 10 other units
 - 14 facilities had > 10 other units
- Staff believes that facilities with 10 or less other units can meet the NO_x concentration limits for Rule 1146 and/or Rule 1146.1 within three years
- Staff is further assessing the compliance schedule with the facilities with more than 10 other units

Initial Concepts for Proposed Rule 1100

- ❑ Staggering implementation schedule by heat input
 - Focus on larger emission sources having a final implementation sooner (similar to Rule 1146)
- ❑ Group equipment of different sizes together to allow for flexibility & ensure achievement of greatest emission reductions early
 - Group all equipment subject to Rule 1146 and Rule 1146.1
 - 11 facilities subject to 2 or more size bins in Rule 1146 (Group I, II, & III, total of 44 pieces of equipment)
 - 9 facilities subject to both Rule 1146 and Rule 1146.1 (52 pieces of equipment)

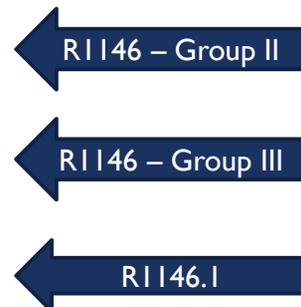
Initial Recommendation

- ❑ Proposed 50% of units by heat input in 2 years in first working group meeting
 - Comments from working group that more time is needed for budgeting
- ❑ Proposing
 - 75% of units by heat input for Rule 1146 and 1146.1 units (excluding BARCT-compliance equipment) by Jan. 1, 2021; 100% of units by heat input by Jan 1, 2022
 - Submit a complete permit application by August 1, 2018 (leaving 29 months for permit approval, installation & source testing)

Example of Compliance Schedule

- Hypothetical Facility A – Rule 1146 and Rule 1146.1 equipment only
 - Total heat input = 100 MMBtu/hr
 - Any combination totaling ≥ 75 MMBtu/hr (100 MMBtu/hr X 75%) by Jan. 1, 2021;
 - All units by Jan. 1, 2022

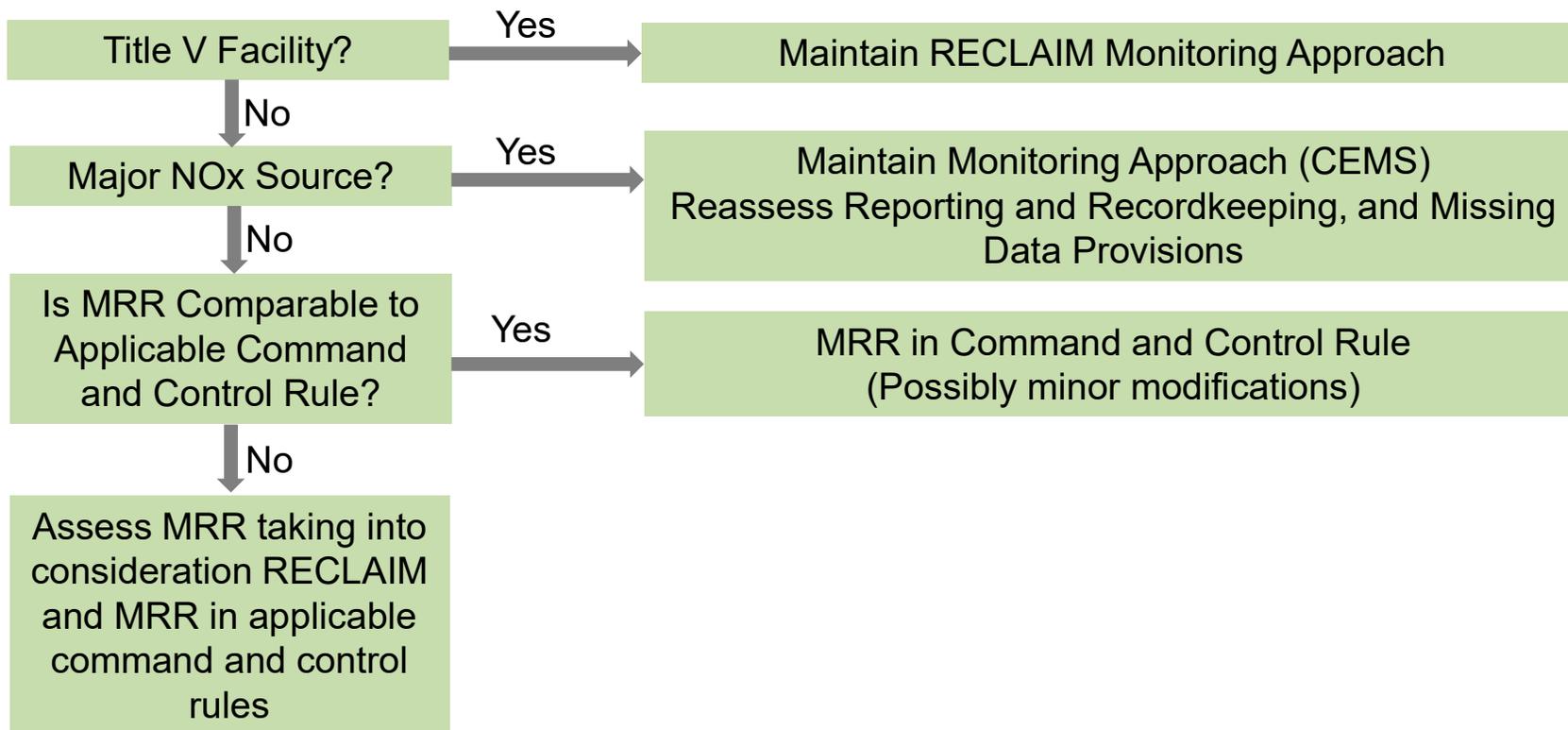
Equipment	Size
1. Boiler	64 MMBtu/hr
2. Boiler	18 MMBtu/hr
3. Boiler	12 MMBtu/hr
4. Boiler	3 MMBtu/hr
5. Boiler	3 MMBtu/hr
TOTAL	100 MMBtu/hr



Initial Concepts for Monitoring, Reporting & Recordkeeping Requirements

- ❑ Concerns for RECLAIM specific MRR
 - Some measurements are used for mass emission calculations only
 - More stringent reporting requirements
- ❑ Initial staff recommendations:
 - Title V facilities
 - NSR public process triggered by modifications on monitoring and recordkeeping
 - Maintain RECLAIM MRR approach; possible flexibility in changes to reporting requirements and missing data provisions
 - Non-Title V, major sources
 - Maintain CEMS but reassess reporting, recordkeeping, and missing data provisions
 - Non-Title V, non-major sources
 - Use MRR in source-specific rules
 - May need minor modifications
 - If MRR requirements are not comparable, will need to assess

General Approach for Addressing Monitoring, Reporting, and Recordkeeping



Monitoring – Source Testing

Equipment Type		RECLAIM	Rule 1146 Series
RECLAIM	Rule 1146 Series		
Major Source* <ul style="list-style-type: none"> • ≥40 MMBtu/hr or • >10tpy 	R1146 <ul style="list-style-type: none"> • ≥40 MMBtu/hr 	Continuous Emissions Monitoring (CEMS) – Annual (or semi-annual [#]) certification of Relative Accuracy Test Audits (RATA) including source testing	
Large Source* <ul style="list-style-type: none"> • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy 	R1146 <ul style="list-style-type: none"> • ≥5 and <40 MMBtu/hr 	Source testing once every 3 years;	Source testing once every 3 years for ≥10 and <40 MMBtu/hr; Source testing once every 5 years for ≥5 and <10 MMBtu/hr
Process Unit* <ul style="list-style-type: none"> • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted 	R1146.1 <ul style="list-style-type: none"> • >2 and <5 MMBtu/hr 	Source testing once every 5 years for devices with concentration limit	Source testing once every 5 years;
R219 Exempt <ul style="list-style-type: none"> • ≤2 MMBtu/hr 	R1146.2 <ul style="list-style-type: none"> • ≤2 MMBtu/hr 	Not applicable	Not applicable

* Refer to Rule 2012 for specific definitions

Only applicable to RECLAIM facilities with standards exceeding the 7.5% requirements

Highlighted texts (in yellow) indicate initial staff recommendations for non-Title V facilities once they fully exit RECLAIM

Monitoring –Tune Ups/Diagnostic Emission Check

Equipment Type		RECLAIM Tune Up Frequency	Rule 1146 Series Diagnostic Emission Check Frequency
RECLAIM	Rule 1146 Series		
Major Source* • ≥40 MMBtu/hr or • >10 tpy	R1146 • ≥40 MMBtu/hr	Daily calibration and semi-annual tune ups OR Annual RATA	At least monthly or every 750 operating hours, or quarterly or every 2000 operating hours
Large Source* • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy	R1146 • ≥5 and <40 MMBtu/hr	Semi-annual tune ups	Same as above
Process Unit* • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted	R1146.1 • >2 and <5 MMBtu/hr	Annual tune ups	At least quarterly or every 2000 operating hours or semi-annually or every 4000 operating hours
R219 Exempt • ≤2 MMBtu/hr	R1146.2 • ≤2 MMBtu/hr	Not applicable	Not applicable

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Recordkeeping

Equipment Type		RECLAIM	Rule 1146 Series
RECLAIM	Rule 1146 Series		
Major Source • ≥40 MMBtu/hr* or • >10tpy	R1146 • ≥40 MMBtu/hr	<ul style="list-style-type: none"> • < 15-min. data = min. 48 hours • ≥ 15-min. data = 3 years (5 years if Title V) • Maintenance & emission records, source test reports, RATA reports, audit reports and fuel meter calibration records for Annual Permit Emissions Program = 3 years (5 years if Title V) 	<ul style="list-style-type: none"> • Source test records • Maintenance & emission records = 2 years • Monitoring data = 2 years (5 years if Title V)
Large Source • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy	R1146 • ≥5 and <40 MMBtu/hr		<ul style="list-style-type: none"> • Source test records • Monitoring data = 2 years (5 years if Title V)
Process Unit • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted	R1146.1 • ≥2 and <5 MMBtu/hr		<ul style="list-style-type: none"> • Source test records = 2 years (5 years if Title V) • Monitoring data = 2 years (5 years if Title V)
R219 Exempt • ≤2 MMBtu/hr	R1146.2 • <2 MMBtu/hr	<ul style="list-style-type: none"> • Fuel usage records 	<ul style="list-style-type: none"> • Fuel usage records

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Reporting

Equipment Type		RECLAIM		Rule 1146 Series
RECLAIM	Rule 1146 Series	Electronic	Paper	
Major Source • ≥40 MMBtu/hr* or • >10 tpy	R1146 • ≥40 MMBtu/hr	Daily automatic reporting	Quarterly Certification of Emissions Report and Annual Permit Emissions Program	Every 6 months (Rule 218)
Large Source • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy	R1146 • ≥5 and <40 MMBtu/hr	Monthly reporting		Not applicable
Process Unit • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted	R1146.1 • >2 and <5 MMBtu/hr	Quarterly reporting		Not applicable
R219 Exempt • ≤2 MMBtu/hr	R1146.2 • ≤2 MMBtu/hr	Quarterly reporting		Not applicable

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CEMS- Missing Data Procedures

Equipment Type		RECLAIM	Rule 1146 Series
RECLAIM	Rule 1146 Series		
Major Source* • ≥40 MMBtu/hr or • >10tpy	R1146 • ≥40 MMBtu/hr	For >95% availability (short gaps) • use avg. valid hour before and after or use highest hourly NOx conc. for last 30 days For <95% availability (longer gaps) • use highest hourly NOx conc. or last 30 days, or 365 days For <90% availability • use lifetime highest hourly NOx conc.	Not applicable
Large Source* • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy	R1146 • ≥5 and <40 MMBtu/hr	If missing data is < 1 month • use average monthly for the previous 12 months. If missing data is > 1 month • use highest monthly fuel usage for the previous 12 months. If missing data is > 2 months or no records are available • assume 24 hours operation at maximum rated capacity at an uncontrolled emission factor	Not applicable
Process Unit* • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted	R1146.1 • >2 and <5 MMBtu/hr	If missing data is < 1 quarter • use average quarterly fuel usage for the previous 4 quarters. If missing data is > 1 quarter • use source's highest quarterly fuel usage for the previous 4 quarters. If no records are available • assume 24 hours operation at maximum rated capacity at an uncontrolled emission factor	Not applicable
R219 Exempt • ≤2 MMBtu/hr	R1146.2 • ≤2 MMBtu/hr		Not applicable

* Refer to Rule 2012 for specific definitions

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Emission Factors

Equipment Type		RECLAIM	Rule 1146 Series
RECLAIM	Rule 1146 Series		
Major Source* • ≥40 MMBtu/hr or • >10 tpy	R1146 • ≥40 MMBtu/hr	<ul style="list-style-type: none"> • Default = 130 lbs/mmscf 	<ul style="list-style-type: none"> • Default = 100 lbs/mmscf for boilers; 130 lbs/mmscf for others • Rule-based* = 49.8 lbs/mmscf
Large Source* • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy	R1146 • ≥5 and <40 MMBtu/hr	<ul style="list-style-type: none"> • Default = 130 lbs/mmscf 	<ul style="list-style-type: none"> • Same as above
Process Unit* • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted	R1146.1 • >2 and <5 MMBtu/hr	<ul style="list-style-type: none"> • Default = 130 lbs/mmscf 	<ul style="list-style-type: none"> • Default = 100 lbs/mmscf for boilers; 130 lbs/mmscf for others • Rule-based* = 37.4 lbs/mmscf
R219 Exempt • ≤2 MMBtu/hr	R1146.2 • ≤2 MMBtu/hr		

* Demonstrated compliance

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Rule Schedule

- Nov 2017 – Feb 2018 Working Group Meetings
- Feb 2018 Public Workshop
- Mar 2, 2018 Set Hearing
- Apr 6, 2018 Public Hearing

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