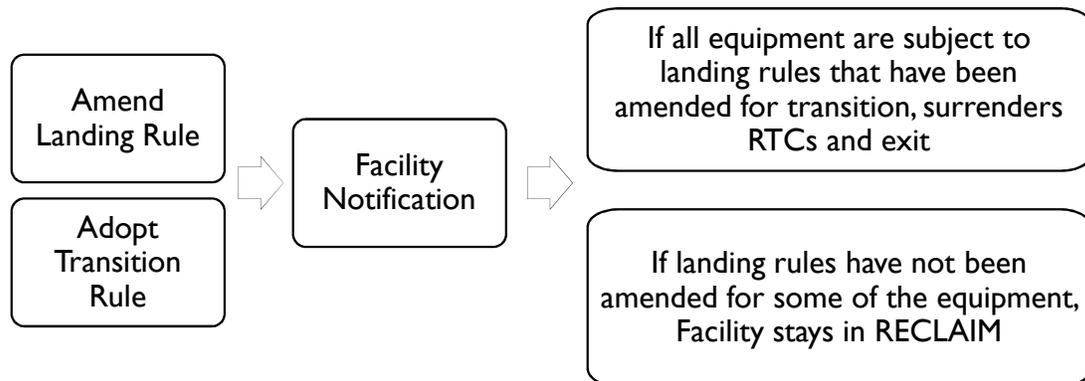

**PROPOSED AMENDED RULES 1146, 1146.1, 1146.2 &
PROPOSED RULE 1100
WORKING GROUP MEETING #2**

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 |

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Initial Concepts for PARs 1146 and 1146.1

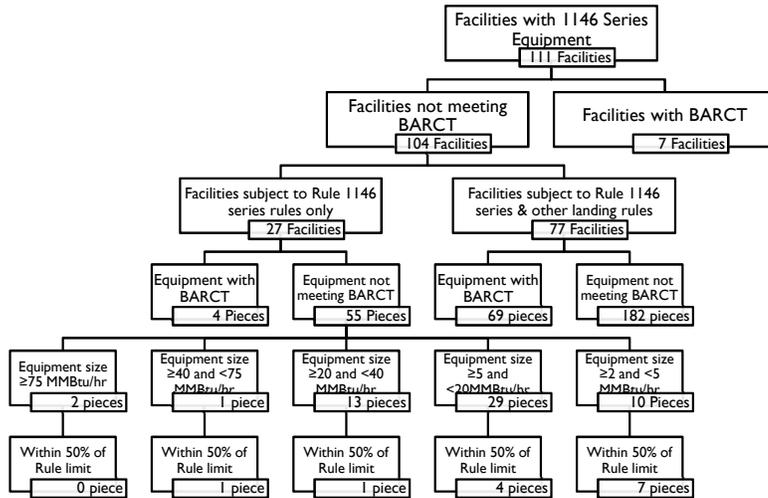
- ❑ Maintain existing NOx concentration limits (Emission limits still represent BARCT)
- ❑ Remove the exemption of RECLAIM facilities in the applicability
- ❑ Add a provision that exempts facilities that are transitioning out of RECLAIM from current Rule 1146 and 1146.1 compliance dates
- ❑ PAR 1146 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

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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)

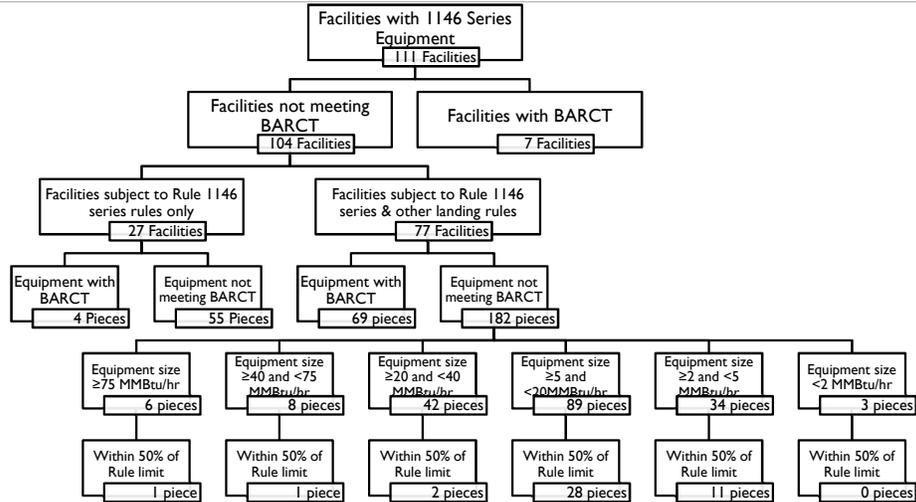
Rule 1146 Series RECLAIM Universe (Permitted)*



* Excludes EGFs and refineries.

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Rule 1146 Series RECLAIM Universe (Permitted)*



* Excludes EGFs and refineries.

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Proposed Rule 1100 – BARCT Implementation Schedule for NOx Facilities

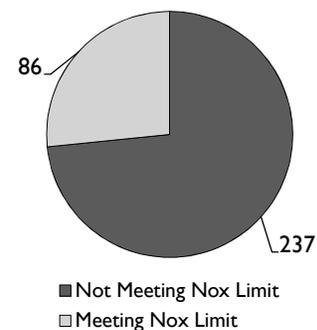
- Proposed Rule 1100 will:
 - Specify the implementation schedule for facilities
 - Ensure that facilities affected by multiple rules will achieve the greatest emission reductions early
 - Coordinate implementation schedules for multiple rules
 - Reference emission limits in applicable BARCT rules
- 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

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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

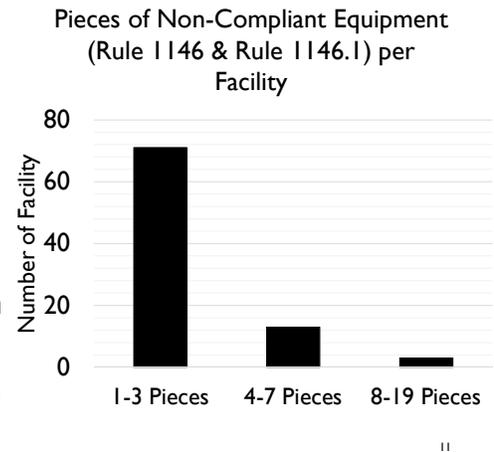


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323 Rule 1146 and 1146.1 Units in RECLAIM

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

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Excludes Rule 1470 equipment

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)

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Initial Recommendation

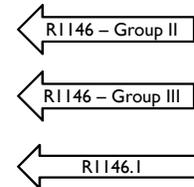
- ❑ Proposed 50% of units by heat input in 2 years in first working group meeting
 - Comments from working group that more time is needed for budgeting
- ❑ Proposing
 - 75% of units by heat input for Rule 1146 and 1146.1 units (excluding BARCT-compliance equipment) by Jan. 1, 2021; 100% of units by heat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

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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 |



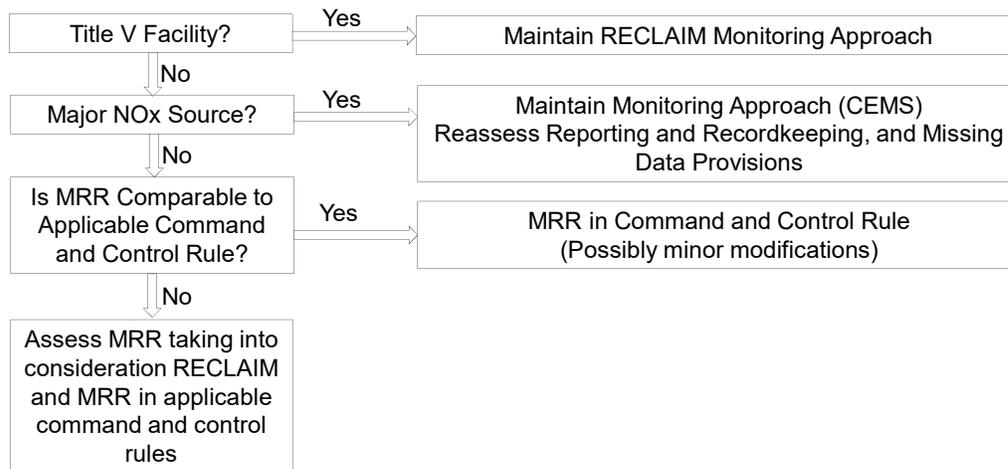
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Initial Concepts for Monitoring, Reporting & Recordkeeping Requirements

- ❑ 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

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General Approach for Addressing Monitoring, Reporting, and Recordkeeping



Monitoring – Source Testing

| Equipment Type | | RECLAIM | Rule 1146 Series |
|--|---------------------------------|--|--|
| RECLAIM | Rule 1146 Series | | |
| Major Source* • ≥40 MMBtu/hr or • >10tpy | R1146 • ≥40 MMBtu/hr | Continuous Emissions Monitoring (CEMS) – Annual (or semi-annual [#]) certification of Relative Accuracy Test Audits (RATA) including source testing | |
| Large Source* • ≥10 and <40 MMBtu/hr or • >4 and <10 tpy | R1146 • ≥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* • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted | R1146.1 • >2 and <5 MMBtu/hr | Source testing once every 5 years for devices with concentration limit | Source testing once every 5 years; |
| R219 Exempt • ≤2 MMBtu/hr | R1146.2 • ≤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 |

* Refer to Rule 2012 for specific definitions

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

Recordkeeping

| 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"> • < 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 |

* Refer to Rule 2012 for specific definitions

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

Reporting

| Equipment Type | | RECLAIM | | Rule 1146 Series |
|---|---------------------------------|---------------------------|---|---------------------------|
| RECLAIM | Rule 1146 Series | Electronic | Paper | |
| Major Source • ≥40 MMBtu/hr* or • >10tpy | 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 |

* Refer to Rule 2012 for specific definitions

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

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 | | |

* Refer to Rule 2012 for specific definitions

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

Emission Factors

| Equipment Type | | RECLAIM | Rule 1146 Series |
|--|---------------------------------|---------------------------|---|
| RECLAIM | Rule 1146 Series | | |
| Major Source* • ≥40 MMBtu/hr or • >10tpy | R1146 • ≥40 MMBtu/hr | • Default = 130 lbs/mmscf | • 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 | • Default = 130 lbs/mmscf | • Same as above |
| Process Unit* • >2 and <10 MMBtu/hr • ≤2 MMBtu/hr if permitted | R1146.1 • >2 and <5 MMBtu/hr | • Default = 130 lbs/mmscf | • 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

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

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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