PROPOSED AMENDED RULES 1147, 1100, & PROPOSED RULE 1147.1
WORKING GROUP MEETING #2

AGENDA

- Update on Rule 1147 Survey
- Summary of Working Group #1
- Overview of Rule 1147 Series
- Preliminary BARCT Analysis
  - Assessment of SCAQMD Regulatory Requirements
  - Assessment of Emission Limits of Existing Units
- Additional Considerations
- Next Steps
UPDATE ON FACILITY SURVEY

- Physical surveys were mailed out on 03/22/2019
- Objective: To identify permit limits and annual usage for existing equipment located in SCAQMD
- Completed survey requested by April 26, 2019

SUMMARY OF PREVIOUS WORKING GROUP

- Background on RECLAIM transition
- Overview of BARCT assessment
  - Technology Assessment
  - Cost Effectiveness
- Initial concepts of PAR 1147, PR 1147.1 and PR 1100
- Initial evaluation of affected universe
- Rule 1147 Survey to collect additional information to quantify impacted equipment
OVERVIEW OF RULE 1147 SERIES

Proposed Amended Rule 1147
- NOx reductions from miscellaneous sources
- Approximately 2701 facilities

Proposed Rule 1147.1
- NOx reductions from large miscellaneous combustion
- To be determined

Proposed Rule 1147.2
- NOx reductions from metal melting and heat treating furnaces
- Approximately 243 facilities

Proposed Rule 1147.3
- NOx reductions for equipment at asphalt and aggregate facilities
- Approximately 8 facilities

BARCT ANALYSIS**
OVERVIEW

*BARCT analysis is conducted for each equipment category and fuel type
*This analysis does not include equipment from PR 1147.2 and 1147.3 universe

Technology Assessment

Assessment of SCAQMD Regulatory Requirements
Assessment of Emission Limits of Existing Units
Other Regulatory Requirements
Assessment of Pollution Control Technologies
Initial BARCT Emission Limit and Other Considerations
Cost Effectiveness Analysis
BARCT Emission Limit
## CURRENT RULE 1147 LIMITS (3% O₂, DRY)

<table>
<thead>
<tr>
<th>Gaseous Fuel-Fired Equipment</th>
<th>Process Temperature</th>
<th>≤ 800°F</th>
<th>&gt; 800°F &lt; 1200°F</th>
<th>≥ 1200°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Manufacturing Operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporator, Fryer, Heated Process Tank, or Parts Washer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal Heat Treating, Metal Melting Furnace, Metal Pot, or Tar Pot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oven, Dehydrator, Dryer, Heater, Kiln, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make-Up Air Heater or other Air Heater located outside of building with temperature controlled zone inside building</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenter Frame or Fabric or Carpet Dryer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Unit or Process Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Liquid Fuel-Fired Equipment

| All liquid fuel-fired Units                                                                 |                     |          |                    |          |

## 2015 RECLAIM BARCT FOR MISC. COMBUSTION EQUIPMENT (FOR REFERENCE ONLY)

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>BARCT Emission Factor</th>
<th>Command and Control Limit</th>
<th>≤ 800°F</th>
<th>&gt; 800°F &lt; 1200°F</th>
<th>≥ 1200°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Heater, Concrete</td>
<td>0.036 lb/mmbtu</td>
<td></td>
<td>30 ppm</td>
<td>40 ppm</td>
<td></td>
</tr>
<tr>
<td>Delacquering Furnace</td>
<td>0.036 lb/mmbtu</td>
<td></td>
<td>30 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Iron/Steel Foundry</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Metal Heat Treating Furnace</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Metal Forging Furnace (Preheated Combustion Air)</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Metal Melting Furnaces</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Other Heater (24F-1)</td>
<td>0.036 lb/mmbtu</td>
<td></td>
<td>30 ppm</td>
<td>30 ppm</td>
<td>60 ppm</td>
</tr>
<tr>
<td>Ovens, Kilns, Calciners, Dryers, Furnaces</td>
<td>0.036 lb/mmbtu</td>
<td></td>
<td>30 ppm</td>
<td>30 ppm</td>
<td>60 ppm</td>
</tr>
<tr>
<td>Steel Hot Plate Furnace</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>30 ppm</td>
<td>60 ppm</td>
</tr>
<tr>
<td>Sec. Aluminum</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
<tr>
<td>Sec. Lead</td>
<td>0.055 lb/mmbtu</td>
<td></td>
<td>45 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
</tbody>
</table>
RULE 1147 COMPLIANCE SCHEDULE
(UNITS ≥ 325,000 BTU/HR)

<table>
<thead>
<tr>
<th>Equipment Category</th>
<th>Emissions Greater Than One Pound Per Day</th>
<th>Emissions Less Than One Pound Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Units</td>
<td>Any unit installed after January 1, 2010</td>
<td>Demonstrate compliance with Rule 1147 at the time of permitting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Units</td>
<td>Any unit in-use (operating) before January 1, 2010</td>
<td>Demonstrate compliance with rule NOx limits when unit or combustion system is modified or replaced; OR unit becomes 15 years old</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Demonstrate compliance with NOx limits when unit or combustion system is modified, replaced, or relocated*; OR unit becomes 35 years old*</td>
</tr>
<tr>
<td>Specific Existing Units</td>
<td>1. Heated process tanks, parts washers, and evaporators in-use (operating) before January 1, 2010</td>
<td>Demonstrate compliance with rule NOx limits when unit or combustion system is modified or replaced</td>
</tr>
<tr>
<td></td>
<td>2. Heated process tanks, parts washers, and evaporators installed and operating with an SCAQMD permit before January 1, 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Remediation units installed between December 5, 2008 and March 1, 2012</td>
<td></td>
</tr>
</tbody>
</table>

* Relocation exemption available for existing less than 1 pound/day units when owner relocates entire facility
* Facilities may choose to conduct biennial emissions test in lieu of meeting rule requirements

RULE 1147 DETERMINATIONS FOR NOx EMISSIONS OF LESS THAN 1 POUND PER DAY

Facilities may demonstrate NOx emissions of < 1 LB/Day by complying with one of the following:

1. Unit heat input rating of <325,000 BTU/hr
2. Unit with permit condition limiting NOx emissions of < 1 LB/Day
3. Recordkeeping* of monthly average emissions of < 1 LB/Day*
4. Recordkeeping* of total monthly emissions of < 22 LBs/Month*
5. Recordkeeping* of natural gas usage of <7,692 cubic feet per day*
6. Daily recordkeeping* of unit operation and the following specified rated heat input capacities operating less than or equal to the specified number of hours per day in the following table:

<table>
<thead>
<tr>
<th>Unit Rating (BTU/hr)</th>
<th>Daily Hour Limit</th>
<th>Monthly Hour Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>325,000 to 400,000</td>
<td>16</td>
<td>352</td>
</tr>
<tr>
<td>400,001 to 500,000</td>
<td>14</td>
<td>308</td>
</tr>
<tr>
<td>500,001 to 800,000</td>
<td>8</td>
<td>176</td>
</tr>
<tr>
<td>800,001 to 1,000,000</td>
<td>6</td>
<td>132</td>
</tr>
<tr>
<td>1,000,001 to 1,200,000</td>
<td>5</td>
<td>110</td>
</tr>
</tbody>
</table>

Demonstration of recordkeeping requirements must be based off of a unit-specific non-resettable time meter or fuel meter
RULE 219 EXEMPTIONS

- Equipment rated ≤ 2,000,000 BTU/hr
- Pollutant other than products of combustion?
  - Y: Permit is required
  - N: Exempt per Rule 219
- >325,000 BTU/hr?
  - Y: Subject to Rule 1147 Limits
  - N: Exempt from Rule 1147 Limits

- Rule 1147 limits do not apply to equipment rated below 325,000 BTU/hr
- Equipment rated between 325,000 BTU/hr and 2,000,000 BTU/hr are not the focus of this rulemaking

RULE 1147 RECLAIM UNIVERSE
INDUSTRY OVERVIEW

<table>
<thead>
<tr>
<th>Type of Industry Category</th>
<th>Total Number of Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>57</td>
</tr>
<tr>
<td>Services</td>
<td>7</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>5</td>
</tr>
<tr>
<td>Public Administration</td>
<td>4</td>
</tr>
<tr>
<td>Transportation &amp; Public Utilities</td>
<td>3</td>
</tr>
<tr>
<td>Construction</td>
<td>2</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2</td>
</tr>
<tr>
<td>Mining</td>
<td>2</td>
</tr>
<tr>
<td>Oil and Gas Extraction</td>
<td>1</td>
</tr>
<tr>
<td>Finance, Insurance, Real Estate</td>
<td>1</td>
</tr>
<tr>
<td>Transportation and Public Utilities</td>
<td>1</td>
</tr>
<tr>
<td>Grand Total</td>
<td>85</td>
</tr>
</tbody>
</table>
Rule 1147 Reclaim Universe

Equipment Overview

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oven/Dryer/Heater/Furnace/Klin/Heated Process Tanks</td>
<td>219</td>
</tr>
<tr>
<td>Afterburner/Thermal Oxidizer/Oxidizer/Regenerative Thermal Oxidizer</td>
<td>80</td>
</tr>
<tr>
<td>Autoclave</td>
<td>16</td>
</tr>
<tr>
<td>Fryer</td>
<td>13</td>
</tr>
<tr>
<td>Crematory</td>
<td>5</td>
</tr>
<tr>
<td>Burn-off Oven/Incinerator</td>
<td>8</td>
</tr>
<tr>
<td>Chiller</td>
<td>3</td>
</tr>
<tr>
<td>Turbine (Diesel)</td>
<td>3</td>
</tr>
<tr>
<td>Spray Coating Operation¹</td>
<td>3</td>
</tr>
<tr>
<td>Kettle/Tar Pot</td>
<td>2</td>
</tr>
<tr>
<td>Singeing Machine</td>
<td>2</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>355</strong></td>
</tr>
</tbody>
</table>

¹ Some heated spray booths are permitted under heater

Rule 1147 Reclaim Universe

Emission Limit Assessment of Existing Units

- Staff conducted analysis of each Rule 1147 category for applicable RECLAIM equipment
- Information analyzed for each equipment category:
  - Total number of impacted units
  - Units with Emission limit greater than that of Rule 1147 limits
  - Units with Emission limit less than or equal to Rule 1147 limits
Emission Limit Assessment:
Ovens, Dryers, Heaters, Furnaces, Kilns, and Heated Process Tanks

- Total of 219 ovens, dryers, heaters, furnaces kilns and heated process tanks
- Equipment in this category is used in a large variety of processes and industries
- Current Rule 1147 Limit:
  - Process Temperature
    - ≤ 800°F: 30 ppm
    - > 800°F and < 1200°F: 60 ppm
    - ≥ 1200°F: 60 ppm

- 92 out of 219 impacted units permitted with emission limits above 60 ppm
- 127 out of 219 impacted units permitted with emission limits below or equal to 60 ppm
- Those complying with limits 30 ppm or lower are likely due to BACT
RULE 1147 RECLAIM UNIVERSE
OVENS/DRYERS/HEATERS/FURNACES/KILNS/HEATED PROCESS TANKS

Assessment of Emission Limits of Existing Units

60 PPM

219 Units

Permit Emission Limit (PPM)

0 20 40 60 80 100 120 140 160 180

RECLAIM Equipment

Assessment of Emission Limits of Existing Units

92 Units

Equipment Size (MMBtu/hr)

Units With Emissions Greater Than Rule 1147 Limits

RECLAIM Equipment

92 Units
Of the 92 units that are > 60 ppm:
- Equipment sizes ranged from 0.08 to 84 MMBtu/hr
- 12 units were rated greater than or equal to 10 MMBtu/hr
- 15 units were rated between 10 MMBtu/hr and 5 MMBtu/hr
- 65 units were rated below 5 MMBtu/hr

Further investigation will be conducted for two units that are >130 lbs/mmscf (~102 ppm)
Of the 127 units that are ≤ 60 ppm:
- Equipment sizes ranged from 0.8 to 39 MMBtu/hr
- 22 units were rated greater than or equal to 10 MMBtu/hr
- 61 units were rated between 10 MMBtu/hr and 5 MMBtu/hr
- 44 units were rated below 5 MMBtu/hr

Emission Limit Assessment:
Afterburners, Thermal Oxidizers, Oxidizers, Regenerative Thermal Oxidizers
80 afterburners, thermal oxidizers, oxidizers, regenerative thermal oxidizers

Equipment in this category are used as pollution control equipment for pollutants such as VOC

Current Rule 1147 Limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800°F</th>
<th>&gt; 800°F &lt; 1200°F</th>
<th>≥ 1200°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Limit</td>
<td>60 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

52 out of 80 units have emission limits above 60 ppm

28 out of 80 units have emission limits below or equal to 60 ppm
Of the 52 units > 60 ppm:

- Equipment sizes ranged from 0.17 to 173 MMBtu/hr
- 3 units were rated greater than or equal to 10 MMBtu/hr
- 11 units were rated between 10 MMBtu/hr and 5 MMBtu/hr
- 38 units were rated below 5 MMBtu/hr

Some thermal oxidizers identified meet the definition of Flares in Rule 1118.1
Of the 28 units ≤ 60 ppm:

- Equipment sizes ranged from 0.43 to 44.1 MMBtu/hr
- 7 units were rated greater than or equal to 10 MMBtu/hr
- 7 units were rated between 10 MMBtu/hr and 5 MMBtu/hr
- 14 units were rated below 5 MMBtu/hr

Current BACT* for afterburners, thermal oxidizers, and catalytic oxidizer is 30 ppm @ 3% O2 (burner emissions only)

*From 02/01/2019 revision of South Coast AQMD BACT Guidelines
**Emission Limit Assessment:**

*Autoclaves*

- 16 autoclaves
- Equipment in this category are used primarily in the aerospace applications
- Autoclaves are considered as "Other Unit or Process Temperature" in Rule 1147 with the following current rule limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800°F</th>
<th>&gt; 800°F</th>
<th>≥ 1200°F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- 13 out of 16 impacted units permitted with emission limits above 60 ppm
- 3 out of 16 impacted units permitted with emission limits below or equal to 60 ppm
RULE 1147 RECLAIM UNIVERSE AUTOCLAVES

Assessment of Emission Limits of Existing Units

16 Units

Assessment of Emission Limits of Existing Units

13 Units

Units With Emissions Greater Than Rule 1147 Limits
Of the 13 units > 60 ppm:
- Equipment sizes ranged from 5.5 to 15.6 MMBtu/hr
- 7 units were rated greater than or equal to 10 MMBtu/hr
- 6 units were rated between 10 MMBtu/hr and 5 MMBtu/hr
- Low size variation among impacted equipment
- Equipment located across 4 facilities
RULE 1147 RECLAIM UNIVERSE
AUTOCLAVES

- Of the 3 units at 30 ppm:
  - Equipment sizes are similar in size and ranged from 24.0 to 24.3 MMBtu/hr
- All three units are located in separate facilities
- Demonstrates that 30 ppm emission limits for autoclaves are achievable

Emission Limit Assessment:
Fryers
RULE 1147 RECLAIM UNIVERSE
FRYERS

- 13 fryers
- Equipment in this category are used primarily in food preparation
- Current Rule 1147 Limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800 °F</th>
<th>&gt; 800 °F ≤ 1200 °F</th>
<th>≥ 1200 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 12 out of 13 impacted units permitted with emission limits above 60 ppm
- 1 out of 13 impacted units permitted with emission limits below or equal to 60 ppm
Of the 13 units > 60 ppm:
   ➢ 12 units have emission limits greater than Rule 1147 limits
      • Equipment sizes ranged from 0.6 to 4.0 MMBtu/hr
      • 9 out of 13 pieces of equipment located at one facility
   ➢ One unit with emission limit less than or equal to 60 ppm
     is rated to 0.98 MMBtu/hr
Emission Limit Assessment:
Crematory

- 5 crematory units
- Equipment in this category are used to burn away various organic materials at high temperatures
- Current Rule 1147 Limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800 °F</th>
<th>&gt; 800 °F &lt; 1200 °F</th>
<th>≥ 1200 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>60 ppm</td>
</tr>
</tbody>
</table>

- All 5 impacted units were permitted with emission limits above 60 ppm
Assessment of Emission Limits of Existing Units

- 5 Units

RULE 1147 RECLAIM UNIVERSE CREMATORY

Unit Size (MMBtu/hr)

Units With Emissions Greater Than Rule 1147 Limits

- 5 Units

RECLAIM Equipment

Permit Emission Limit (PPM)

60 PPM
All units are > 60 ppm
Equipment sizes ranged from 0.48 to 3.5 MMBtu/hr
All 5 pieces of equipment are located in one facility

Emission Limit Assessment:
Burn-Off Ovens and Incinerators
RULE 1147 RECLAIM UNIVERSE
BURN-OFF OVEN / INCINERATOR

- 8 burn-off oven/incinerator units
- Equipment in this category are used to burn away various in-organic materials at high temperatures
- Current Rule 1147 Limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800 °F</th>
<th>&gt; 800 °F &lt; 1200 °F</th>
<th>≥ 1200 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Limit</td>
<td>60 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 7 out of 8 impacted units permitted with emission limits above 60 ppm
- 1 out of 7 impacted units permitted with emission limits below or equal to 60 ppm
Of the 7 units > 60 ppm:

- Equipment sizes ranged from 1.00 to 4.76 MMBtu/hr
- One unit ≤ 60 ppm
  - Unit is rated at 14 MMBtu/hr
Emission Limit Assessment:
Adsorption Chillers

- 3 adsorption chillers
- Adsorption Chillers are exempt from the “Boiler or Steam Generator” definition of Rule 1146(b) which puts them into Rule 1147
- Adsorption Chillers are considered as “Other Unit or Process Temperature” in Rule 1147 with the following current rule limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800° F</th>
<th>&gt; 800° F &lt; 1200° F</th>
<th>≥ 1200° F</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 ppm</td>
<td></td>
<td>60 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- All 3 impacted units were permitted with emission limits of 20 ppm (below 30 ppm limit of Rule 1147)
**Emission Limit Assessment:**

*Micro-Turbines (Diesel)*

- 3 diesel fired micro-turbines
- Turbines that are less than 0.3 megawatt (MW) are exempt from the applicability of Rule 1134 and diesel fueled micro-turbines do not qualify for the exemption under Rule 219(b)(1) which puts them into Rule 1147 applicability
  - Staff is contemplating removing exemption for turbines in Rule 1147 applicability
- Diesel fueled equipment are considered as “Liquid Fueled” in Rule 1147 with the following current rule limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>40 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 800°F</td>
<td>&gt; 800°F</td>
</tr>
<tr>
<td>&lt; 1200°F</td>
<td>≥ 1200°F</td>
</tr>
</tbody>
</table>

- All 3 impacted units were permitted with emission limits of 77 ppm
RECLAIM Equipment Per Emission Limit (PPM)

RULE 1147 RECLAIM UNIVERSE MICRO-TURBINES (DIESEL)

Assessment of Emission Limits of Existing Units

3 Units

Unit Size (MMBtu/hr)

Units With Emissions Greater Than Rule 1147 Limits
3 Units
RULE 1147 RECLAIM UNIVERSE MICRO-TURBINES (DIESEL)

- All three micro-turbines are located at the same facility
- Units are currently permitted to meet 77 ppm NOx and limited to less than 300 hours of operation per year

**Emission Limit Assessment:**

*Spray Coating Operations*
3 spray coating units

Equipment in this category are used as make-up air heaters to cure coating applications

Current Rule 1147 Limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800°F</th>
<th>&gt; 800°F &lt; 1200°F</th>
<th>≥ 1200°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Limit (ppm)</td>
<td>30 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All 3 impacted units permitted with emission limits above 30 ppm
Rule 1147 Reclaim Universe
Spray Coating Operations

Assessment of Emission Limits of Existing Units

All three impacted units are permitted at the RECLAIM default emission factor of 130 lbs/mmscf

- Unit size range from 1.0 to 2.5 MMBtu/hr
- Additional make-up heaters could be classified as heaters
**Emission Limit Assessment:**

*Kettles and Tar Pots*

---

**RULE 1147 RECLAIM UNIVERSE**

**KETTLES / TAR POTS**

- 2 kettle and tar pots
  - One natural gas fired Kettle
  - One diesel fuel fired Tar Pot
- Kettles are classified as “Other Unit or Process Temperature” and diesel fueled tar pots are classified under “Liquid Fuel-Fired Units” in Rule 1147 with the following current rule limit:

<table>
<thead>
<tr>
<th>Equipment Categories</th>
<th>Process Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤ 800 °F</td>
</tr>
<tr>
<td>Other Unit or Process Temperature</td>
<td></td>
</tr>
<tr>
<td>All Liquid Fuel-Fired Units</td>
<td></td>
</tr>
</tbody>
</table>
RULE 1147 RECLAIM UNIVERSE  
KETTLES / TAR POTS

Assessment of Emission Limits of Existing Units

2 Units

40 PPM  
60 PPM

Diesel Fuel

10 30 50 70 90 110 130

Permit Emission Limit (PPM)

UNIT SIZE (MMBtu/hr)

RECLAIM Equipment

UNITS WITH EMISSIONS GREATER THAN RULE 1147 LIMITS

1 Unit  
(Diesel Fuel)
Natural gas fired Kettle is permitted to meet a NOx limit of 20 ppm

Diesel fuel fired Tar Pot is permitted to the RECLAIM default emission factor of 130 lbs/mmscf

Emission Limit Assessment:
Singeing Machines
RULE 1147 RECLAIM UNIVERSE
SINGEING MACHINES

- 2 singeing machines
- Impacted equipment are used to burn off projecting fibers (such as hairs and textile)
- Singeing machines are considered as “Other Unit or Process Temperature” in Rule 1147 with the following current rule limit:

<table>
<thead>
<tr>
<th>Process Temperature</th>
<th>≤ 800 °F</th>
<th>&gt; 800 °F &lt; 1200 °F</th>
<th>≥ 1200 °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Limit (ppm)</td>
<td>30 ppm</td>
<td>60 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- Both units are permitted at RECLAIM default emission factor of 130 lbs/mmscf
- Both units are located at the same facility
RULE 1147 RECLAIM UNIVERSE
SINGEING MACHINES

Assessment of Emission Limits of Existing Units

Units With Emissions Greater Than Rule 1147 Limits

RECLAIM Equipment

2 Units

AFTERBURNER/ THERMAL OXIDIZER/ OXIDIZER/ REGENERATIVE THERMAL OXIDIZER

Additional Considerations

<table>
<thead>
<tr>
<th>Gaseous Fuel-Fired Equipment</th>
<th>Process Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afterburner, Degassing Unit, Remediation Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator</td>
<td>≤ 800° F</td>
</tr>
<tr>
<td></td>
<td>60 ppm</td>
</tr>
</tbody>
</table>

- Current Rule 1147 limits all afterburner, degassing unit, remediation unit, thermal oxidizer, catalytic oxidizer or vapor incinerator to 60 ppm NOx for all process temperatures
  - As recommended from third party review of the February 2017 Final Technology Assessment for Rule 1147 Small and Low Emissions Sources
  - Also noted that preferred burner type of afterburner applications cannot easily meet 30 ppm NOx in process less that 800 F
- Current BACT* for afterburners, thermal oxidizers, and catalytic oxidizer is 30 ppm @ 3% O2 (burner emissions only)

*From 02/01/2019 revision of SCAQMD BACT Guidelines
NEXT STEPS

- Evaluate Survey Results – Due April 26, 2019
- BARCT Analysis - Sample equipment from all applicable Rule 1147 categories
- Next Working Group Meeting – Late May

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