Proposed Amended Rule 1110.2
Emissions from Gaseous- and Liquid- fueled Engines and
Proposed Amended Rule 1100
Implementation Schedule for NOx Facilities

WORKING GROUP MEETING NO. 3
February 6, 2019
South Coast AQMD Headquarters – Room GB
Agenda

1. Review of Working Group Meeting #2
2. Status of Rule Development
3. Comparison of CEMS Requirements
4. Remote Radio Transmission Towers’ Permitting Exemption
5. Next Steps and Proposed Schedule
• Review of rules – Rules 1110.2 & 1470
• Revised universe and equipment
• BARCT overview
• Regulatory comparison of Rule 1110.2 with other air districts
• Distribution of RECLAIM engines
  • Emission levels
  • Fuel type
  • Rated horsepower
• Assessment of emission limits for existing equipment
• Survey questionnaire
Status of Rule Development
Status of Rule Development

Stakeholder Input

- Working Group Meetings
- Comment Letters
- Meetings with Organizations (Industry, Environmental, Community)
- Individual Facility Meetings/Site Visits
- Public Comment at Public Workshop(s) and Public Hearing
Status of Rule Development

- Received survey questionnaire responses from RECLAIM and non-RECLAIM facilities
- Reviewed 3 Comment Letters
- Scheduled site visits with affected facilities
Survey Questionnaire
Survey Questionnaire

- Sent to affected sources – RECLAIM (25) and non-RECLAIM (426)
- Information used to update existing equipment information
  - Prime vs emergency status
  - Equipment no longer used or sold
  - Change of ownership/operator
- Information also used to develop/complete equipment inventory for cost analysis
• 25 RECLAIM sites / 426 non-RECLAIM sites
• 76.0% response from RECLAIM sites
• 30.3% response from non-RECLAIM sites
• Emergency engines coded as prime engines
• Several facilities no longer have equipment
• Portable diesel engines used as wood chippers or concrete pumping
• Tier 1 portable engines in operation (review ATCM applicability)
• Stationary prime engines used in water pumping activities
• Few cogen units in operation, but many others reported out of service
Changes to original universe of RECLAIM facilities affected by PAR 1110.2

- Two sites – equipment decommissioned and out of service
- One site – equipment transferred from PAR 1110.2 to PAR 1146
- One site – equipment permitted for testing purposes and then shipped out of state
Changes to original universe of RECLAIM engines

- Initial universe contained 98 engines
- 76 remain in the universe
  - 14 comply with current R1110.2 limit of 11 ppmv NOx
  - 62 would not currently comply with limit
Distribution of Engines versus Emission Levels (update)

<table>
<thead>
<tr>
<th>Emission Level (ppmv)</th>
<th>No. of Engines</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than or equal to 11</td>
<td>14</td>
</tr>
<tr>
<td>&gt;11 - &lt;50</td>
<td>23</td>
</tr>
<tr>
<td>50 - &lt;100</td>
<td>13</td>
</tr>
<tr>
<td>100 - &lt;200</td>
<td>7</td>
</tr>
<tr>
<td>200 - &lt;500</td>
<td>12</td>
</tr>
<tr>
<td>500+</td>
<td>7</td>
</tr>
</tbody>
</table>
### Distribution of Engines

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 11 ppm NOx Rich Burn</td>
<td>8</td>
</tr>
<tr>
<td>Lean Burn</td>
<td>54</td>
</tr>
</tbody>
</table>

**Pie Chart:**
- Rich Burn, 8
- Lean Burn, 54

**Distribution of Engines - Greater than 11 ppm NOx**
Rich Burn vs Lean Burn
Site Visits
Site Visits

- San Diego Gas and Electric – Moreno Valley
- So Cal Gas Company
  - Aliso Canyon
  - Honor Rancho
  - Playa del Rey
- Snow Summit
- Miller Coors

Any facility that wants us to visit them, please let us know.
Review of Comment Letters
<table>
<thead>
<tr>
<th>Issue</th>
<th>Industry Comment</th>
<th>Staff Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Protocol</td>
<td>Include EPA Method 18 to test for VOCs</td>
<td>• Only EPA Method 25.1 is supported by SCAQMD Source Testing for diesel-fueled emissions testing</td>
</tr>
<tr>
<td>CEMS Applicability</td>
<td>Modify Rule 1110.2 CEMS requirements to match RECLAIM – large sources</td>
<td>• Modifying Rule 1110.2 towards RECLAIM may be considered backsliding</td>
</tr>
<tr>
<td>Limited use provision</td>
<td>Consider different emissions limits for diesel ICEs that operate less than 2,190 hours per year</td>
<td>• At a minimum, diesel engines should be at Tier 4 limits</td>
</tr>
<tr>
<td>Accessibility Issues</td>
<td>Request consideration for equipment at high elevations with limited infrastructure</td>
<td>• Staff is considering different options</td>
</tr>
</tbody>
</table>
## Review of Comment Letters

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<th>Industry Comment</th>
<th>Staff Response</th>
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</table>
| Sampling time for source testing   | Reduce sampling time during source testing from 30 minutes to 5 minutes          | • Sampling may be conducted in smaller canisters – time of sampling dependent on size  
• Lowering to 5 minutes may produce non-representative samples  
• Lowering to 15 minutes may be allowed based on operational considerations |
| Data smoothing                     | Increase averaging time from 15 minutes to 1 hour for compliance determination  | • Past review of similar requests indicated that increasing the averaging time may not solve all of the issues  
• In addition, increasing averaging time may mask significant emissions or out-of-compliance situations |
Current Regulations
Currently, SCAQMD Rule 1110.2 requires that all non-RECLAIM stationary, non-emergency internal combustion engines comply with the following emissions standards for any gaseous or liquid fuel:

- 11 ppmv\(^1\) NO\(_x\)
- 30 ppmv\(^1\) VOC
- 250 ppmv\(^1\) CO

These emission limits have been in effect within our District since 2011

\(^1\)Parts per million by volume, corrected to 15% oxygen on a dry basis and averaged over 15 minutes
Current U.S. EPA Non-Road and Stationary Emissions Regulations Tier 4 Final - NOx

- 75 – 750 hp: 0.30 g/bhp-hr, 27 ppm\(^1,2\)
- > 750 hp: 0.50 g/bhp-hr, 45 ppm\(^1,2\)

At a minimum, new diesel engines must meet these emission limits.

Note:

1. Parts per million by volume, corrected to 15% oxygen on a dry basis and averaged over 15 minutes.
2. Conversion from g/bhp-hr to ppm based on 40% thermal efficiency.
• The State Airborne Toxic Control Measure (ATCM) contains a schedule for the retirement of older portable diesel-fueled engines
• On 1/1/2020, portable Tier-1 engines rated at 50 hp and greater will be prohibited engines from operating in California
• Designated low use engines operating less than 200 hours per year exempted
Airborne Toxic Control Measure

- ATCM for diesel particulate matter from portable engines (≥ 50 bhp) prohibits engines from operating in California on or after the dates listed below
- New replacements must meet Federal standards (Tier 4 Final)

<table>
<thead>
<tr>
<th>Engine Certification</th>
<th>Engines rated 50 to 750 bhp</th>
<th>Engines rated &gt;750 bhp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Large Fleet</td>
<td>Small Fleet</td>
</tr>
<tr>
<td>Tier 1</td>
<td>1/1/2020</td>
<td>1/1/2020</td>
</tr>
<tr>
<td>Tier 2 built prior to 1/1/2009</td>
<td>1/1/2022</td>
<td>1/1/2023</td>
</tr>
<tr>
<td>Tier 2 built on or after 1/1/2009</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Tier 3 built prior to 1/1/2009</td>
<td>1/1/2025</td>
<td>1/1/2027</td>
</tr>
<tr>
<td>Tier 3 built on or after 1/1/2009</td>
<td>1/1/2027</td>
<td>1/1/2029</td>
</tr>
<tr>
<td>Tier 1, 2, and 3 flexibility engines</td>
<td>Dec. 31 of the year 17 years after the date of manufacture</td>
<td>This provision shall not apply to any engine operation before the effective date of this regulation</td>
</tr>
</tbody>
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- Dec. 31 of the year 17 years after the date of manufacture
- This provision shall not apply to any engine operation before the effective date of this regulation
BARCT Approach
BARCT Technology Assessment Approach

- Assessment of SCAQMD regulatory requirement
- Other regulatory requirements
- Assessment of emission limits for existing units
- Assessment of pollution control technologies
Assessment of Pollution Control Technologies

- Assessment of SCAQMD regulatory requirement
- Other regulatory requirements
- Assessment of emission limits for existing units
- Assessment of pollution control technologies
Comparison between 1110.2 and RECLAIM
For CEMS
• Under Rule 1110.2, engines ≥ 1000 bhp require CEMS
• Under RECLAIM, Major NOx sources not Large sources require CEMS
  • Major NOx source – engines ≥ 1,000 bhp and operating > 2,190 hours per year
  • Large NOx source – engines rated:
    ❖ ≥ 1,000 bhp and operating < 2,190 hours per year; or
    ❖ ≥ 200 bhp but < 1,000 bhp and operating > 2,190 hours per year.
• Under Rule 1110.2, there is a facility constraint determining if CEMS is required
  • Combined rating $\geq 1500$ bhp at the same location
  • Combined fuel usage $\geq 16 \times 10^9$ BTUs per year (HHV)
  • Engines $< 500$ bhp or permitted as a backup or having restricted use are not counted in the combined rating
• Under RECLAIM, no equivalent facility constraint
Summary

• 6 RECLAIM facilities with an on-site aggregate horsepower rating ≥ 1500 hp would require CEMS under Rule 1110.2
• 24 engines affected
• Staff believes that changing Rule 1110.2 to match RECLAIM represents backsliding on MRR
Radio Transmission Towers’ Permit Exemption
Radio Transmission Towers’ Permitting Exemption

History
• Rule 219 exempts from permitting diesel, prime engines rated less than 100 bhp used exclusively at remote two-way radio transmission towers where no utility, electricity or natural gas is available within ½ mile radius
• Engines found to operate greater than 500 hours
• Rule 1110.2 does not exempt engines from emissions limits

Considerations
• Provide explicit exemption for emission limits
• Require compliance
• Establish phase-out schedule
Schedule
Next Steps and Proposed Rule Schedule

- On-going working group meetings
- Public workshop: 1st Quarter 2019
- Public hearing: September 2019
Contacts
Staff Contacts

Please contact the following SCAQMD staff members with any questions or comments

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