June 8, 2017 Working Group Meeting

- Draft Transition Plan framework presented
- Proposed concepts for Proposed Amended Rule 2001
  - No new facilities would be added to RECLAIM
  - No facilities can elect to enter RECLAIM
  - Concepts to expand
    - Mandatory exit provisions – more analysis needed
    - Opt-out provisions – reassess existing provisions (i.e., EGFs) and establish additional provisions
  - Proposed concepts for “Structural Buyer”
Agenda

- Overview of analysis for types of facilities that would be in the first phase of a mandatory exit
  - Small facility analysis
  - Industry category breakdown
  - Equipment type details
  - Facility type details
- Landing rules outside of RECLAIM
  - Emission limit comparison
  - Implementation schedule
- Initial Recommendations
- Rulemaking Schedule (Short-Term Amendments)
- Next Steps

Approach for Assessing Facilities for Mandatory Exit

- Initial analysis focuses on facilities with 5 or less pieces of RECLAIM source equipment
  - Still evaluating facilities operating more than 5 pieces of RECLAIM source equipment – will be presented at next Working Group Meeting
- Assessed RECLAIM facilities based on:
  - Facilities with no RECLAIM source equipment (Rule 219 NOx equipment only)
  - Facilities operating 1-5 pieces of RECLAIM source equipment (NOx major source, NOx large source, NOx process unit)
- Categorized facilities by
  - Equipment types
  - Applicable command and control rules
Overview of Approach

1st Step
• Analyze facilities with 0-5 pieces of equipment

2nd Step
• Categorize RECLAIM source types and equipment categories device by device

3rd Step
• Identify facilities with all RECLAIM source equipment that:
  • meet corresponding Command & Control rule limits
  • currently have no Command & Control landing rules
  • Identify facilities that would not be a part of this initial transition

Initial Analysis of NOx RECLAIM Facility Equipment Counts

*Counts are as of September 2016. Facilities with no major/large source, or process unit equipment have either shut down or still operate equipment not requiring a permit.*
Facility and Equipment Details

- 135 total facilities with ≤ 5 pieces of equipment analyzed (about half of all RECLAIM facilities)
  - 10 facilities with no RECLAIM source equipment (emissions from R219 equipment) or no RECLAIM emissions - Recommend mandatory exit for this group of facilities
  - 125 with RECLAIM source equipment
- Equipment descriptions, emission limits, and conditions extracted from most recently issued facility permits
- Facilities with > 5 pieces of equipment will require more time

Industry Category Breakdown

- Categorized NOx RECLAIM facilities with 1 – 5 pieces of RECLAIM source equipment by similar industries
- About 20 different industry categories
- Industry categories not likely to be used as a criteria for mandatory exit for facilities with ≤ 5 pieces of RECLAIM source equipment
- Will revisit industry categories when looking at facilities with > 5 pieces of RECLAIM source equipment (next Working Group meeting)
Overview of Landing Rules Outside of RECLAIM

- Landing rules are existing command and control rules that correspond to RECLAIM equipment
  - Some RECLAIM equipment have complimentary command and control rules, while others do not
  - Some landing rules are representative of BARCT while others may need updating
- Staff assessed if the RECLAIM facility’s equipment has a corresponding landing rule that represents BARCT
Existing Command and Control Rules Evaluated

- Existing rules were evaluated based on the categories of RECLAIM equipment found for facilities with 1-5 pieces of equipment
  - Command and control rules that apply to RECLAIM equipment not found for facilities with 1-5 pieces of equipment were not included such as Rule 1109 (refinery boilers and heaters)
- The following command and control rules as potential landing rules were evaluated:
  - Rule 1110.2 (Internal Combustion Engines)
  - Rule 1146 (Boilers and Process Heaters)
  - Rule 1146.1 (Boilers and Process Heaters)
  - Rule 1147 (Miscellaneous NOx Sources)
  - Rule 1470 (Diesel Internal Combustion Engines)
  - Rule 1134 (Stationary Gas Turbines)
  - Rule 1135 (Electricity Generating Facilities)
- Rule 1146.2 was not included as it applies to the manufacturer

RECLAIM Equipment without a Corresponding Landing Rule

- RECLAIM facilities with equipment without a corresponding landing rule or a landing rule that is not at BARCT may still be considered for a mandatory exit
  - Staff is assessing and will discuss at next Working Group Meeting
- Examples of RECLAIM equipment that currently have no corresponding command and control rules
  - Coke Calcining Equipment
  - Sulfur Recovery Unit/Tail Gas Unit Incinerators
  - Sodium Silicate Furnace
Landing Rules Outside of RECLAIM

<table>
<thead>
<tr>
<th>Equipment Count of Potential Landing Rules</th>
<th>1110.2</th>
<th>1146</th>
<th>1146.1</th>
<th>1147</th>
<th>No Rule</th>
<th>1470</th>
<th>PR</th>
<th>1118.1</th>
<th>1134</th>
<th>1135</th>
<th>Grand Total</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>92</td>
<td>8</td>
<td>68</td>
<td>12</td>
<td>67</td>
<td>2</td>
<td>16</td>
<td>41</td>
<td></td>
<td>317</td>
</tr>
</tbody>
</table>

Rule 1110.2

- **Applicability**
  - Gaseous and liquid-fueled engines
  - Low use and emergency engines exempted from emission requirements
- **Rule 1110.2 emission limits (@15% O2)**
  - 11 ppm
- **RECLAIM BARCT level**
  - 11 ppm for non-OCS units
- **Implementation period from emission limit adoption**
  - 3 – 9 years, depending on fuel type
- **NOx emission levels in Rule 1110.2 provide a landing place as a RECLAIM facility transitions to Command and Control**
Rule 1146/1146.1

- **Applicability**
  - Boilers, steam generators, and process heaters greater than 2 MMBTU/hr
- **Rule 1146/1146.1 emission limits (@3% O₂)**
  - 9 ppm for units 2 - 75 MMBTU/hr
  - 5 ppm for units above 75 MMBTU/hr
- **RECLAIM BARCT level**
  - 12 ppm for units from 2 – 20 MMBTU/hr
  - 9 ppm for units above 20 MMBTU/hr
- **Implementation period from emission limit adoption**
  - 3 – 6 years, depending on size and fuel type
- **NOx emission levels in Rule 1146/1146.1 provide a landing place as a RECLAIM facility transitions to Command and Control**

Rule 1147

- **Applicability**
  - Miscellaneous NOx sources requiring a permit to operate (e.g., ovens, kilns, furnaces, dryers, afterburners, thermal oxidizers)
- **Rule 1147 emission limits (@3% O₂)**
  - 30 – 60 ppm, depending on equipment type and process temperature
- **RECLAIM BARCT level**
  - 30 – 45 ppm, depending on equipment type
- **Implementation period from emission limit adoption**
  - 3 – 15 years, depending on equipment type and date of manufacture
- **NOx emission levels in Rule 1147 provide a landing place as a RECLAIM facility transitions to Command and Control**
Implementation Schedules for Existing Command and Control Rules

- RECLAIM source equipment not at BARCT may be given more time to comply with respective command and control rules
- Consideration of implementation timeframes
  - Considering implementation timeframe allowed from rule adoption/amendment to the compliance date
  - Shorter implementation timeframe may be needed if command and control rule allowed a longer implementation timeframe (technology forcing rules)
- Other?

Rules 1470, 1134, 1135, and Proposed Rule 1118.1

- Rule 1470 applies to diesel particulate matter – still evaluating implications of Rule 1470 (emergency standby engines)
- Rules 1134 (gas turbines), and 1135 (electricity generating facilities) do not reflect current BARCT levels
  - Currently not landing place rules
  - Can either amend rules or create a new rule as the industry category or equipment category exits (discuss at next Working Group Meeting)
- Proposed Rule 1118.1 (non-refinery flares) is under development – will be a landing place upon adoption
Permitted Emission Limits

- Emission limits (which include default emission factors for certain equipment) from RECLAIM permits were compared to those in existing command and control rules.

- 142 pieces of equipment have no Reg. XI rules or rules that have not been amended in recent years (e.g., gas turbines, emergency ICEs, Rule 1135 for EGFs) – no comparison can be made at this time.

<table>
<thead>
<tr>
<th>Emission Limits on RECLAIM Permits at or below C &amp; C?</th>
<th>Count of RECLAIM Source Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>63</td>
</tr>
<tr>
<td>NO</td>
<td>112</td>
</tr>
<tr>
<td>No Corresponding Command and Control Rule to Compare Emission Limit in RECLAIM Permit</td>
<td>142</td>
</tr>
<tr>
<td>TOTAL</td>
<td>317</td>
</tr>
</tbody>
</table>

Considerations – Mass Emissions vs. NOx Concentration

- Process Units outside of RECLAIM
  - 146 process units analyzed out of 317 total RECLAIM sources of this sub-universe
  - Currently, mass emissions are calculated with fuel usage and by using default emission factors that are much higher than in command and control rules
  - Lower emission factors can be utilized by demonstration with a source test
  - Many process units are not at BARCT, but may be given additional time to comply
  - Outside of RECLAIM, concentration limits would replace mass-based emissions
Recommendations

- 90 facilities would be candidates for a mandatory exit from the RECLAIM program
  - 10 facilities with Rule 219 equipment emissions only or with no emissions
  - 13 facilities with a landing rule that are at BARCT
  - 67 facilities with a landing rule that are not at BARCT
    - Consideration to be given to those facilities that need additional time to comply with command and control regulations once exited from the RECLAIM program
    - Cumulatively, this group would not have a significant impact on future emission reductions (i.e., 5 tpd by 2025)
  - Other facilities would require additional analysis (next Working Group Meetings)

Initial Concepts for Mandatory Exit for RECLAIM

- Table 8 facilities
  - In addition, other facilities owned by Table 8 facilities
- Facilities that operate equipment that would be subject to command and control rules that need updated amendments or brand new rules
- High emitting facilities
- Outer Continental Shelf (OCS) facilities
- Facilities not meeting the criteria for the first wave of facilities that would have a mandatory exit
Summary of Initial Facility Assessment

135 Facilities
(0-5 Pieces of Equipment)

10 Facilities
R219 Equipment Only or No Emissions

Mandatory Exit

80 Facilities
With Equipment Landing Rule(s)

13 Facilities at BARCT
67 Facilities not at BARCT

Mandatory Exit

18 Facilities
Table 7/8

No Short-Term Exit, Except for EGFs

Potential Subsequent Exit

7 Facilities
Non-Table 7/8 Power Plants

Potential Subsequent Exit

20 Facilities
No Current Landing Rule

Potential Subsequent Exit

With C&C Rule Amendments

Proposed Amended Rule 2001 Schedule

- Public Workshop for Proposed Amendments to Rule 2001
  - December 2017
- Public Hearing for Proposed Amendments to Rule 2001
  - March 2, 2018
Next Steps

- Evaluation of facilities with >5 pieces of equipment and other categories of facilities discussed in presentation
- Continue with evaluation of smaller facilities (market behavior, trading activity)
- Continue with re-assessment of opt-out provisions for EGF’s
- Sub-topic working group meeting will be convened for New Source Review considerations
- Continue with the development of the RECLAIM Transition Plan
- Identify any new issues

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