Agenda

- February 2021 Adopted LAER/BACT Guidelines
- Proposed New/Updates to Part B
- Proposed New/Updates to Part D
- Proposed Amendments to Overview, Parts A and C
- Other BACT Updates
- Discussion
- Next Steps
February 2021 Adopted LAER/BACT Guidelines

- Administrative changes to Table of Contents, Overview, Parts A, C, D, and E
- Part B, Major Polluting Facilities (LAER/BACT) – Section I
  - Seven new & one updated listings
- Part C, Policy and Procedures: Non-major Polluting Facilities
  - Update maximum cost effectiveness criteria
- Part D, Non-Major Polluting Facilities (BACT)
  - Four new & three updated listings and clarifications/uploads to existing listings

BACT Guidelines Update Process

<table>
<thead>
<tr>
<th>February 2020</th>
<th>August 2020</th>
<th>January 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACT SRC #1</td>
<td>Public Comments</td>
<td>SSC Meeting</td>
</tr>
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<td></td>
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<tr>
<td>July 2020</td>
<td>October 2020</td>
<td>February 2021</td>
</tr>
<tr>
<td>BACT SRC #2</td>
<td>BACT SRC #3</td>
<td>Board Meeting</td>
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</tbody>
</table>
Part B- LAER/BACT Determination
Section I: Proposed Listing Update

➢ Boiler, Fire-Tube, Natural Gas Fired <20 MMBTU/HR
  ▪ Achieved In Practice Example (PTO: Apr. 2020)
    ▪ Boiler with Low NOx Burner
    ▪ Max Heat Input Rate: 8.4 MMBTU/HR
    ▪ Boilers are used to heat up the process water to keep the bacterial culture used to ferment the ethanol at the optimal temperature.

▪ Emission Limits:

<table>
<thead>
<tr>
<th>Emissions *</th>
<th>Current LAER Limit</th>
<th>Source Test</th>
<th>Proposed LAER Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx (ppmv)</td>
<td>12</td>
<td>5.7</td>
<td>7</td>
</tr>
<tr>
<td>CO (ppmv)</td>
<td>50</td>
<td>0.0**</td>
<td>50</td>
</tr>
</tbody>
</table>

* @ 3% O₂ dry  
** @ Full load dry (below the detection limit)

▪ Source testing was performed in 2020  
  ▪ Method 100.1
Part B- LAER/BACT Determination
Section I: Proposed Listing Update

Rotary Dryer, Aggregate Facility

- Achieved In Practice Example (PTO: Jan. 2017)
  - Low NOx Burner - Gencor Equinox Natural Gas Fired Burner
  - Max Heat Input Rate: 135 MMBTU/HR
  - Rotary dryer is used to dry raw aggregate/recycled asphalt products and shingles

Emission Limits:

<table>
<thead>
<tr>
<th>Emissions *</th>
<th>Current LAER Limit</th>
<th>Source Test</th>
<th>Proposed LAER Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx (ppmv)</td>
<td>33</td>
<td>29</td>
<td>33</td>
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</tbody>
</table>

* @ 3% O₂ on a dry basis

- Source test was performed in 2016
  - Method 100.1
Rotary Dryer, Aggregate Facility

- Achieved In Practice Example (PTO: Jan. 2017)
  - Low NOx Burner (ASTEC Natural Gas Fired Burner)
  - Max Heat Input Rate: 125 MMBTU/HR
  - Rotary dryer is used to dry gravel/asphalt/rubber

Emission Limits:

<table>
<thead>
<tr>
<th>Emissions *</th>
<th>Current LAER Limit</th>
<th>Source Test</th>
<th>Proposed LAER Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx (ppmv)</td>
<td>33</td>
<td>24.2</td>
<td>33</td>
</tr>
</tbody>
</table>

* @ 3% O₂ on a dry basis

Relative Accuracy Test Audit was performed in 2017
- Method 100.1
Part B - LAER/BACT Determination
Section I: Proposed Listing Update

➤ Roller Coater – Paper and Film, with RTO for VOC Control
  ▪ Achieved In Practice Example (PTO: Dec. 2016)
    ▪ Manufacturing process involves casting of a vinyl film and application of the adhesive on the film
    ▪ Coatings are applied in PTEs for 100% collection, which are vented to RTO
    ▪ Three flow coaters vented to RTO with permit requirement of 1500F minimum temperature and 95% overall control efficiency
  ▪ Source test was performed in 2016
    ▪ 98.9% control efficiency
    ▪ Methods 25.1/25.3
Part B- LAER/BACT Determination
Section I: Proposed New Listing

➢ I.C. Engine– Stationary, Non-Emergency, Electrical and non-Electrical with SCR, NG Fired
  ▪ Achieved In Practice Example (PTO: Aug. 2019)
    ▪ Cogeneration unit, rated at 1,573 BHP
    ▪ Lean Burn engine with SCR
  ▪ Emission Limits:
    ▪ Comply with Rule 1110.2 for NOX, CO and VOC
    ▪ Ammonia limit: 10 ppm @ 15% O₂
  ▪ Source test was performed in 2019
    ▪ Method 100.1 for NOX and CO
    ▪ Method 207.1 for ammonia slip
Part B- LAER/BACT Determination
Section II: Proposed New Listing

➢ Fumigation - Methyl Bromide Fumigation Chamber ≥ 100,000 lb-CH3Br/year
  ▪ Achieved In Practice Example (PTO: Feb. 2014)
    ▪ San Luis Obispo County APCD
  ▪ Using methyl bromide to fumigate vegetables/fruits prior to cooling and shipping
  ▪ 86% overall control efficiency (Carbon Adsorption)
  ▪ Source test was performed in 2013
Part B- LAER/BACT Determination
Section II: Proposed New Listing

➢ Gas Turbine - Combined Cycle, Natural Gas
  ▪ Achieved In Practice Examples:
    ▪ Connecticut Department of Energy & Environmental Protection
      ▪ 805 MW combined cycle power plant (PTO: Jun. 2019)
    ▪ Massachusetts Department of Environmental Protection (MassDEP)
      ▪ 692 MW combined cycle power plant (PTO: Jan. 2014)
  ▪ Combined cycle electric generation facility
  ▪ Source Test results showing compliance with emission limits
  ▪ Emission Limits:
    ▪ NOx limit: 2 ppmvd @ 15% O₂

<table>
<thead>
<tr>
<th>Emissions *</th>
<th>Current LAER Limit</th>
<th>Proposed LAER Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH₃ (ppmv)</td>
<td>5</td>
<td>2</td>
</tr>
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</table>

* @ 15% O₂ on a dry basis
I.C. Engine—Stationary, Emergency, ≥ 1,000 BHP

- Bay Area AQMD has established a BACT guideline for large diesel engines used for emergency standby power that requires them to meet the U.S. EPA's Tier 4 emissions standards
- Achieved In Practice Example: MWH Data Center, Quincy, WA (2019)
  - 3.0 MW, 1.5 MW and 1 MW diesel engines
- Source Test (3 engines)
  - Showing emission limits compliance for the 1 MW and 3 MW engines (2020)
  - 1.5 MW engine currently being retested for low load and expect results in June 2021
Part D- BACT Determination
Proposed New Listing

- I.C. Engine—Stationary, Non-Emergency, Electrical and non-Electrical with SCR, NG Fired
  - Achieved In Practice Example (PTO: Aug. 2019)
    - Cogeneration unit, rated at 1,573 BHP
    - Lean Burn engine with SCR
  - Emission Limits:
    - Comply with Rule 1110.2 for NOX, CO and VOC
    - Ammonia limit: 10 ppm @ 15% O₂
  - Source test was performed in 2019
    - Method 100.1 for NOX, CO and VOC
    - Method 207.1 for ammonia slip
Part D - BACT Determination

Proposed New Listing

➢ I.C. Engine – Stationary, Non-Emergency, Electrical and non-Electrical with SCR, NG Fired
  ▪ Cost-effectiveness Evaluation {work in progress}
    ▪ Baseline: 20 ppm (based on 20 ppm ammonia slip limit on boiler SCR)
    ▪ Proposed ammonia slip BACT limit: 10 ppm
    ▪ Ammonium sulfate as precursor for PM to be used for cost effectiveness
Part D- BACT Determination
Proposed New Listing

- Cannabis Extraction/Processing (Butane/Propane Mixture)
  - Achieved In Practice Examples:
    - Facility 1
    - Facility 2
  - Source testing was performed on Facility 1
  - Source testing on Facility 2 to be scheduled
  - VOC Recovery Efficiency: ≥ 90% - 95%
    {work in progress}
  - Cost-effectiveness Evaluation
    {work in progress}
Other BACT Updates

Overview, Part A and Part C

- Staff is proposing to add a narrow BACT exemption for non-ozone precursor emission increases associated with air pollution control (APC) equipment installations to comply with NOx BARCT standards.

- Other air districts in California have a similar BACT exemption for sources that are complying with a BARCT requirement.

- **BACT Exemption (PAR 1304)**
  - (f)(1) Upon approval by the Executive Officer or designee, new or modified permit unit(s) to install add-on APC equipment for control of NOx emissions, shall be exempt from the BACT requirement of Rule 1303(a)(1) for any associated increase in PM$_{10}$ and/or SOx emissions caused by the operation of the add-on APC equipment provided ...

- Once PAR 1304 is adopted by the Board, BACT policy will be updated.

- Update Maximum Cost Effectiveness values.
Other BACT Updates

➢ Updates for Consistency with Rules and Regulations
  ▪ Rules 1134, 1147, 1147.1, 1147.2, and 1304
  ▪ Reg XIII and XX
  ▪ Clarifications to Part D listings – more user friendly

➢ BACT Technical Assessment for Biogas Flares
  ▪ Continue to monitor new/existing organic and food waste digestion and co-digestion flare projects for ammonia NOx impacts
Next Steps

Review Comments

2nd BACT SRC Meeting
30-day Public Comment
Thank You.

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