Proposed Updates to BACT Guidelines

BACT Scientific Review Committee Meeting #2
July 22, 2020
Recent Update to BACT Guidelines & Webpage

Approved @ February 1, 2019 Board Meeting

- Overview, Parts A, B, C, and D
- Maintained consistency with recent changes to South Coast AQMD rules, State and Federal requirements
- BACT webpage (interactive and User Friendly)
- Referenced Engineering & Permitting policy preventing circumvention of BACT requirement for emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia ≥ 1 lb/day within a 5-year period
Proposed Updates to BACT Guidelines

• Administrative changes to Table of Contents, Overview, Parts A, C, D, and E
• Part B, Major Polluting Facilities (LAER/BACT) – Section I
  ➢ New & Updated Listings
• Part C, Policy and Procedures for Non-major Polluting Facilities
  ➢ Update Maximum Cost Effectiveness Criteria in Table 5
• Part D, Non-Major Polluting Facilities (BACT)
  ➢ New & Updated Listings
  ➢ Clarification(updates to existing Listings
Achieved In Practice: 1 example
Prime and finish coating stations are totally enclosed and vented indirectly to the RTO

NOx limit: 30 ppmv on a dry basis @ 3% O₂
CO limit: 100 ppmv on a dry basis @ 3% O₂

Source Test showing emission limits compliance
Part B- LAER/BACT Determination
Section I: New Proposed Listing

Recuperative Thermal Oxidizer, Natural Gas Fired (Fresh air only, no process emission)

Achieved In Practice: 1 example
Venting adhesive coater ovens

NOx limit: 30 ppmv on a dry basis @ 3% O₂
CO limit: 250 ppmv on a dry basis @ 3% O₂

Source Test showing emission limits compliance
Part B- LAER/BACT Determination
Section I: New Proposed Listing

Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading (Burner only)

Achieved In Practice: 1 example
Venting terminal tank farm

NOx limit: 30 ppmv on a dry basis @ 3% O₂
CO limit: 10 ppmv on a dry basis @ 3% O₂

Source Test showing emission limits compliance
Part B - LAER/BACT Determination
Section I: New Proposed Listing

Process Heater – Non-Refinery, Thermal Fluid Heater, Natural Gas Fired

Achieved In Practice: 2 examples (asphalt/roofing)

NOx limit: 9 ppmv on a dry basis @ 3% O₂
CO limit: 100 ppmv on a dry basis @ 3% O₂

Source Test showing emission limits compliance
Part B- LAER/BACT Determination
Section I: New Proposed Listing

I.C. Engine, Stationary, 147 & 385 BHP, Non-Emergency, Electrical Generation with NSCR

Achieved In Practice: 2 examples

NOx limit: 0.07 lb/MW-hr (2.5 ppmvd @ 15% O₂)
VOC limit: 0.10 lb/MW-hr (10 ppmvd @ 15% O₂)
CO limit: 0.20 lb/MW-hr (12 ppmvd @ 15% O₂)

Source Test showing emission limits compliance
Part B- LAER/BACT Determination
Section I: New Proposed Listing

Duct Burner – Refinery Fuel Gas

Achieved In Practice: 1 example

Total Reduced Sulfur limit:
40 ppm, rolling 1-hr avg. period &
30 ppm, rolling 24-hr avg. period

CEMS data showing emission limits compliance
Part B - LAER/BACT Determination
Section I: New Proposed Listing

Achieved In Practice: 1 example

NOx limit: 25 ppmv @ 3% O₂

Source Test showing emission limits compliance
Part B- LAER/BACT Determination
Section I: Proposed Listing Update

Gas Turbine – Simple Cycle, Natural Gas

Achieved In Practice: 1 example

Update NOx limit from 2.5 ppmv to 2.3 ppmv
CO limit: 4 ppmv and NH₃ slip limit: 5 ppmv on a dry basis @ 15% O₂

Source Test showing emission limits compliance
Part D - BACT Determination
New Proposed Listing

Fermentation, Wine
Tanks Closed-Top ≤ 30,000 gallons

Achieved In Practice: 1 example
Santa Barbara APCD

For VOC: Water Scrubber or Chiller Condenser
with 67% overall control eff. averaged over
length of fermentation season

Cost-effectiveness Evaluation

Source Test showing emission limits compliance
UV/EB Technology as Alternate BACT Option

➢ On 1/18/19 Stationary Source Committee (SCC) meeting, staff presented proposed updates to BACT Guidelines.

➢ SSC directed staff to follow-up regarding the availability of UV/EB technology for categories listed in RadTech’s comment letter in addition to cost data.

➢ In summer 2019, staff conducted site visits to facilities listed in RadTech’s comment letter and other printing facilities using UV inks/coatings.
UV/EB Technology as Alternate BACT Option (cont’d)

➢ UV applications:
  ▪ Flat Glass (mirrors)
  ▪ Wood (cabinets)
  ▪ Paper (Labels, packaging, signs, stationary and vinyl album covers)

➢ Specific to type of printing/customer driven demand

➢ Durability and increased production due to quick dry time

➢ Low VOC/higher cost

➢ Use of Rule Compliant UV/EB or water-based inks and coatings as alternate BACT compliance
Part D - BACT Determination
New Proposed Listing

Glass Screen Printing – Flat Glass

Achieved In Practice: 1 example

For VOC: Compliance with Rule 1145; or
   Use of Rule 1145 compliant UV/EB; or
   Water-based coatings

Source Test/SDS showing emission limits compliance
Part D- BACT Determination
New Proposed Listing

Spray Booth – Wood Cabinets
Encl. with automated spray nozzles

For wood cabinets < 1170 lbs VOC/month

Achieved In Practice: 1 example

For VOC: Compliance with Rule 1136; or
Use of Rule 1136 compliant UV/EB; or
Water-based coatings

Source Test/SDS showing emission limits compliance
Part D- BACT Determination
New Proposed Listing

Regenerative Thermal Oxidizer
Natural Gas Fired (burner only)

Achieved In Practice: 1 example
Venting guitar spray rooms

NOx limit: 30 ppmv on a dry basis @ 3% O₂
CO limit: 400 ppmv on a dry basis @ 3% O₂

Source Test showing emission limits compliance

Cost-effectiveness Evaluation
Part D - BACT Determination

Updates for Consistency with Rules and Regulations

**Flare – Produced Gas, Landfill Gas, Organic Liq. Handling & Other Flare Gas**

Compliance with Rule 1118.1 for NOx, CO and VOC

**Fish Reduction – Cooker, Dryer, Digestor, Evaporator and Acidulation Tank**

Rule 1147 Does Not Apply
Remove NOx requirement

**Coffee Roasting – Food Oven/Roaster**

Rule 1147 Does Not Apply
Remove NOx requirement
Part D - Clarifications

➢ Coffee Roasting
  ▪ Removed NOx compliance with Rule 1147 since exempt per Rule 1147.
  ▪ Added Footnote 1, clarification regarding process emissions vented to Thermal Oxidizer per BACT requirement.

➢ Flare
  ▪ Added four subcategories: Produced Gas, Organic Liquid Storage, Organic Liquid Loading and Other Flare Gas.
  ▪ Tagged the existing and new categories to Rule 1118.1 to comply with NOx emissions requirements.

➢ Gas Turbine
  ▪ Added "With Add-On Controls" for ammonia slip limit for consistency
Part D- Clarifications (cont’d)

➢ I.C. Engines

➢ Open Process Tanks: Chemical Milling (Etching) and Plating
  ▪ Listed "Chemical Milling Tanks" and "Chrome plating" under a new category.
  ▪ Replaced "packed scrubber and mist suppressant" with "Compliance with Rule 1469" PM10 requirements for "Chrome plating" categories.

➢ Polyester Resin Operations
  ▪ Merged "Polyester Resin Operations - Molding and Casting" with "Fiberglass Operations" and renamed "Fiberglass Operations" to "Polyester Resin Operations".

<table>
<thead>
<tr>
<th>PM10</th>
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Part D- Clarifications (cont’d)

➢ Powder Coating Booth

- Corrected throughput limit from >=37 lbs/day to >37 lbs/day to be consistent with an internal memo dated Feb. 28, 1990.
- Clarified PM control options to:
  Baghouse (≥99%); or Cartridge filters (≥99%); or HEPA filters (≥99.97%)

Current wording:

<table>
<thead>
<tr>
<th>Rating/Size</th>
<th>VOC</th>
<th>NOx</th>
<th>SOx</th>
<th>CO</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 37 Lbs/Day Throughput</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pocket or Bag-Type Filters (10-20-2000)</td>
</tr>
<tr>
<td>≥ 37 Lbs/Day Throughput</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency) (1988/10-20-2000)</td>
</tr>
</tbody>
</table>
Part D- Clarifications (cont’d)

➢ Printing (Graphic Arts)

▪ Changed afterburner to thermal oxidizer to be consistent with other listings in Part D.

▪ Replaced “Compliance with SCAQMD Rule 1147" with "thermal oxidizer BACT requirements“ for NOx.

▪ Added “Compliance with thermal oxidizer BACT requirements“ to CO requirements .

▪ Replaced "control" with "alternatively" for Flexographic.
Part D- Clarifications (cont’d)

Printing (Graphic Arts)

- Lithographic or Offset Heatset:
  - Removed “Oil Based”.
  - Removed "Control" listing and include existing requirement for Oven vented to thermal oxidizer under VOC.

| Lithographic or Offset, Heatset | Low VOC Fountain Solution ($\leq 8\%$ by Vol. VOC); Low VOC ($\leq 100$ g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171 (2-2-18) Oven Vented to a thermal oxidizer ($\geq 0.3$ Sec. Retention Time at $\geq 1400\ degrees\ Fahrenheit$; $95\%$ Overall Efficiency) (10-20-2000) |
Part D- Clarifications (cont’d)

➢ Thermal Oxidizer

- Modified the title
- Added “Regenerative Thermal Oxidizer” subcategory with NOx and CO emissions limits.

Equipment or Process:  Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer), and Catalytic Oxidizer – Natural Gas Fired**

<table>
<thead>
<tr>
<th>Criteria Pollutants</th>
<th>VOC</th>
<th>NOx</th>
<th>SOx</th>
<th>CO</th>
<th>PM10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating/Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regenerative Thermal Oxidizer (xx-xx-2020)</td>
<td></td>
<td>30 ppmvd @ 3% O₂ (Burner emissions only)</td>
<td></td>
<td>400 ppmvd @ 3% O₂ (Burner emissions only)</td>
<td></td>
</tr>
<tr>
<td>Other Types</td>
<td></td>
<td>30 ppmvd @ 3% O₂ (Burner emissions only)</td>
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BACT Technical Assessment

Rule 1118.1 adopted on January 2019

Resolution directed staff to conduct a BACT Technical Assessment of flares receiving biogas derived from digestion and/or organic waste digestion or co-digestion

Report to Stationary Source Committee within 12 months

Continue to monitor new/existing organic and food waste digestion projects for ammonia NOx impacts

Hold discussions with POTWs on future proposed projects
CARB Technology Clearinghouse Update

Paul Meranian
Air Resources Engineer
California Air Resources Board
Office of Community Air Protection
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CARB Update

• AB 617 and the program’s governing document (Blueprint) require the development of a Technology Clearinghouse that:
  • Identifies BACT, BARCT, and T-BACT
  • Ensures data supports updates to district BACT determinations
  • Identifies the best approaches for controlling emissions including *rules, regulations, technologies, or practices* for mitigation

• CARB’s goal is to provide transparent access of accurate, useful information to the public through user-friendly systems

• To date, CARB has released 3 prototype tools, and plans to release the first BACT tool later this summer

• Additional information, including release dates can be found at:
  
  [https://ww2.arb.ca.gov/technology-clearinghouse/project-components-and-release-dates](https://ww2.arb.ca.gov/technology-clearinghouse/project-components-and-release-dates)
30-Day Notice Period Deadline: August 21, 2020

Proposed Updates to the BACT Guidelines are available: http://www.aqmd.gov/home/permits/bact/public-notices-docket

Public may submit comments in the following ways:

- **Mail:** South Coast Air Quality Management District
  BACT Docket
  Science and Technology Advancement
  21865 Copley Drive
  Diamond Bar, CA 91765-0934

- **Fax:** 909-396-3252, Attn: BACT Team

- **E-mail:** BACT_Team@aqmd.gov
Thank You.

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