Proposed Updates to BACT Guidelines

BACT Scientific Review Committee
December 12, 2017
Background

• Updated BACT Guidelines and established Charter for BACT SRC at December 2016 Board meeting

• Board directed staff to continue work on updating BACT Guidelines, reviewing BACT determinations done by other air districts with an emphasis on UV/EB inks and coatings technology and report back to Stationary Source Committee by June 2017 on proposed updates

• Held four public BACT SRC meetings, April 4, May 24, Oct. 26 & Dec. 12, 2017 with two 30-Day Comment periods
Proposed Updates to BACT Guidelines

- Parts B and D (major & minor source BACT)
- Reviewed achieved in practice BACT for UV/EB and water-based inks and coatings, Food Ovens, Engines and other equipment categories
- Reviewed BACT determinations from SCAQMD Engineering & Permitting and other Air Districts
- Conducted site visits to facilities (Printing, Food Oven, APC mfg.) and worked with printing industry trade organizations.
- Maintain consistency with recent changes to SCAQMD rules, State and Federal requirements
- Make BACT webpage interactive and User Friendly
Received four Comments Letters

• Part B, Major Source
  • Section I
    • **Flare (Biogas-EMWD)** – Section 1.L – change “achieve reliable operation” to “improve reliable operation”. Section 6.E – add “@3% O₂”. Add “Wastewater” to Equipment Subcategory.

    • **IC Engine (Digester Gas Fired-OCSD)** – Section 1.L – add need for fuel pretreatment; add info regarding max inlet siloxane levels based on control system specifications; Include inlet siloxane loading levels of less than 1 ppmv for D4 and less than 5 ppmv for D5.

  • Section III
    • **IC Engine, Stat., Emergency w/ SCR & DPF** – Section 4.D – should indicate that engine is a Tier 2 certified engine.
Comments Letters (cont’d)

• Part B, Major Source
  • Section I
    • Boiler (39.9 MMBtu/hr w/ SCR) – Section 4.A & B – averaging time for NOx should be 1 hr. or multi-hour as specified in EPA NSPS 40 CFR Part 60 Subpart D and/or NESHAPS standards.

• Part D, Non-Major Source
  • Printing (Graphic Arts) – Flexographic & Screen Printing: Compliant UV/EB and water-based inks/coatings should be recognized as alternative BACT compliance option; Replace use of super compliant cleanup solvent with Rule 1171 compliance.
### Part B, Section I, SCAQMD LAER/BACT

**New Listings**

<table>
<thead>
<tr>
<th>Application</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Furnace</strong></td>
<td><em>(Heat Treating Aluminum ≤900°F)</em></td>
</tr>
<tr>
<td>5MMBtu/hr, Low NOx burner</td>
<td>NOx=30ppm</td>
</tr>
<tr>
<td><strong>Food Oven- Bakery</strong></td>
<td>Four ovens: 3.2, 2.8, 3.2 &amp; 5.4MMBtu/hr vented to 4MMBtu/hr</td>
</tr>
<tr>
<td>CatOx @ 95% control &amp; ≥600°F inlet temp &amp; ceramic pre filter, R1147 compliant, Ovens - R1153.1 compliant</td>
<td></td>
</tr>
<tr>
<td><strong>Food Oven- Tortilla Chip</strong></td>
<td>5.774MMBtu/hr, IR &amp; Ribbon burners, NOx=54ppm</td>
</tr>
<tr>
<td>@ 1 hr. avg., CO=2000ppm, @ 15 min. avg.</td>
<td></td>
</tr>
<tr>
<td><strong>Food Oven- Snack Food</strong></td>
<td>1.6MMBtu/hr, Maxon Low NOx burner, NOx=25ppm, CO=75ppm, both @ 1 hr. avg. 3% O₂</td>
</tr>
<tr>
<td><strong>Flare- Biogas</strong></td>
<td>12MMBtu/hr, Bekaert, NOx=0.025 lb/MMBtu, CO=0.06 &amp; VOC=0.038</td>
</tr>
<tr>
<td>39.3MMBtu/hr, John Zink, ZULE, NOx=0.025 lb/MMBtu, CO=0.06, VOC=5.5 lb/day, PM=14.2 lb PM10/hr</td>
<td></td>
</tr>
<tr>
<td><strong>Flare- Landfill Gas</strong></td>
<td>120MMBtu/hr, Zink ultra Low NOx, NOx=0.025 lb/MMBtu, CO=0.06; VOC=1.33 lb/hr, PM=1.4 lb/hr &amp; SOx=2.5 lb/hr</td>
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</tbody>
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Part B, Section I, SCAQMD LAER/BACT

Listing Updates

**Boiler**
39.9 MMBtu/hr, Low NOx burner with SCR
NOx=5ppm, CO=100ppm & NH3=5ppm

**I.C. Engine – Digester Gas-Fired**
Compliance with Rule 1110.2(d)(1)(C);
NOx=11ppm, VOC=30ppm & CO=250ppm
Part B, Section III, Other Technologies

Emerging Technologies

I.C. Engine- Emergency Compression Ignition with PM Trap and SCR
Tier 2 Engine with Tier 4 Final aftertreatment at permitted emission limits: NMHC=0.14 g/bhp-hr, NOx=0.5 g/bhp-hr, CO=2.61 and PM=0.022 g/bhp-hr

Distributed Generation Fuel Cell with digester gas clean up system
1.4MW Fuel Cell equipped with 2.5 MMBtu/hr heater fired on digester gas used for start up, cool down and low power operation. Rule 222 registration per Rule 219(b)(5). NOx=0.07, VOC=CO=0.10 lb/MW-hr

- These are emerging technologies which have been in operation with an air quality permit, however do not yet qualify as LAER
- Proposed new section in BACT Determination form titled “7. Pending Considerations”
### Part D, BACT for Non-Major Facilities

<table>
<thead>
<tr>
<th>New Listings</th>
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</thead>
<tbody>
<tr>
<td><strong>Printing (Graphic Arts)</strong></td>
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<tr>
<td>Flexographic</td>
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</tr>
</tbody>
</table>
Part D, BACT for Non-Major Facilities

Printing (Graphic Arts) Screen Printing and Drying

Compliance with SCAQMD Rules 1130.1 and 1171; or use of Rule 1130.1 compliant UV/EB or water-based inks/coatings.
Part D, BACT for Non-Major Facilities

New Listings

Food Oven

- **Ribbon burner**
  $>500°F$: NOx = 60 ppm, CO = Rule 407/1153.1, PM10=SOx= Nat Gas
  $≤500°F$: NOx = 30 ppm CO = Rule 407/1153.1, PM10=SOx= Nat Gas

- **Other Direct fired**
  NOx = 30 ppm, CO=Rule 407/1153.1, PM10=SOx= Nat Gas

- **Infrared**
  NOx = 30 ppm, CO=Rule 407/1153.1, PM10=SOx= Nat Gas

- **Other**
  Compliance with Rule 1147/1153.1, PM10=SOx= Nat Gas

- **Bakery Oven with Yeast Leavened Products ≥30 lb VOC/day**
  CatOx @ 95% overall control, $≥600°F$ inlet temp & ceramic pre filter **{cost effectiveness}**
**Part D, BACT for Non-Major Facilities**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency,</td>
<td>Compliance with Rule 1110.2</td>
</tr>
<tr>
<td>Electrical Generators</td>
<td></td>
</tr>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency</td>
<td>Delete listing. Being replaced by BACT determinations I.C.</td>
</tr>
<tr>
<td>Non-Emergency, Electrical and Non-Electrical</td>
<td>Engine, Stationary, Non-Emergency, Electrical and Non-Electrical Generators</td>
</tr>
<tr>
<td>Generators</td>
<td></td>
</tr>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency, Non-</td>
<td>Delete footnote #1 consistent with proposed listing of new BACT determination</td>
</tr>
<tr>
<td>Electrical Generators</td>
<td>for “I.C. Engine, Stationary, Non-Emergency, Electrical Generator”</td>
</tr>
<tr>
<td>I.C. Engine, Portable</td>
<td>75 ≤ HP &lt; 175, Tier 4 Final – Consistent with CARB</td>
</tr>
<tr>
<td>Dryer or Oven</td>
<td>Footnote of non-applicability to food oven</td>
</tr>
</tbody>
</table>
Although the BACT Guidelines contains an extensive listing of practically everything the SCAQMD permits, occasionally applications will be received for equipment not identified in the Guidelines. As required by Rule 1303, MSBACT for equipment category not listed in the MSBACT Guidelines must be determined on a case-by-case basis using the definition of BACT in Rule 1302 and the general procedures in these MSBACT Guidelines, as shown in Chapter 1 and the previous sections of this chapter.

Applicants whose equipment is not listed in Part D of the MSBACT Guidelines should contact the SCAQMD and arrange a pre-application conference. MSBACT issues can be discussed in the conference for leading to a MSBACT determination. Applicants are not required to conduct the MSBACT evaluation but the application may be processed more quickly if the applicant provides a MSBACT evaluation with the application for a permit to construct.
Making BACT Guidelines User Friendly

- Add “Other Technologies” listing to Part D similar to Part B on emerging technologies or emission limits which do not yet qualify as BACT
- Work in progress for BACT Policy clarification & update
- Equipment Category Search
Equipment Category Search

Best Available Control Technology Guidelines

EQUIPMENT CATEGORY SEARCH

The BACT Guidelines consist of the following elements:

- Overview (PDF, 557kb)
- PART A: POLICY AND PROCEDURES FOR MAJOR POLLUTING FACILITIES (PDF, 557kb)
  Part A of the BACT Guidelines explains what BACT is, why it is required, when it is required, and how it is determined for major polluting facilities. Persons who want to learn about BACT and the BACT process for major polluting facilities should start by reading Part A.

- PART B: LAER/BACT DETERMINATIONS FOR MAJOR POLLUTING FACILITIES
  The current Part B began in March 1999 with listings for only boilers, degreasers, and spray booths. As new permits are issued, they will be added to the current Part B, which includes three sections:

  - Section I - SCAQMD LAER/BACT Determinations, provides information on LAER/BACT determinations contained in permits issued by SCAQMD.
  - Section II - Other LAER/BACT Determinations, provides information about LAER/BACT requirements in permits or guidelines issued by other agencies.
  - Section III - Other Technologies, provides information on technologies which have been achieved in practice but are not reflected in a permit limit, and information on emerging technologies or emission limits which have not yet been achieved in practice and do not yet qualify as LAER.

- PART C: POLICY AND PROCEDURES FOR NON-MAJOR POLLUTING FACILITIES (PDF, 557kb)
EQUIPMENT CATEGORIES

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Index of Equipment Categories

A

Abrasive Blasting Room
Absorption Chiller
Air Start Unit
Air Stripper – Ground Water Treatment
Aluminum Meting Furnace
Ammonium Bisulfate and Thiosulfate Production
Asbestos Machining Equipment
Asphalt Batch Plant
Asphaltic Day Tanker
Auto Body Shredder
Abrasive Blasting Room

**Part D- Minor Source**

1. Abrasive Blasting - Enclosed

**Part B- Major Source - LAER**

I. SCAQMD Listings

Abrasive Blasting Room, Rohr, Ind. A/N 391420 12/6/02

II. Other Districts

TBD

III. Other/Potential Technologies

TBD
Next Steps

- Stationary Source Committee meeting 1/19/18
- Governing Board Meeting 2/2/18