Proposed Updates to BACT Guidelines

BACT Scientific Review Committee
October 26, 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 two public BACT SRC meetings, April 4 & May 24, 2017 with 30-Day Comment period
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
### Part B, Section I, SCAQMD LAER/BACT

#### New Listings

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Furnace</strong></td>
<td>(Heat Treating Aluminum ≤900°F) 5MMBtu/hr, Low NOx burner, 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 CatOx @ 95% control &amp; ≥600°F inlet temp &amp; ceramic pre filter, R1147 compliant, Ovens - R1153.1 compliant</td>
</tr>
<tr>
<td><strong>Food Oven- Tortilla Chip</strong></td>
<td>5.774MMBtu/hr, IR &amp; Ribbon burners, NOx=54ppm @ 1 hr. avg., CO=2000ppm, @ 15 min. avg.</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 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>
</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>
</tr>
</tbody>
</table>
Part B, Section I, SCAQMD LAER/BACT

Listing Updates

**Boilers**
39.9 MMBtu/hr, Low NOx burner, SCR & anhydrous NH$_3$. NOx=5ppm, CO=100ppm & NH$_3$=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

- Equipped with SCR & DPF certified to meet EPA Tier 4 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

- Equipped with 2.5 MMBtu/hr heater fired on digester gas used for start up, cool down and low power operation. Rule 222 limited ≤90,000 therms/yr. 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

### New Listings

- **Printing (Graphic Arts) Flexographic**
  - Inks with $\leq 1.5$ lb VOC/gal, Less Water and Exempt Compounds; or UV/EB or water-based inks/coatings $\leq 180$ g VOC/L.
  - Compliance with SCAQMD Rules 1130 and 1171.

- **Printing (Graphic Arts) Flexographic**
  - Add-on control venting to Regenerative Thermal Oxidizer, 95% destruction eff. and $\geq 1500^\circ$F operating temp with total enclosure. *{cost effectiveness}*

- **Printing (Graphic Arts) Lithographic or Offset, Heatset**
  - Low VOC Fountain Solution ($\leq 8\%$ by Vol. VOC); Low Vapor Pressure ($\leq 10$ mm Hg VOC Composite Partial Pressure\(^1\)) or Low VOC ($\leq 100$ g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171 (7-14-2006).

- **Printing (Graphic Arts) Lithographic or Offset, Heatset**
  - Add-on control venting to Regenerative Thermal Oxidizer, 99% overall control and $\geq 1595^\circ$F operating temp. *{cost effectiveness}*
Part D, BACT for Non-Major Facilities

New Listings

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**
  - \( >500^\circ F: \text{NOx} = 60 \text{ ppm}, \text{CO} = \text{Rule 407/1153.1}, \text{PM10} = \text{SOx} = \text{Nat Gas} \)
- **Direct fired**
  - \( \leq 500^\circ F: \text{NOx} = 30 \text{ ppm CO} = \text{Rule 407/1153.1}, \text{PM10} = \text{SOx} = \text{Nat Gas} \)
- **Infrared**
  - \( \text{NOx} = 30 \text{ ppm, CO=Rule 407/1153.1, PM10=SOx= Nat Gas} \)
- **Other**
  - Compliance with Rule 1147/1153.1, PM10=SOx= Nat Gas
- **Bakery Oven with Yeast Leavened Products**
  - \( \geq 30 \text{ lb VOC/day} \) CatOx @ 95% overall control, \( \geq 600^\circ F \) inlet temp & ceramic pre filter \{cost effectiveness\}

\[9\]
# Part D, BACT for Non-Major Facilities

## New Listing/Updates

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency, Electrical Generators</td>
<td>Compliance with Rule 1110.2</td>
</tr>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency</td>
<td>Delete listing. Being replaced by BACT determinations I.C. Engine, Stationary, Non-Emergency, Electrical and Non-Electrical Generators</td>
</tr>
<tr>
<td>I.C. Engine, Stationary, Non-Emergency, Non-Electrical Generators</td>
<td>Delete footnote #1 consistent with proposed listing of new BACT determination 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>
Part D, BACT for Non-Major Facilities

Equipment Not Identified in the MSBACT Guidelines

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

- 30-day comment period
- Follow up BACT SRC meeting – early Dec. 2017
- Stationary Source Committee meeting 1/19/18
- Governing Board Meeting 2/2/18