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

Part B- LAER/BACT Determination
Section I: New Proposed Listing

Regenerative Thermal Oxidizer,
Natural Gas Fired (Burner operation only)

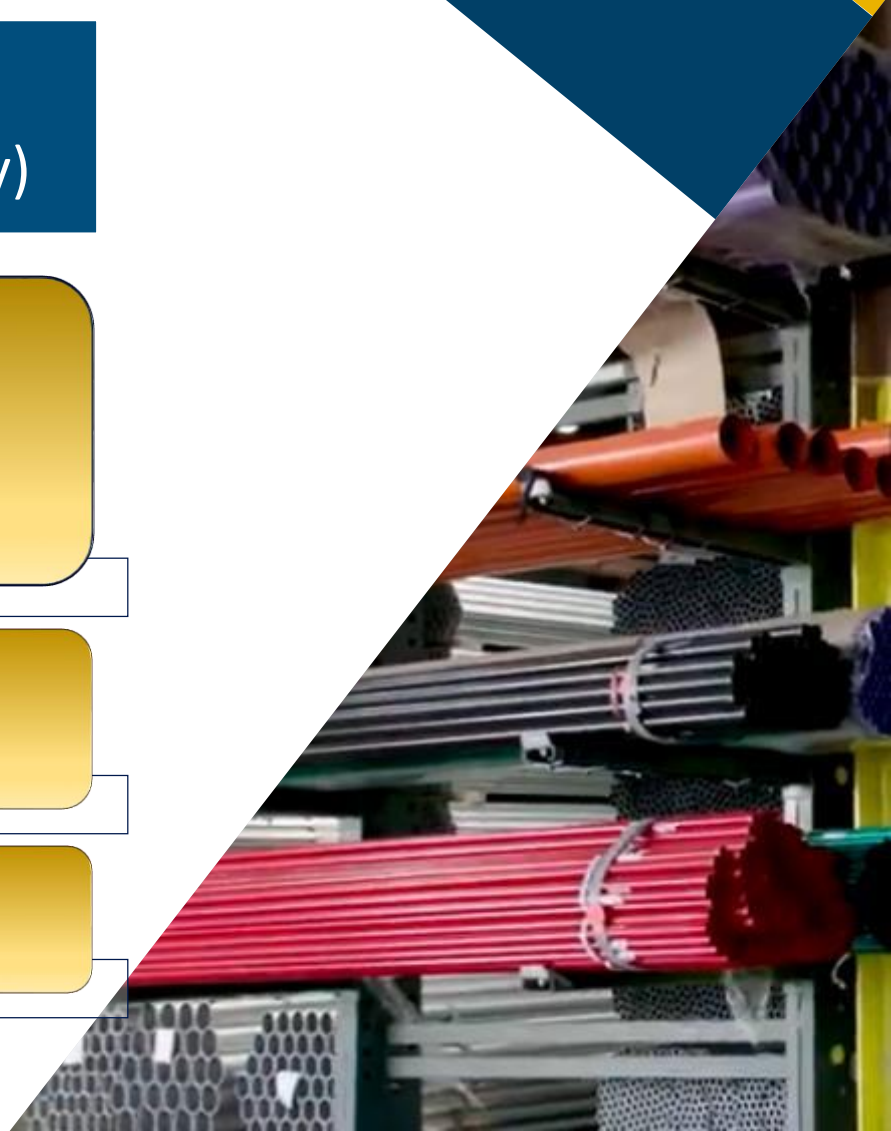
Achieved In Practice: 1 example

Prime and finish coating stations are totally enclosed and vented indirectly to the RTO

NOx limit: 30 ppmv on a dry basis @ 3% O_2

CO limit: 100 ppmv on a dry basis @ 3% O_2

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% O_2

CO limit: 250 ppmv on a dry basis @ 3% O_2

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% O_2

CO limit: 10 ppmv on a dry basis @ 3% O_2

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% O_2
  CO limit: 100 ppmv on a dry basis @ 3% O_2
- 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

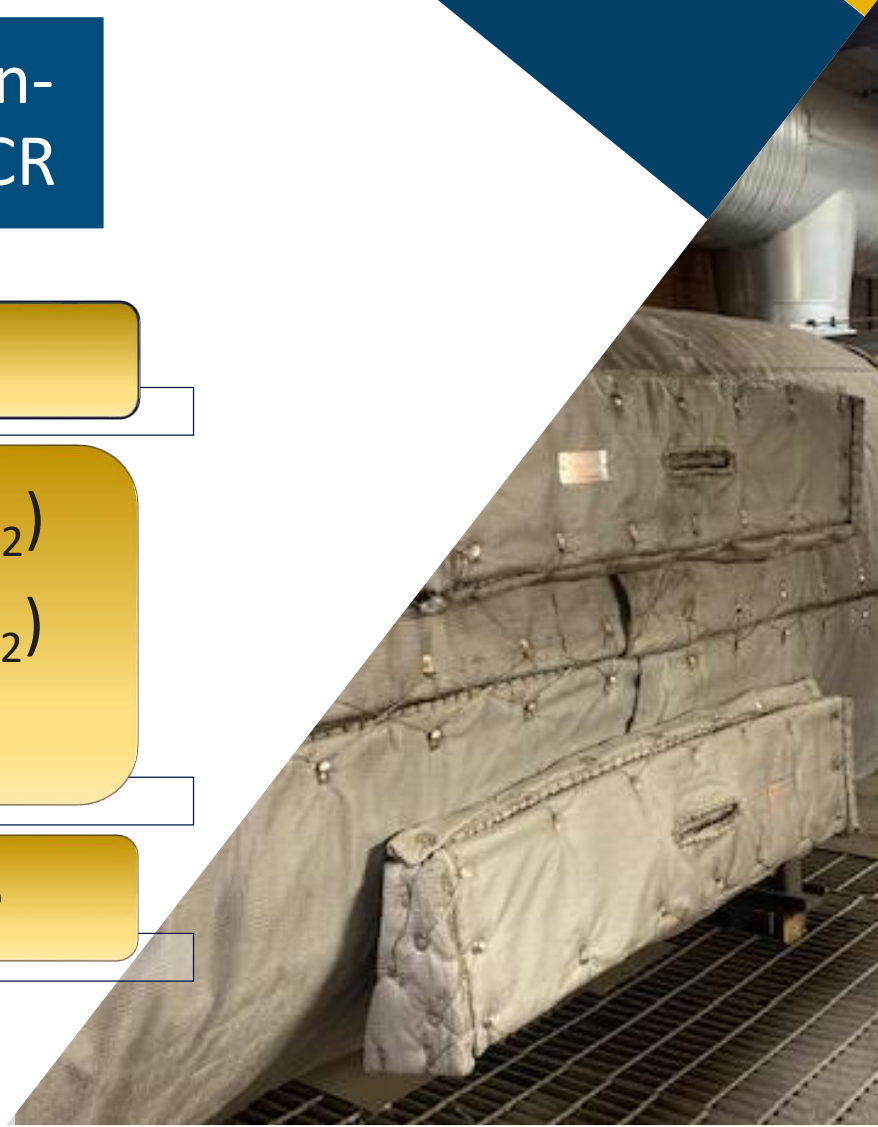
Achieved In Practice: 2 examples

NOx limit: 0.07 lb/MW-hr (2.5 ppmvd @ 15% O_2)

VOC limit: 0.10 lb/MW-hr (10 ppmvd @ 15% O_2)

CO limit: 0.20 lb/MW-hr (12 ppmvd @ 15% O_2)

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

Aluminum Heat Treating Oven
5.47 MM Btu/hr, Billet Temp. < 970°F

- Achieved In Practice: 1 example
- NOx limit: 25 ppmv @ 3% O_2
- 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 NH_3 slip limit: 5 ppmv on a dry basis @ 15% O_2

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% O_2

CO limit: 400 ppmv on a dry basis @ 3% O_2

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

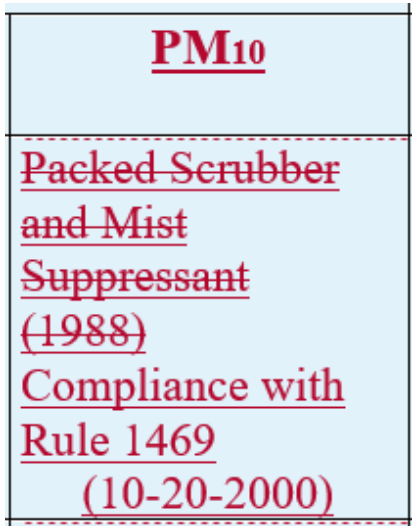
Remove NOx requirement

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**
  - Corrected Rule 431.2 amended date from 6-6-2003 to 9-15-2000.
- **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.



PM10
~~Packed Scrubber and Mist Suppressant (1988)~~ Compliance with Rule 1469 (10-20-2000)

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

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%)

~~Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge /Dust Collector or HEPA Filters (≥ 99% efficiency)~~

1. Baghouse (≥99%); or
2. Cartridge Filters (≥99%); or
3. HEPA Filters (≥99.97%)

Current wording:

	Criteria Pollutants				
Rating/Size	VOC	NOx	SOx	CO	PM_{10}
< 37 Lbs/Day Throughput					Pocket or Bag-Type Filters (10-20-2000)
≥ 37 Lbs/Day Throughput					Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency) (1988/10-20-2000)

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 (≤ 8% by Vol. VOC); Low VOC (≤ 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 (≥ 0.3 Sec. Retention Time at ≥ 1400 ^{0}F; 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**

	Criteria Pollutants				
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**
Regenerative Thermal Oxidizer (xx-xx-2020)		30 ppmvd @ 3% O_2 (Burner emissions only		400 ppmvd @ 3% O_2 (Burner emissions only)	
Other Types		30 ppmvd @ 3% O_2 (Burner emissions only)			

BACT Technical Assessment

Ruel 1118.1 - Control of Emissions from Non-Refinery Flares > Biogas Flares

- 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

Paul.Meranian@arb.ca.gov

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 r*ules, 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

South Coast AQMD

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.

Al Baez	Bahareh Farahani
909 396 2516	909 396 2353
abaez@aqmd.gov	bfarahani@aqmd.gov
www.aqmd.gov	