



# Proposed Updates to BACT Guidelines

**BACT Scientific Review  
Committee Meeting #1**

**June 24, 2021**

**Join Zoom Meeting**

**<https://scaqmd.zoom.us/j/94317405856>**

**Meeting ID: 943 1740 5856**

**Call-in number: 1-669-900-6833**

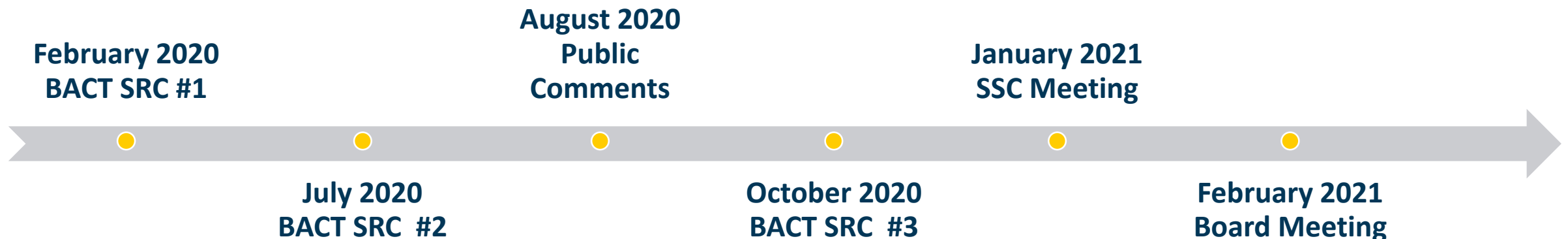
# Agenda

- 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/updates to existing listings

## BACT Guidelines Update Process



# 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:**

Emissions *	Current LAER Limit	Source Test	Proposed LAER Limit
NOx (ppmv)	12	5.7	7
CO (ppmv)	50	0.0**	50

\* @ 3% O<sub>2</sub> 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:

Emissions *	Current LAER Limit	Source Test	Proposed LAER Limit
NOx (ppmv)	33	29	33

\* @ 3% O<sub>2</sub> on a dry basis

- Source test was performed in 2016
  - 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 (ASTEC Natural Gas Fired Burner)
  - Max Heat Input Rate: 125 MMBTU/HR
  - Rotary dryer is used to dry gravel/asphalt/rubber
- Emission Limits:

Emissions *	Current LAER Limit	Source Test	Proposed LAER Limit
NOx (ppmv)	33	24.2	33

\* @ 3% O<sub>2</sub> 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% O<sub>2</sub>
  - Source test was performed in 2019
    - Method 100.1 for NOX and CO
    - Method 207.1 for ammonia slip

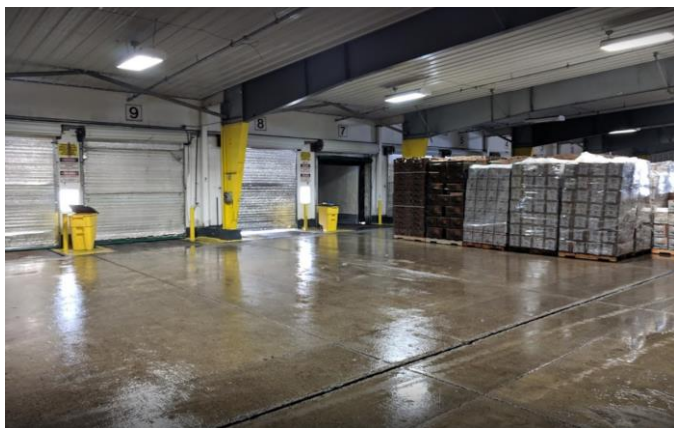




# Part B- LAER/BACT Determination

## Section II: Proposed New Listing

- **Fumigation - Methyl Bromide Fumigation Chamber  $\geq 100,000$  lb-CH<sub>3</sub>Br/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:
    - NO<sub>x</sub> limit: 2 ppmvd @ 15% O<sub>2</sub>

Emissions *	Current LAER Limit	Proposed LAER Limit
NH <sub>3</sub> (ppmv)	5	2

\* @ 15% O<sub>2</sub> on a dry basis



# Part B- LAER/BACT Determination

## Section II: Proposed New Listing

- **I.C. Engine– Stationary, Emergency,  $\geq 1,000$  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% O<sub>2</sub>
  - Source test was performed in 2019
    - Method 100.1 for NOX, CO and VOC
    - Method 207.1 for ammonia slip

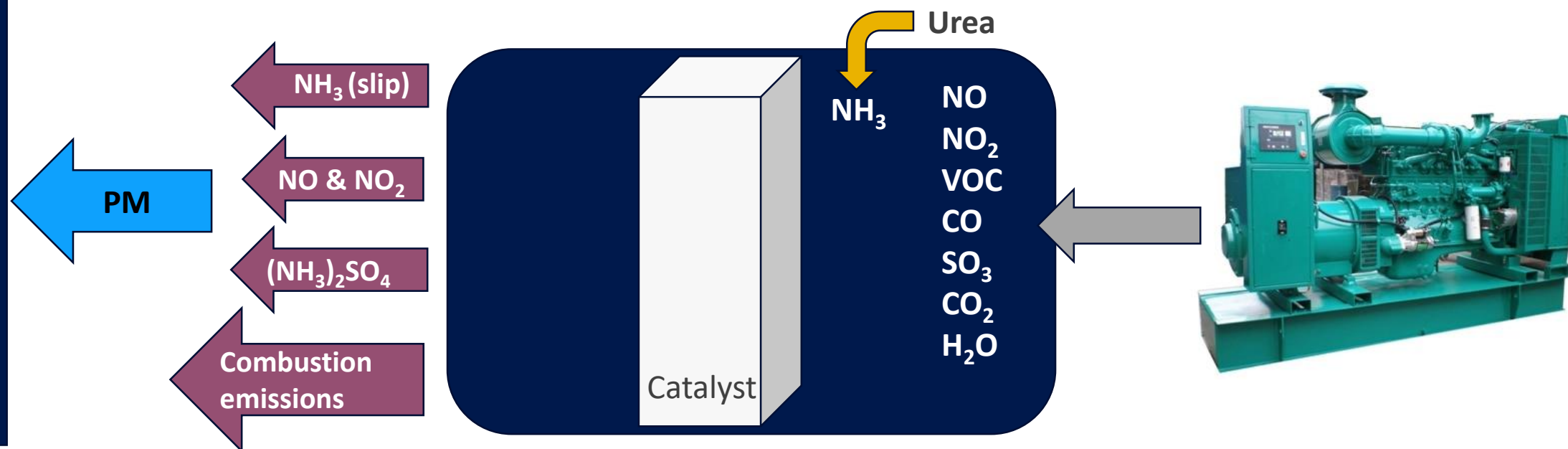




# Part D- BACT Determination

## 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:  $\geq 90\%$  - 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<sub>10</sub> 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



South Coast AQMD

## Next Steps

Review Comments

**2<sup>nd</sup> BACT SRC  
Meeting**

30-day Public  
Comment



# Thank You.



Al Baez

Bahareh Farahani



909 396 2516

909 396 2353



[abaez@aqmd.gov](mailto:abaez@aqmd.gov)

[bfarahani@aqmd.gov](mailto:bfarahani@aqmd.gov)



[www.aqmd.gov](http://www.aqmd.gov)