BOARD MEETING DATE: February 5, 2021 AGENDA NO. 25

PROPOSAL: Determine That Proposed Amendments to BACT Guidelines Are Exempt from CEQA and Amend BACT Guidelines

SYNOPSIS: Periodically, after consultation with stakeholders, staff proposes amendments to the BACT Guidelines. These actions are to add new and amended listings to Part B: Lowest Achievable Emission Rate Determinations for Major Polluting Facilities, Part D: BACT Determinations for Non-Major Polluting Facilities and update Overview, Parts A, C and E: Policy for Major, Non-Major Polluting Facilities and Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases. Additionally, these actions are to determine the proposed amendments to the BACT Guidelines are exempt from CEQA and amend the BACT Guidelines to make them consistent with recent changes to South Coast AQMD rules and regulations as well as state requirements.

COMMITTEE: Stationary Source, January 22, 2021; Recommended for Approval

RECOMMENDED ACTIONS:
1. Determine that the proposed amendments to the BACT Guidelines are exempt from the requirements of the California Environmental Quality Act; and
2. Approve Proposed Amendments to BACT Guidelines

Wayne Nastri
Executive Officer

MMM:NB:AHB:BF

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**Background**

South Coast AQMD's Regulation XIII – New Source Review (NSR), requires permit applicants to use BACT for new sources, relocated sources and modifications to existing sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound (ODC) or ammonia. Regulation XIII also requires the Executive Officer to periodically publish BACT Guidelines that establish

the procedures and the requirements for applying BACT to commonly permitted equipment. This Board letter serves as the staff report for proposed changes to the BACT Guidelines.

The BACT Guidelines are separated into three parts: major polluting facilities, non-major polluting facilities and facilities subject to prevention of significant deterioration (PSD) for greenhouse (GHG) gases. A facility is a major polluting facility if it emits, or has the potential to emit, a criteria air pollutant at a level that equals or exceeds the emission thresholds in South Coast AQMD's Regulation XXX - Title V Permits. Major polluting facilities that are subject to NSR are required by the federal Clean Air Act (CAA) to have the Lowest Achievable Emission Rate (LAER). The federal CAA requirement for LAER is implemented through BACT in the South Coast AQMD. The Part B LAER determinations for major polluting facilities are only examples of past determinations that help in determining LAER for new permit applications. At the state level, California Health and Safety Code (HSC) Section 40405 defines BACT in a similar manner to federal LAER and requires the application of BACT for all new and modified permitted sources subject to NSR. For non-major polluting facilities, minor source BACT (MSBACT) is as specified in Part D of the BACT Guidelines and determined in accordance with state law HSC Section 40440.11 at the time an application is deemed complete. In updating Part D with new more stringent MSBACT, South Coast AQMD must follow a more rigorous process than for major polluting facilities, including a cost-effectiveness analysis, notification to the public, presentation at the BACT Scientific Review Committee (BACT SRC) meeting and Board approval. GHG BACT applies to new or modified facilities subject to PSD requirements for GHG. Applicability determination for new or modified sources are the requirements in 40 CFR 52.21. In general, GHG BACT determinations are project specific with a focus on options that improve energy efficiency.

The BACT SRC was established as a standing committee by the Board to enhance the public participation process with technical review and comments by a focused committee at periodic intervals, prior to updating the BACT Guidelines.

**Proposed Amendments to the BACT Guidelines**

The proposed amendments are to update the Overview, Parts A, B, C, D and E of the BACT Guidelines and maintain consistency with recent changes to South Coast AQMD rules and state requirements. The BACT SRC and other interested parties were provided with detailed descriptions of the proposed amended BACT Guidelines at three scheduled publicly noticed meetings. The proposed amendments to the BACT Guidelines were posted on South Coast AQMD's website and a 30-day public comment period was provided. Comments by BACT SRC members, the general public, and staff responses are included in Attachment J.

Overview

The Overview consists of five chapters which provide an introduction to the BACT Guidelines and a summary of how BACT and LAER are implemented in the South Coast AQMD. Consistent with new guidelines all "District" and "SCAQMD" references are proposed to be changed to "South Coast AQMD" throughout the guidelines.

The proposed amendment to the Overview section includes adding the complete names of Class I- Group III substances (ozone-depleting compound) to Table 2.

The name of two divisions, including Legislative, Public Affairs/Media Office and Engineering & Permitting were updated. A summary of the proposed Overview amendment is included in Attachment A with the complete proposed amended Overview section included in Attachment B.

Part A – Policy and Procedures for Major Polluting Facilities

Part A describes the policy and procedures for major polluting facilities and explains what LAER is, why it is required, when it is required and how it is determined for major polluting facilities.

The proposed amendment to Part A is to list volatile organic compound (VOC), one of the principle precursor gases that contribute to secondary PM2.5, as well as to update the listing information in Chapter 2 based on the LAER/BACT determination forms. A summary of the proposed Part A amendments is included in Attachment A with the complete proposed amended Part A included in Attachment C.

New and Updated Listings, Part B - LAER Determinations for Major Polluting Facilities

Part B consists of three sections: Section I contains listings of LAER determinations made by South Coast AQMD; Section II contains listings of LAER determinations in other air districts; and Section III contains listings of emerging technologies which have been in operation with an air quality permit but do not yet qualify as LAER. The proposed Part B LAER determinations of Sections I are summarized below with the complete proposed determinations included in Attachment D.

The other portions of Sections I, II and III are not included in this Board package because they are not being updated at this time.

*Section I – South Coast AQMD LAER/BACT Determinations*

Seven new listings and one updated listing are proposed, as shown below.

*Regenerative Thermal Oxidizer (new)*

The "Regenerative Thermal Oxidizer" (RTO) listing is a VOC control equipment in a metal coil coatings operation. Permanent total enclosure spray rooms are vented to the RTO. The RTO has a dual ceramic heat exchanger media, low NOx burner with 9.8 MMBtu/hr start-up natural gas injection system and 25 HP combustion air blower. The RTO has been permitted at 30 ppm NOx and 100 ppm CO on a dry basis corrected to 3 percent $O_2$. NOx and CO testing is for burner operation only when starting the RTO to heat-up the ceramic bed before injecting the waste gas. It has been source tested in 2019 and has been operating in compliance.

*Recuperative Thermal Oxidizer (new)*

The "Recuperative Thermal Oxidizer" listing is a VOC control equipment located in specialty tapes and fabrics manufacturing facility venting coating stations and ovens used to cure impregnated fabrics. The recuperative thermal oxidizer has a shell and tube heat exchanger and employs a single MAXON Kinedizer LE Low NOx Burner, firing natural gas, with a maximum rated heat capacity of 9.8 MMBtu/hr. It is a direct flame and the burner is in operation the entire time. The source test data supports the NOx limit of 30 ppm and CO limit of 250 ppm corrected to 3 percent $O_2$ for the natural gas fired burner (non-process emissions). The recuperative thermal oxidizer has been in operation for more than two years.

*Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading (new)*

The "Flare (thermal oxidizer)" listing is for controlling vapors from marine loading operations. The facility has two parallel flares, burner with maximum heat release rating of 39 MMBtu/hr each, which can operate together or individually. Besides burning natural gas as a supplemental fuel, each oxidizer collects organic vapors displaced from the vessel during cargo loading operations. Source test results confirm compliance with permit NOx and CO limits of 30 ppm and 10 ppm, respectively corrected to 3 percent $O_2$ (non-process emissions).

*Process Heater – Non-Refinery; Thermal Fluid Heater (new)*

A new category of "Process Heater for non- refineries" is being added. The thermal fluid heater is natural gas fired and provides process heating at an asphalt roofing manufacturing facility. This example with compliant source test results permitted at 9 ppm NOx limit and 100 ppm CO limit corrected to 3 percent $O_2$ is being added. It consists of a 4.5 MMBtu/hr and 10 MMBtu/hr low NOx burners.

*I.C. Engine – Stationary - Non-Emergency- Electrical Generation with Non-Selective Catalytic Reduction (NSCR) (new)*

The "I.C. Engine, Stationary, Non-Emergency, Electrical Generation with NSCR" is being added to establish a new LAER determination based on two natural gas fired I.C. engines rated at 147 and 385 BHP operating at a natural gas storage facility. The Permit to Construct for these prime engines was issued in 2015. Source test results show compliance with Rule 1110.2 NOx, VOC and CO limits of 0.07 lb/MW-hr (2.5 ppmvd), 0.10 lb/MW-hr (10 ppmvd) and 0.20 lb/MW-hr (12 ppmvd), respectively, corrected to 15 percent $O_2$ on a dry basis.

*Duct Burner – Refinery Fuel Gas (new)*

This listing is to bring guidance to "Duct Burner" sulfur emissions. The duct burner operates on refinery fuel gas and is used for generating additional steam as part of the Heat Recovery Steam Generator in a cogen unit. The total reduced sulfur (TRS) concentration of the refinery fuel gas is measured before blending with natural gas. The duct burner has more than six months supporting Continuous Process Monitoring System data for TRS in the refinery gas directed to the duct burner. The permit limits established at 40 ppm, rolling 1-hr average period and 30 ppm, rolling 24-hr average period.

*Aluminum Heat Treating Oven 5.47 MMBtu/hr - Billet Temp. < 970°F (new)*

The "Aluminum Heat Treating Oven" listing is a new entry with an aluminum heat treating oven (furnace) rated at 5.47 MMBtu per hour. The billet temperature must be less than 970 degrees Fahrenheit. NOx limit is 25 ppmv corrected to 3 percent oxygen. There is one example of achieved in practice with source test data showing compliance with NOx permit limit. Part B already covers two other categories of aluminum furnace including aluminum forging furnace and aluminum melting furnace.

*Simple Cycle Gas Turbines - Natural Gas (update)*

The current "Gas Turbine – Simple Cycle, Natural Gas fired" category is being updated with two 49.8 MW peaker units permitted at 2.3 ppm NOx and 4 ppm CO at a local utility. Both gas turbines have been in operation for nine years or longer and showed compliance with permitted limits and verified through source tests and CEMS data.

<u>Part C – Policy and Procedures for Non-Major Polluting Facilities</u>

Part C describes the policy and procedures for non-major polluting facilities and explains what BACT is, why it is required, when it is required and how it is determined for non-major polluting facilities.

Staff is proposing to update the Maximum Cost-Effectiveness Values on Table 5 consistent with the 3rd quarter 2020 Marshall and Swift equipment index in accordance

with the BACT Guidelines policy. A summary of the proposed Part C amendments is included in Attachment A with the complete proposed amended Part C included in Attachment E.

Proposed Amendments to Part D BACT Determinations for Non-Major Polluting Facilities

Part D consists of BACT determinations for minor sources which are established in accordance with state law at the time an application is deemed complete.

The proposed new and updated amendments to Part D are for equipment and processes which have been achieved in practice and to maintain consistency with recent changes to South Coast AQMD rules and state requirements. All proposed Part D amendments and updates, except for the proposed new Wine Fermentation and RTO listings, will not result in more stringent requirements than would otherwise occur through current SIP-approved rule compliance, which constitutes MSBACT under Part C – Policy Guidance. In addition, staff has concluded through the implementation of these SIP-approved rules that these MSBACT determinations are achieved in practice and cost effective. The proposed amendments comply with the requirements of HSC Section 40440.11. The proposed amended Part D BACT determinations are summarized below with the complete proposed amended Part D included in Attachment F.

*Coffee Roasting*

--Current Language

NOx limit for roaster is compliance with Rule 1147.

--Proposal

This category is recognized as food ovens in the subject rule, therefore Rule 1147 does not apply. Staff is proposing to remove NOx requirements for consistency. Gaseous process emissions from roasting operations are typically ducted to a thermal oxidizer. For NOx emissions from oxidizer, staff is proposing to add a note and to refer it to Thermal Oxidizer BACT requirements.

*Fermentation, Beer and Wine*

--Current Language

The current Minor BACT includes two categories; closed systems and open systems for beer and wine fermentation.

--Proposal

Staff is proposing to add a new subcategory for wine fermentation in closed tanks ≤30,000 gallons venting to water scrubber or chiller condenser with min 67 percent overall control efficiency averaged over the fermentation season. This BACT determination was established by Santa Barbara APCD and has been verified through source tests. A cost-effectiveness analysis was done to assess the incremental equipment and operating costs of the equipment and compared to the current BACT using cost data provided by Santa Barbara APCD in accordance

with HSC 40440.11, which is further discussed in the "Compliance with Health and Safety Code" section below.

*Fish Reduction*

--Current Language

NOx limit for cooker, dryer and evaporator sub-categories under this listing is compliance with Rule 1147.

--Proposal

These sub-categories are recognized as food ovens in the subject rule, therefore Rule 1147 does not apply. Staff is proposing to remove NOx requirements for consistency.

*Flare*

--Current Language

NOx limits for digester gas or landfill gas (hazardous and non-hazardous waste) flares.

--Proposal

To maintain consistency with recently adopted Rule 1118.1, staff is proposing to include Produced Gas, Landfill Gas, Organic Liquid Storage, Organic Liquid Loading, and Other Flare Gas subcategories to the listing. BACT for NOx, CO and VOC is compliance with Rule 1118.1.

Organic Liquid Storage and Organic Liquid Loading are not subject to VOC requirements. Other Flare Gases are not subject to VOC and CO requirements.

*Gas Turbine*

--Current Language

Gas turbines with ammonia limit are missing "with add-on controls" wording.

--Proposal

Since ammonia slip is from the Selective Catalytic Reduction, staff is proposing to add "with add-on controls" to be consistent with similar requirements for inorganic pollutants from a control device.

*Glass Screen Printing – Flat Glass*

--Current Language

Minor source BACT does not have a category listing for Glass Screen Printing.

--Proposal

Staff is proposing to include Flat Glass Screen Printing category with the use of Rule 1145 compliant UV/EB or water-based inks as optional minor source BACT compliance method. This is based on achieved in practice technology in an art mirrors and frames manufacturing facility using UV screen printing inks since 2010.

In this proposed listing, staff is recognizing the low emission properties of Rule 1145 compliant UV/EB and water-based inks with low VOC content. To be considered as an alternate method to comply with BACT, staff is proposing a BACT requirement of “Compliance with Rule 1145 or use of Rule 1145 compliant UV/EB or water-based coatings”.

*I.C. Engines*

--Current Language

Revision 1 dated 6-6-2003 is not included in the I.C. Engine, Portable Category table.

--Proposal

Added “6-6-2003 Rev. 1” to I.C. Engine, Portable Category (Rule 431.2).

*Open Process Tanks: Chemical Milling (Etching) and Plating*

--Current Language

Minor source BACT listed "Chemical Milling Tanks" and "Chrome plating" under two separate categories. For chrome plating operation, BACT to control PM10 is using “packed scrubber and mist suppressant”.

--Proposal

"Chemical Milling Tanks" and "Chrome plating" processes are both performed in open tanks. Staff is proposing to create a new category titled “Open Process Tanks: Chemical Milling (Etching) and Plating” and move the existing "Chemical Milling Tanks" and "Chrome plating" to this category. It is also proposed to remove “chrome” from the title to generalize this application and facilitate the process of listing other plating operation under different sub-categories in the future. Since add-on air pollution control device or use of certified chemical fume suppressant are listed in Table -1 of Rule 1469, staff is proposing to update PM10 BACT requirement by changing “Packed Scrubber and Mist Suppressant” requirements to “Compliance with Rule 1469”.

*Polyester Resin Operations*

--Current Language

Minor source BACT listed "Polyester Resin Operations - Molding and Casting" and "Fiberglass Operations" under two separate categories.

--Proposal

Polyester resins and fiberglass operations are used interchangeably to refer to the same type of operation. Therefore, staff is proposing to merge "Polyester Resin Operations - Molding and Casting" with "Fiberglass Operations" and rename the category to “"Polyester Resin Operations”.

*Powder Coating Booth*

--Current Language

Current ratings for powder coating operation are identified as <37 lbs/day and >=37 lbs/day. MS-BACT to control PM10 emissions has been listed as using Powder Recovery System with a Cyclone Followed by a Baghouse or Cartridge Dust Collector or HEPA Filters (≥ 99% efficiency).

--Proposal

To be consistent with internal policy, staff is recommending correcting the throughput limit to =<37 lbs/day and >37 lbs/day.

Powder Recovery System with a Cyclone is not an emission control device and it is an industrial preference and business decision to capture and recover powder coating. Therefore, staff is proposing to remove "Powder Recovery System with a Cyclone" and revise the language to focus on the acceptable technologies to control PM10 emissions from powder coating booth including: Baghouse (≥ 99 percent efficiency); or Cartridge Filter (≥ 99 percent efficiency); or HEPA Filters (≥ 99.97 percent efficiency).

*Printing (Graphic Arts)*

--Current Language

"Flexographic" subcategory has an alternative method for add-on control. Afterburner is listed as a control device for VOC and PM10 emissions.

For "Flexographic" and "Lithographic or Offset, Heatset" NOx BACT is "Compliance with SCAQMD Rule 1147" at time of applicability.

--Proposal

For "Flexographic", staff propose to replace "control" with "alternatively" for clarification purpose to show that the facility has two options, one is using compliant materials or alternatively using an Add-On technology. Since the thermal oxidizer is a more general term compared to afterburner, staff is proposing to change afterburner to thermal oxidizer.

For "Flexographic" and "Lithographic or Offset, Heatset" staff is proposing to replace "Compliance with SCAQMD Rule 1147" with "Compliance with Thermal Oxidizer BACT requirements" for NOx as well as to add "Compliance with Thermal Oxidizer BACT requirements" for CO.

For printing graphics, the rule allows the use of non-compliant coatings if control is used.

*Spray Booth*

--Current Language

The term "Automotive" has been used to describe fully enclosed spray booths. There is no NOx limit in the table. For "Automotive, down-draft type >22 lb/day of VOC Emissions", the second BACT option is use of "Super Compliant Materials", defined as having less than 5 percent VOC by weight. Minor source

BACT for Spray Booth currently does not have a subcategory listing for Enclosed with Automated Spray Nozzles for Wood Cabinet.

--Proposal

There are other types of spray booth applications in addition to automotive industry. The term "Automotive" has been used to describe fully enclosed spray booths, including those not used in the automotive industry. To clarify the term "Automotive" staff is proposing to replace it with "Fully Enclosed".

Staff is proposing Compliance with Rule 1147 if booth has a Make-up Air Unit or a Heater; to be consistent with the rule requirements.

However, in Rule 109, "Super Compliant Materials" are defined as any material containing 50 grams or less of VOC per liter of material. Staff is proposing to modify this section to be consistent with the rule.

Staff is proposing the addition of "Enclosed with Automated Spray Nozzles for Wood Cabinet < 1,170 lbs VOC per month" Subcategory/Rating/Size. In this proposed listing, staff is recognizing the low emission properties of Rule 1136 compliant UV/EB and water-based coatings with low VOC content.

This is based on achieved in practice technology consisting of a computerized multi spray nozzle machine in enclosed ventilated spray booth using exclusively Rule 1136 compliant UV coatings. Spray-painted wood cabinet parts are continuously moved via conveyor to electric UV curing oven. To be considered as an alternate method to comply with BACT, staff is proposing a VOC BACT requirement of "Compliance with Rule 1136 or use of Rule 1136 compliant UV/EB or water-based coatings".

*Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer), and Catalytic Oxidizer – Natural Gas Fired*

--Current Language

The title of this category is "Thermal Oxidizer (Afterburner) and Catalytic Oxidizer – Natural Gas Fired". There is no particular listing for Regenerative Thermal Oxidizer" (RTO).

--Proposal

Staff is proposing to add a new category by changing the title to "Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer), and Catalytic Oxidizer – Natural Gas Fired" and keep the current BACT requirements under subcategory "Other Types".

The RTO listing is a VOC control equipment in a guitar manufacturing facility. The RTOs vent permanent total enclosure (PTEs) that collectively house production spray rooms, prep booths, flash tunnel and drying oven. The RTO has a dual ceramic heat exchanger media, low NOx burner with 16 MMBtu/hr start-up natural gas injection system. The RTO has been permitted at 30 ppm NOx and 400 ppm CO on a dry basis corrected to 3 percent $O_2$. NOx and CO testing is for burner operation only when starting the RTOs to heat-up the ceramic bed before injecting the waste gas. Source test results have confirmed compliance with

permit limits. A cost-effectiveness analysis was done to assess the incremental equipment and operating cost of the equipment vs current BACT using cost data provided by the facility in accordance with HSC 40440.11 which is further discussed in the "Compliance with Health and Safety Code" section below.

Compliance with Health and Safety Code

In amending the BACT guidelines for non-major polluting facilities to be more stringent, South Coast AQMD must comply with HSC Section 40440.11. Staff is proposing new BACT determinations in Part D for Wine Fermentation and Regenerative Thermal Oxidizer. The following paragraphs identify the applicable requirements in HSC Section 40440.11 and demonstrate compliance with each requirement:

*(c)(1) Identify one or more potential control alternatives that may constitute the best available control technology as defined in section 40405.*

*Wine Fermentation*

Potential control alternative that may constitute BACT for VOC control would be a scrubber with liquid waste disposal.

*Regenerative Thermal Oxidizer*

Commercially viable achieved in practice control alternatives that may constitute BACT would be a catalytic or thermal oxidizer with a Low NOx burner that achieves 30 ppm NOx.

*(c)(2) Determine that the proposed emission limitation has been met by production equipment, control equipment, or a process that is commercially available for sale, and has achieved the best available control technology in practice on a comparable commercial operation for at least one year, or a period longer than one year if a longer period is reasonably necessary to demonstrate the operating and maintenance reliability, and costs, for an operating cycle of the production or control equipment, or process.*

*Wine Fermentation*

The wine fermentation process occurs in closed tanks ≤30,000 gallons venting to water scrubber or chiller condenser with minimum 67 percent overall control efficiency averaged over the fermentation season. This equipment has been in commercial operation for over one year and source tested. The cost-effectiveness analysis also has been conducted based on the cost data provided by Santa Barbara APCD.

*Regenerative Thermal Oxidizer*

Natural gas fired regenerative thermal oxidizers equipped with burners that can meet 30 ppm NOx and 400 ppm CO have been commercially available for many years. Staff has

included in Attachment G proposed BACT determinations citing applications of RTO controlling VOC process emissions. This equipment has been in commercial operation for over one year, source tested, and verified compliance with 30 ppm NOx and 400 ppm CO @ 3 percent $O_2$.

*(c)(3) Review the information developed to assess the cost-effectiveness (annual cost of control divided by annual emission reduction potential) of each potential control alternative.*

*Wine Fermentation*
A cost-effectiveness analysis was done to assess the incremental equipment and operating cost of the VOC control vs uncontrolled. See calculations spreadsheet in Attachment H.

*Regenerative Thermal Oxidizer*
A cost-effectiveness analysis was done to assess the incremental equipment and operating cost of the Low NOx equipment vs current BACT. See calculations spreadsheet in Attachment H.

*(c)(4) Calculate the incremental cost-effectiveness for each potential control option (difference in cost divided by difference in emissions for each progressively more stringent control option).*

*Wine Fermentation*
The incremental cost-effectiveness analysis included calculations of incremental cost per ton of VOC reduced. See calculations spreadsheet in Attachment H.

*Regenerative Thermal Oxidizer*
The incremental cost-effectiveness study included calculations of incremental cost per ton of NOx and CO reduced. See calculations spreadsheet in Attachment H.

*(c)(5) Place the best available control technology revision proposed on the calendar of a regular meeting agenda of the South Coast AQMD board for its acceptance or further action as the board determines.*

The proposed revisions to the BACT Guidelines were placed on the agenda of the February 5, 2021 meeting of the South Coast AQMD Board.

Part E – Policy and Procedures for Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases

Part E explains the requirements of GHG BACT regulations according to EPA, describes the Top-Down Process, shows how to calculate GHG emissions and explains

the Prevention of Significant Deterioration (PSD) applicability for GHGs for new sources as well as modified sources. A summary of the proposed Part E amendments is included in Attachment A with the complete proposed amended Part E included in Attachment G.

**Presentation to BACT Scientific Review Committee**
The proposed amendments to the BACT Guidelines were presented to the BACT SRC at publicly noticed meetings on February 25, July 22 and October 27, 2020. A 30-day comment period was provided to the BACT SRC and general public to review and submit comments. Comments by BACT SRC members and the general public along with staff responses are included in Attachment J.

**California Environmental Quality Act** Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) and 15308. Further, there is no substantial evidence indicating that any of the exceptions in CEQA Guidelines Section 15300.2 apply to the proposed project. A Notice of Exemption has been prepared pursuant CEQA Guidelines Section 15062 and is included as Attachment I to this Board letter. If the proposed project is approved, the Notice of Exemption will be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal, which may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2021. The electronic filing and posting of the Notice of Exemption is being implemented in accordance with Governor Newsom's Executive Orders N-54-20 and N-80-20 issued on April 22, 2020 and September 23, 2020, respectively, for the State of Emergency in California as a result of the threat of COVID-19.

**Socioeconomic Analysis**
The proposed amendments of the BACT Guidelines are to maintain consistency with recent changes to South Coast AQMD rules and state requirements. These proposed amendments represent achieved in practice emission control equipment and/or processes in addition to other amendments which are administrative in nature and will therefore not result in more stringent requirements than would otherwise occur and would not result in significant socioeconomic impacts.

**Benefits to South Coast AQMD**
Emission reductions realized through new, modified and relocated permitted sources that apply the latest BACT will benefit air quality, achieve emissions reductions needed to attain air quality standards and help improve public health in the South Coast AQMD's jurisdiction. In addition, the successful implementation of BACT for permitted stationary sources will contribute towards achieving the air quality objectives of South Coast AQMD's Air Quality Management Plan.

**Resource Impacts**
Existing South Coast AQMD resources will be sufficient to implement the proposed changes to the BACT Guidelines.

**Recommendation**
This Board letter serves as the staff report on proposed amendments to the BACT Guidelines. Staff recommends that the Board approve the proposed amendments of Overview, Parts A, B, C, D and E and determine that the proposed amendments to the BACT Guidelines are exempt from the requirements of CEQA.

The updated BACT Guidelines with the proposed amendments are scheduled to be made available at South Coast AQMD's website pending Board approval.

**Attachments**
A. Summary of Proposed Amendments to BACT Guidelines
B. Proposed Amended BACT Guidelines, Overview
C. Proposed Amended BACT Guidelines, Part A
D. Proposed Amended BACT Guidelines, Part B
E. Proposed Amended BACT Guidelines, Part C
F. Proposed Amended BACT Guidelines, Part D
G. Proposed Amended BACT Guidelines, Part E
H. Cost-effectiveness Calculations
I. CEQA Notice of Exemption
J. Comments and Responses
K. Board Meeting Presentation

# ATTACHMENT A

## SUMMARY OF PROPOSED AMENDMENTS TO BACT GUIDELINES

The following summarizes the key proposed amendments to the BACT Guidelines:

Overview

Chapter 3 – When is BACT Required?

- Adding the complete names of Class I- Group III substances (ozone-depleting compound) to Table 2.

Chapter 5 - Review of Staff BACT Determinations

- Updating the name of two divisions; Legislative, Public Affairs/Media Office and Engineering & Permitting.

Consistent with new guidelines, all "District" and "SCAQMD" references in the BACT Guidelines are proposed to be changed to "South Coast AQMD" throughout the guidelines.

Part A

Chapter 1 – How is LAER Determined for Major Polluting Facilities?

- Listing volatile organic compound (VOC), one of the principle precursor gases that contribute to secondary PM2.5.

Chapter 2 – How to Use Part B of the BACT Guidelines

- Updating the listing information based on the LAER/BACT determination forms.

Part B

New Section I Listings

⇒ Regenerative Thermal Oxidizer *{30 ppm NOx and 100 ppm CO corrected to 3 percent $O_2$}*
⇒ Recuperative Thermal Oxidizer *{30 ppm NOx and 250 ppm CO corrected to 3 percent $O_2$}*
⇒ Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading *{30 ppm NOx and 10 ppm CO corrected to 3 percent $O_2$}*
⇒ Process Heater – Non-Refinery; Thermal Fluid Heater *{9 ppm NOx and 100 ppm CO corrected to 3 percent $O_2$}*
⇒ I.C. Engine – Stationary - Non-Emergency- Electrical Generation with Non-selective Catalytic Reduction (NSCR) – Natural Gas *{NOx, VOC and CO limits of 0.07 lb/MW-hr (2.5 ppmvd), 0.10 lb/MW-hr (10 ppmvd) and 0.20 lb/MW-hr (12 ppmvd), respectively, corrected to 15 percent $O_2$}*
⇒ Duct Burner – Refinery Fuel Gas *{40 ppm total reduced sulfur, rolling 1-hr average period and 30 ppm total reduced sulfur, rolling 24-hr average period}*
⇒ Aluminum Heat Treating Oven 5.47 MM Btu/hr - Billet Temp. < 970°F *{25 ppm NOx corrected to 3 percent $O_2$}*

**ATTACHMENT A**

Updates to Section I

⇒ Simple Cycle Gas Turbines - Natural Gas *{2.3 ppm NOx and 4 ppm CO corrected to 15 percent $O_2$}*

Part C

Chapter 1 – How is MSBACT Determined for Minor Polluting Facilities?

- Updating the Maximum Cost-Effectiveness Values on Table 5 consistent with the 3rd quarter 2020 Marshall and Swift equipment index.

Part D

New MSBACT Listing

⇒ Fermentation, Wine - closed tanks ≤30,000 gallons {*Venting to water scrubber or chiller condenser with min 67 percent overall control efficiency averaged over the fermentation season}*

⇒ Thermal Oxidizer (Afterburner), Regenerative Thermal Oxidizer – Natural Gas Fired *{30 ppm NOx and 400 ppm CO corrected to 3 percent O2}*

Updated MSBACT Listings

⇒ Coffee Roasting *{Correction - Rule 1147 does not apply: remove NOx requirements for consistency and adding a footnote to refer to Thermal Oxidizer BACT requirement for NOx emissions from oxidizer}.*

⇒ Fish Reduction *{Correction - Rule 1147 does not apply: remove NOx requirements for consistency}*

⇒ Flare {*Compliance with Rule 1118.1. - include "Produced Gas", "Organic Liquid Storage", "Organic Liquid Loading", and "Other Flare Gas" subcategories to the listing to maintain consistency with Rule 1118.1}*

- Produced Gas, Digester Gas, and Landfill Gas hazardous and non-hazardous waste *{Clarification - compliance with Rule 1118.1 for VOC, NOx and CO}*
- Organic Liquid Storage and Loading *{Clarification - compliance with Rule 1118.1 for NOx and CO}*
- Other Flare Gas *{Clarification - compliance with Rule 1118.1 for NOx}*

⇒ Gas Turbine *{Clarification - add "with add-on controls" to be consistent with similar requirements for inorganic pollutants from a control device}*

⇒ Glass Screen Printing – Flat Glass *{Include Flat Glass Screen Printing category with the use of Rule 1145 compliant UV/EB or water-based inks as optional minor source BACT compliance method}*

⇒ I.C. Engines *{Correction - add "6-6-2003 Rev. 1" to I.C. Engine, Portable Category (Rule 431.2)}*

⇒ Open Process Tanks: Chemical Milling (Etching) and Plating *{Clarification - create "Open Process Tanks" category and move current "Chemical Milling Tanks" and "Chrome plating" categories to this category}*

- Chrome plating {*Correction - change "Chrome plating" to "Plating" in order to generalize the application. Update PM10 BACT requirement by changing "Packed Scrubber and Mist Suppressant" requirements to "Compliance with Rule 1469}*

⇒ Polyester Resin Operations *{Merge "Polyester Resin Operations - Molding and Casting" with "Fiberglass Operations" and rename the category to ""Polyester Resin Operations"}*

⇒ Powder Coating Booth {*Remove "Powder Recovery System with a Cyclone" for clarification and correct the throughput limit to =<37 lbs/day and >37 lbs/day}*

⇒ Printing (Graphic Arts)

- Flexographic *{Clarification - replace "control" with "alternatively" for an alternative control method and "afterburner" with "thermal oxidizer"}*
- "Flexographic" and "Lithographic or Offset, Heatset" {*Clarification - replace "Compliance with SCAQMD Rule 1147" with "Compliance with Thermal Oxidizer BACT requirements" for NOx and add "Compliance with Thermal Oxidizer BACT requirements" for CO}*

⇒ Spray Booth {*Clarification - replace "Automotive" with "Fully Enclosed". Add "Compliance with Rule 1147 if booth has a Make-up Air Unit or a Heater}*

- Automotive, down-draft type >22 lb/day of VOC Emissions *{Correction - define "Super Compliant Materials" as any material containing 50 grams or less of VOC per liter of material}*
- Enclosed with Automated Spray Nozzles for Wood Cabinet *{Add a new subcategory and a VOC BACT requirement of "Compliance with Rule 1136 or use of Rule 1136 compliant UV/EB or water-based coatings" to control VOC emissions}*

⇒ Thermal Oxidizer (Afterburner), Catalytic Oxidizer – Natural Gas Fired *{Change the title to "Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer), and Catalytic Oxidizer – Natural Gas Fired", add "Regenerative Thermal Oxidizer" as well as NOx and CO requirements as a separate subcategory and keep the current BACT requirements under subcategory "Other Types"}*

Part E

Consistent with new guidelines, all "District" and "SCAQMD" references in the BACT Guidelines are proposed to be changed to "South Coast AQMD".

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**ATTACHMENT B**

# OVERVIEW

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# Chapter 1 - Introduction

The South Coast Air Quality Management District (South Coast AQMD) Regulation XIII – New Source Review (NSR) and Regulation XX – RECLAIM, require applicants to use Best Available Control Technology (BACT) for new sources, relocated sources, and modifications to existing sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound (ODC), or ammonia. Regulation XIII requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the BACT requirements for commonly permitted equipment. ~~SCAQMD~~South Coast AQMD Regulation XIV – Toxics and Other Non-Criteria Pollutants, requires applicants to use Best Available Control Technology for Toxics (T-BACT) for new, relocated or modified permit units that result in a cumulative increase in Maximum Individual Cancer Risk (MICR) of greater than one in a million ($1.0 \times 10^{-6}$) at any receptor location. Additionally, Regulation XVII – Prevention of Significant Deterioration (PSD) also sets forth BACT requirements for new sources, relocated sources and modifications to existing sources that emit attainment air contaminants. PSD BACT is incorporated into these BACT Guidelines. As of the publication date of these guidelines, there is currently no requirement for ~~SCAQMD~~South Coast AQMD to publish T-BACT guidelines and T-BACT must be established during the permitting process.

Historically, the BACT Guidelines were first published in May 1983, and later revised in October 1988. The Guidelines consisted of two parts: Part A – Policy and Procedures, and Part B – BACT Determinations. Part A provided an overview and general guidance while Part B contained specific BACT information by source category and pollutant. Since the October 1988 revision, Part A was amended once in 1995, and Part B was updated with six LAER determinations between 1997 and 1998.

On December 11, 1998, the Governing Board approved a new format for listing BACT determinations in Part B of the Guidelines. While the previous Part B of the BACT Guidelines specified BACT requirements and set out source category determinations which could be interpreted as definitive, the new format simply provides listings of recent BACT determinations by ~~SCAQMD~~South Coast AQMD permitting staff and others as well as information on new and emerging technologies. Part B of the ~~SCAQMD~~South Coast AQMD BACT Guidelines now follows the same outline as the permit listings in the California Air Resources Board State BACT Clearinghouse Database, which is managed under the direction of the California Air Pollution Control Officers Association's (CAPCOA) Engineering Managers Committee. In addition, BACT determinations made by ~~SCAQMD~~South Coast AQMD are submitted to the U.S. Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse by ARB staff. Further information on the format of the Guidelines, including reasons for the change in direction, may be found in Board Letters presented at the October 1998 Board Meeting, Agenda No. 41, and the December 1998 Board Meeting, Agenda No. 28.

The public participation process includes technical review and comments by a focused BACT Scientific Review Committee (BACT SRC) at periodic intervals, prior to the updates of the ~~SCAQMD~~South Coast AQMD BACT Guidelines. The Board established a 30-day notice period for the BACT SRC and interested persons to review

and comment on ~~SCAQMD~~South Coast AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.

As a result of amendments to ~~SCAQMD~~South Coast AQMD's NSR regulations in September 2000, the BACT Guidelines were separated into two sections: one for major polluting facilities and another for non-major (minor) polluting facilities. (See Chapter 2 in the Overview for how to determine if a facility is major or minor).

The BACT Guidelines for major polluting facilities include:

- Part A: Policy and Procedures for Major Polluting facilities; and
- Part B: LAER/BACT Determinations for Major Polluting Facilities.

The BACT Guidelines for non-major polluting facilities include:

- Part C: Policy and Procedures for Non-Major Polluting Facilities; and
- Part D: BACT Guidelines for Non-Major Polluting Facilities.

Both the format of the guidelines and the process for determining BACT are significantly different between major and non-major polluting facilities. Major polluting facilities that are subject to NSR are required by the Clean Air Act to have the Lowest Achievable Emission Rate (LAER). LAER is determined at the time the permit is issued, with little regard for cost, and pursuant to USEPA's LAER policy as to what is achieved in practice. The Part B BACT and LAER determinations for major polluting facilities are only examples of past determinations that help in determining LAER for new permit applications.

For non-major polluting facilities, BACT will be determined in accordance with state law at the time an application is deemed complete unless a more stringent rule requirement becomes applicable prior to permit issuance. For the most part, it will be as specified in Part D of the BACT Guidelines. Changes to Part D for minor source BACT (MSBACT) to make them more stringent will be subject to public review and ~~SCAQMD~~South Coast AQMD Board approval, for consideration of cost.

For the 2016 amendment to the Guidelines, additional parts have been added to address PSD requirements for greenhouse gas (GHG) emissions established by U.S. EPA in 40 CFR 52.21 in 2011. The requirements are incorporated by reference in ~~SCAQMD~~South Coast AQMD Rule 1714. The BACT Guidelines for GHG requirements include:

- Part E: Policy and Procedures for Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases; and
- Part F: BACT Determinations for Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases.

In order to distinguish between BACT for various sources, this document will use the following nomenclature for BACT:

LAER for BACT at major polluting facilities

MSBACT for BACT at non-major polluting facilities

PSD BACT for BACT at facilities subject to BACT requirements for criteria pollutants

Written comments about the BACT Guidelines are welcome at any time and will be evaluated by ~~SCAQMD~~South Coast AQMD staff and included in the BACT Docket at the ~~SCAQMD~~South Coast AQMD library. These comments should be addressed to:

South Coast Air Quality Management District
BACT Docket
Science and Technology Advancement
21865 Copley Dr.
Diamond Bar, CA 91765-0934

Comments may also be submitted via email to BACTTeam@aqmd.gov, and should include BACT Docket in the subject line.

The BACT Guidelines are available without charge from ~~SCAQMD~~South Coast AQMD's web site at www.aqmd.gov/home/permits/bact. A hardcopy of the BACT Guidelines may be obtained for a fee by submitting a request to Subscription Services at www.aqmd.gov/contact/subscription-services or by calling (909) 396-3720. Revisions to the Guidelines will be mailed to all persons that have purchased annual updates to the BACT Guidelines.

# Chapter 2 – Applicability Determination

This chapter explains how to determine whether a facility is a major or minor polluting facility, and how a facility can become a minor polluting facility.

## MAJOR POLLUTING FACILITY EMISSION THRESHOLDS

A facility is a major polluting facility (or a major stationary source as it is called in the federal Clean Air Act [CAA]) if it emits, or has the potential to emit (PTE), a criteria air pollutant at a level that equals or exceeds emission thresholds specified in the CAA[1] based on the attainment or nonattainment status. Table 1 presents those emission thresholds for each criteria air pollutant for each air basin in ~~SCAQMD~~South Coast AQMD. The map in Figure 1 shows the location of the three air basins in ~~SCAQMD~~South Coast AQMD. If a threshold for any one criteria pollutant is equaled or exceeded, the facility is a major polluting facility, and will be subject to LAER for all pollutants subject to NSR. Table 1 does not include emission thresholds that trigger GHG BACT for ~~SCAQMD~~South Coast AQMD Rule 1714 and 40 CFR 52.21. Part E of the BACT Guidelines should be referenced for a detailed explanation of how GHG BACT emission thresholds are determined.

A facility includes all sources located within contiguous properties owned or operated by the same person, or persons under common control. Contiguous means in actual contact or separated only by a public roadway or other public right-of-way. However, on-shore crude oil and gas production facilities under the same ownership or use entitlement must be included with offshore crude oil and gas production facilities located in Southern California Coastal or Outer Continental Shelf waters.

The following mobile source emissions are also considered as part of the facility[2]:

1. Emissions from in-plant vehicles; and
2. All emissions from ships during the loading or unloading of cargo and while at berth where the cargo is loaded or unloaded; and
3. Non-propulsion ship emissions within Coastal Waters under ~~SCAQMD~~South Coast AQMD jurisdiction.

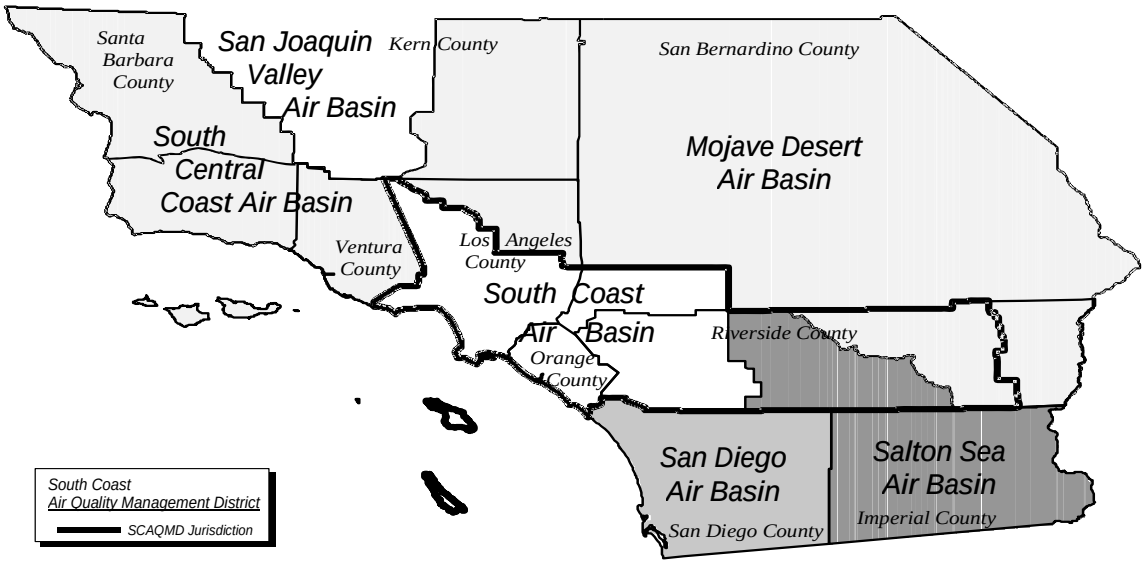
[1] The major source emission thresholds are higher for air basins that comply with the national ambient air quality standard and lower depending on how far an air basin is from compliance with the standard for a pollutant. The lowest thresholds apply to extreme non-attainment air basins, the only ones which are the South Coast Air Basin and San Joaquin Valley Air Basin for ozone (VOC and NOx).

[2] In accordance with Rule 1306(g).

**Table 1**
**Actual or Potential Emission Threshold Levels (Tons per Year)**
**for Major Polluting Facilities**

| Pollutant | South Coast Air Basin | Riverside County Portion of Salton Sea Air Basin | Riverside County Portion of Mojave Desert Air Basin |
|---|---|---|---|
| VOC | 10 | 25 | 100 |
| NOx | 10 | 25 | 100 |
| SOx[3] | 70 | 70 | 100 |
| CO | 50 | 100 | 100 |
| $PM_{10}$ | 70 | 70 | 100 |
| $PM_{2.5}$ | 70 | --- | --- |

**Figure 1: Map of ~~SCAQMD~~South Coast AQMD**




[3] The threshold for SOx, as a precursor for PM, is 70 tons per year for serious $PM_{10}$ areas, which the SCAB previously was, and 70 tons per year for serious $PM_{2.5}$ areas, which the SCAB currently is. Rule 1302 previously specified 100 tons per year, which was in error, and was changed at the November 2016 Board Meeting.

## POTENTIAL TO EMIT

Potential to emit is based on permit conditions that limit emissions or throughput. If there are no such permit conditions, PTE is based on:

- the maximum rated capacity; and
- the maximum daily hours of operation; and
- physical characteristics of the materials processed.

The PTE must include fugitive emissions associated with the source. RECLAIM emission allocations are not considered emission limits because RECLAIM facilities may purchase RTCs and increase their emissions without modifying their permit. For PSD purposes, as well as Rule 1325 for $PM_{2.5}$, which incorporates federal requirements, fugitive emissions are included only for major source categories specifically identified in 40 CFR 52.21.

## LIMITING POTENTIAL TO EMIT

A facility's PTE can be capped by an enforceable permit condition that limits emissions. This condition will likely involve monitoring, recordkeeping and reporting to ensure that emissions remain below the permit limit.

# Chapter 3 - When is BACT Required?

This chapter explains when BACT is required by identifying the air pollutants subject to BACT, the permit actions that trigger BACT review, and the calculation procedures to determine emission increases.

## POLLUTANTS SUBJECT TO NSR, PSD AND BACT

The ~~SCAQMD~~South Coast AQMD's New Source Review (NSR) programs include *Regulation XIII - New Source Review* and *Rule 2005 - New Source Review for RECLAIM*. Rule 2005 applies only to NOx and SOx emissions from RECLAIM facilities, while Regulation XIII applies to other non-attainment air pollutants from RECLAIM facilities, all non-attainment air pollutants from all other facilities, and ammonia and ozone-depleting compound (ODC) emissions from all facilities. ODCs are defined as Class I substances listed in 40 CFR, Part 82, Appendix A, Subpart A, and are listed in Table 2. Rule 1325 specifically applies to $PM_{2.5}$.

Although the ~~SCAQMD~~South Coast AQMD is in attainment with the ambient air quality standards for $SO_2$ and $NO_2$, NOx is a precursor to ozone, and both SOx and NOx are precursors to $PM_{10}$ and $PM_{2.5}$, which are non-attainment air pollutants. Therefore, SOx and NOx are treated as non-attainment air pollutants as well. The net result is that VOC, NOx, SOx, $PM_{10}$ and $PM_{2.5}$ are subject to NSR in all of ~~SCAQMD~~South Coast AQMD.

The South Coast Air Basin has historically been designated nonattainment for CO. However, there has been considerable improvement in CO air quality in the Basin from 1976 to 2005. In 2001, the Basin met both the federal and state 8-hour CO standards for the first time at all monitoring stations. The 2003 AQMP revision to the CO plan served a dual purpose; it replaced the 1997 attainment demonstration that lapsed at the end of 2000, and it provided the basis for a CO maintenance plan in the future. The Basin was designated as attainment for CO in 2007. Therefore, CO is in attainment with state and federal ambient air quality standards.

The ~~SCAQMD~~South Coast AQMD's Regulation XVII – Prevention of Significant Deterioration sets forth BACT requirements for stationary sources that emit attainment air contaminants. The BACT requirement applies to any net emission increase of a criteria pollutant from a permit unit at any source. As explained in the ~~SCAQMD~~South Coast AQMD Staff Report for Regulation XVII dated September 28, 1988 for the October 7, 1988 Board meeting, the PSD BACT requirement is applicable to all permit units regardless if the source is classified as a minor or major facility.

Lead (Pb) is a criteria air pollutant and is subject to BACT in areas of non-attainment, or is subject to PSD in areas of attainment. Pb can be a component of a source's $PM_{10}$ emissions and is therefore subject to BACT for $PM_{10}$. BACT for Pb will be BACT for $PM_{10}$ or compliance with Rules 1420, 1420.1 or 1420.2, whichever is more stringent.

The applicability of the various pollutants to NSR in the various air basins is summarized in Table 3. See Figure 1 in the previous chapter for a map of ~~SCAQMD~~South Coast AQMD that shows the location of the three air basins in ~~SCAQMD~~South Coast AQMD.

**Table 2**
**Class I Substances (ODCs)***

A. Group I:
$CFCl_3$ Trichlorofluoromethane (CFC-11)
$CF_2Cl_2$ dDichlorodifluoromethane (CFC-12)
$C_2F_3Cl_3$ Trichlorotrifluoroethane (CFC-113)
$C_2F_4Cl_2$ Dichlorotetrafluoroethane (CFC-114)
$C_2F_5Cl$ Monochloropentafluoroethane (CFC-115)
All isomers of the above chemicals

B. Group II:
$CF_2ClBr$ Bromochlorodifluoromethane (Halon-1211)
$CF_3Br$ Bromotrifluoromethane (Halon-1301)
$C_2F_4Br_2$ Dibromotetrafluoroethane (Halon-2402)
All isomers of the above chemicals

C. Group III:
$CF_3Cl$ Chlorotrifluoromethane (CFC-13)
$C_2FCl_5$ Pentachlorofluoroethane (CFC-111)
$C_2F_2Cl_4$ Tetrachlorodifluoroethane (CFC-112)
$C_3FCl_7$ Heptachlorofluoropropane (CFC-211)
$C_3F_2Cl_6$ Hexachlorodifluoropropane (CFC-212)
$C_3F_3Cl_5$ Pentachlorotrifluoropropane (CFC-213)
$C_3F_4Cl_4$ Tetrachlorotetrafluoropropane (CFC-214)
$C_3F_5Cl_3$ Trichloropentafluoropropane (CFC-215)
$C_3F_6Cl_2$ Dichlorohexafluoropropane (CFC-216)
$C_3F_7Cl$ Chloroheptafluoropropane (CFC-217)
All isomers of the above chemicals

D. Group IV:
$CCl_4$ Carbon Tetrachloride

E. Group V:
$C_2H_3Cl_3$ 1,1,1 Trichloroethane (Methyl chloroform)
All isomers of the above chemical except 1,1,2-trichloroethane

F. Group VI:
$CH_3Br$ Bromomethane (Methyl Bromide)

H. Group VIII:
$CH_2BrCl$ (Chlorobromomethane)

G. Group VII:
$CHFBr_2$
$CHF_2Br$ (HBFC-2201)
$CH_2FBr$
$C_2HFBr_4$
$C_2HF_2Br_3$
$C_2HF_3Br_2$
$C_2HF_4Br$
$C_2H_2FBr_3$
$C_2H_2F_2Br_2$
$C_2H_2F_3Br$
$C_2H_2FBr_2$
$C_2H_3F_2Br$
$C_2H_4FBr$
$C_3HFBr_6$
$C_3HF_2Br_5$
$C_3HF_3Br_4$
$C_3HF_4Br_3$
$C_3HF_5Br_2$
$C_3HF_6Br$
$C_3H_2FBr_5$
$C_3H_2F_2Br_4$
$C_3H_2F_3Br_3$
$C_3H_2F_4Br_2$
$C_3H_2F_5Br$
$C_3H_3FBr_4$
$C_3H_3F_2Br_3$
$C_3H_3F_3Br_2$
$C_3H_3F_4Br$
$C_3H_4FBr_3$
$C_3H_4F_2Br_2$
$C_3H_4F_3Br$
$C_3H_5FBr_2$
$C_3H_5F_2Br$
$C_3H_6FBr$

* 40 CFR, Part 82, Appendix A, Subpart A

**Table 3**
**Applicability of NSR to Various Pollutants in**
**South Coast Air Basin (SOCAB), Salton Sea Air Basin (SSAB),**
**and Mojave Desert Air Basin (MDAB)**

| Air Basin | VOC | NOx | SOx | CO | $PM_{10}$ | $PM_{2.5}$ | $NH_3$ | Pb | ODC |
|---|---|---|---|---|---|---|---|---|---|
| SOCAB | √ | √ | √ | | √ | √ | √ | √ | √ |
| SSAB | √ | √ | √ | | √ | | √ | √ | √ |
| MDAB | √ | √ | √ | | √ | | √ | √ | √ |

## PERMIT ACTIONS SUBJECT TO NSR, PSD AND BACT

~~SCAQMD~~South Coast AQMD's NSR and PSD regulations are preconstruction permit review programs that require the Executive Officer to deny a permit to construct unless the proposed equipment includes BACT when:

- new equipment is installed;
- existing stationary permitted equipment is relocated; or
- existing permitted equipment is modified such that there is an emission increase.

If the new equipment is to replace the same kind of equipment, NSR[4] still requires BACT unless it is an identical replacement, which does not require a new permit according to *Rule 219 -Equipment Not Requiring a Written Permit Pursuant to Regulation II.*

BACT is not required for a change of operator, provided the facility is a continuing operation at the same location, without modification or change in operating conditions.

In case of relocation of a non-major facility, the facility operator may opt out of installing MSBACT, provided that the owner/operator meets the conditions specified in Rule 1302 (ai) and Rule 1306 (d)(3).[5]

PSD applies to GHG if the source is otherwise subject to PSD for another regulated NSR pollutant and the source is new with a GHG PTE ≥ 75,000 tons per year $CO_2e$, or an existing source with a modification resulting in a similar GHG emissions increase.

It is ~~SCAQMD~~South Coast AQMD policy that BACT is required only for emission increases greater than or equal to one (1.0) pound per day.

In accordance with policy established by ~~SCAQMD~~South Coast AQMD's Engineering and Permitting division in June 2018, for the purpose of preventing circumvention of triggering a BACT requirement, a period of 5 years prior to the date of application submittal shall be used to accumulate all previous permitting actions allowing emission increases for that specific permit unit to determine if emission increases exceed or

[4] See Rules 1303(a) and 1304(a).

[5] USEPA has expressed concerns with this provision of the NSR Rules for minor polluting facilities as of September 2000. Staff will continue to work with USEPA to resolve this issue.

equal 1.0 pound per day for any nonattainment air contaminant, any ozone depleting compound, or ammonia.

## CALCULATION PROCEDURES FOR EMISSION INCREASES

The calculation procedures for determining whether there is an increase in emissions from an equipment modification that triggers BACT are different for NOx and SOx pollutants from RECLAIM facilities than for all other cases. In general, the calculation procedures for RECLAIM facilities are less likely to result in an emission increase that requires BACT.

For NOx and SOx emissions from a source at a RECLAIM facility, there is an emission increase if the maximum hourly potential to emit is greater after the modification than it was before the modification.[6]

For modifications subject to Regulation XIII, there are two possible cases[7]:

1. If the equipment was previously subject to NSR, an emission increase occurs if the new potential to emit in one day is greater than the previous potential to emit in one day.
2. If the equipment was never previously subject to NSR, an emission increase occurs if the new potential to emit in one day exceeds the actual average daily emissions over the two-year period, or other appropriate period, prior to the permit application date. However, for the installation of air pollution controls on any source constructed prior to the adoption of the NSR on October 8, 1976 for the sole purpose of reducing emissions, Rule 1306(f) allows the emission change to be calculated as the post-modification potential to emit minus the pre-modification potential to emit.

The potential to emit is based on permit conditions that directly limit the emissions, or, if there are none, then the potential to emit is based on:

- maximum rated capacity; and
- the maximum daily hours of operation; and
- the physical characteristics of the materials processed.

[6] See Rule 2005(d).
[7] See Rule 1306(d)(2).

# Chapter 4 - What is BACT?

This chapter explains the definitions of BACT found in ~~SCAQMD~~South Coast AQMD rules, state law and federal law.

## NSR RULES (REGULATION XIII)

New sources, relocations, and modifications of existing sources that increase nonattainment air contaminant emissions are subject to New Source Review (NSR) regulations which require BACT, among other requirements. Both federal and state laws require this strategy. The federal Clean Air Act (CAA) requirement for Lowest Achievable Emission Rate (LAER) is implemented through BACT in the ~~SCAQMD~~South Coast AQMD. Federal LAER applies to major sources only. Although federal LAER applies to any emissions increase at a major stationary source of ozone precursors, ~~SCAQMD~~South Coast AQMD has interpreted this provision as a 1.0 lb/day increase in emissions from all sources subject to NSR. According to ~~SCAQMD~~South Coast AQMD's rules, BACT requirements may not be less stringent than federal LAER for major polluting facilities. The California Health & Safety Code (H&SC) Section 40405 defines state BACT similar to federal LAER and requires the application of BACT for all new and modified permitted sources subject to NSR.

## PSD RULES (REGULATION XVII)

New sources, relocations, and modifications of existing sources that emit attainment air contaminant emissions and certain other specified pollutants are subject to Prevention of Significant Deterioration (PSD) regulations, which require BACT. Pursuant to Rule 1701, the BACT requirement applies to a net emission increase from a permit unit located at minor and major stationary sources. The intention of the PSD requirement is to implement a similar requirement as Regulation XIII to maintain national ambient air quality standards for attainment air contaminants.

## DEFINITION OF BACT

Definitions of BACT are found in: Rule *1302 -Definitions* of *Regulation XIII - New Source Review*, which applies to all cases in general, except for *Rule 1702 – Definitions*, which applies only to attainment air contaminants, and *Rule 2000 - General*, which applies to NOx and SOx emissions from RECLAIM facilities. While the definitions are not identical, they are essentially the same. Section (h) of *Rule 1302 - Definitions* defines BACT as:

> *BEST AVAILABLE CONTROL TECHNOLOGY (BACT) means the most stringent emission limitation or control technique which:*
>
> *(1) has been achieved in practice for such category or class of source; or*
> *(2) is contained in any state implementation plan (SIP) approved by the United States Environmental Protection Agency (EPA) for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source*

*demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable; or*

*(3) is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the ~~District~~South Coast AQMD Governing Board.*

The first two requirements in the BACT definition are required by federal law, as LAER for major sources. The third part of the definition is unique to ~~SCAQMD~~South Coast AQMD and some other areas in California, and allows for more stringent controls than LAER.

Rule 1303(a)(2) requires that economic and technical feasibility be considered in establishing the class or category of sources and the BACT requirements for non-major polluting facilities.

## REQUIREMENTS OF HEALTH & SAFETY CODE SECTION 40440.11

Senate Bill 456 (Kelley) was chaptered into state law in 1995 and became effective in 1996. H&SC Section 40440.11 specifies the criteria and process that must be followed by the ~~SCAQMD~~South Coast AQMD to update its BACT Guidelines to establish more stringent BACT limits for listed source categories. After consultation with the affected industry, the CARB, and the U.S. EPA, and considerable legal review and analysis, staff concluded that the process specified in SB 456 to update the BACT Guidelines should be interpreted to apply only if the ~~SCAQMD~~South Coast AQMD proposes to make BACT more stringent than LAER or to establish BACT for non-major sources. This is because the CAA requires the ~~SCAQMD~~South Coast AQMD staff to apply current LAER for major polluting facilities, even if the proposed LAER determination has not gone through the SB456 process. Therefore, the SB 456 requirements do apply to BACT requirements for non-major polluting facilities, but do not apply to federal LAER determinations for major polluting facilities.

## CLEAN FUEL GUIDELINES

In January 1988, the ~~SCAQMD~~South Coast AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT. The implementation of this policy is further described in Parts A and C of these guidelines.

# Chapter 5 - Review of Staff BACT Determinations

New BACT determinations and guideline updates proposed by ~~SCAQMD~~South Coast AQMD staff are subject to public notification requirements. In addition to allowing the public to comment on these items, the ~~SCAQMD~~South Coast AQMD has established a BACT Scientific Review Committee (BACT SRC) to review and comment on technical matters of the proposals.

The ~~SCAQMD~~South Coast AQMD has included provisions for an applicant to request a review of particular circumstances regarding a permit application and reconsideration of the BACT determination. Additional avenues are available to permit applicants for further review of staff BACT determinations through ~~SCAQMD~~South Coast AQMD management, BACT Review Committee, Hearing Board, and the Governing Board.

## BACT SCIENTIFIC REVIEW COMMITTEE (BACT SRC)

The BACT SRC was established as a standing committee by action of the ~~SCAQMD~~South Coast AQMD Governing Board on September 8, 1995 to enhance the public participation process and include technical review and comments by a focused committee at periodic intervals, prior to the updates of the ~~SCAQMD~~South Coast AQMD BACT Guidelines. A 30-day notice period applies for the BACT SRC and interested persons to review and comment on ~~SCAQMD~~South Coast AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed. BACT SRC members, include but are not limited to, representatives from CARB, U.S. EPA, neighboring Air Pollution Control Districts (APCD), with the balance of the committee created by invitation of recognized experts from industry, public utilities, suppliers of air pollution control equipment and advocacy groups. Whenever a committee member resigns or is no longer able to serve, ~~SCAQMD~~South Coast AQMD seeks out an appropriate replacement to join the committee. A list of current BACT SRC members can be accessed at

www.aqmd.gov/home/permits/bact/scientific-review-committee/src-members.

The overall purpose of the BACT Scientific Review Committee is to:

- Comment on proposed new and more stringent BACT determinations in permit applications under 30-day public review.
- Comment on proposed BACT listings for all parts of the BACT Guidelines.

Except for the above, the BACT SRC's purpose is not to comment on past permitting decisions or change them. Specifically, the role of the BACT SRC is to review and comment in writing on the appropriateness of new BACT determinations under 30-Day public review. During this comment period, ~~SCAQMD~~South Coast AQMD, State, and Federal required permit issuance timelines are still in effect. ~~SCAQMD~~South Coast AQMD BACT staff will commit to sending the BACT SRC newly proposed BACT listings at least seven days prior to the next scheduled BACT SRC meeting. Meetings will typically consist of a presentation by BACT Team (BACTTeam@aqmd.gov) staff of new BACT forms

and technical data and a general discussion of the proposed BACT listings, as well as addressing any preliminary written comments received from the public and BACT SRC prior to the meeting. ~~SCAQMD~~South Coast AQMD staff will respond in writing to preliminary comments about new BACT proposals within thirty days of the subject BACT SRC meeting. New issues raised during the BACT SRC meetings regarding newly proposed BACT listings will be addressed at the subsequent BACT SRC meeting to allow time for ~~SCAQMD~~South Coast AQMD staff to research the comments. ~~SCAQMD~~South Coast AQMD Engineering staff may also respond to specific issues raised at the following BACT SRC meeting.

In addition to newly proposed BACT listings, the BACT SRC will be tasked with reviewing and commenting on updates to the policy and procedure sections of the BACT Guidelines prior to the guidelines being presented to the ~~SCAQMD~~South Coast AQMD Governing Board for approval.

## MEETING WITH ~~SCAQMD~~SOUTH COAST AQMD MANAGEMENT

~~SCAQMD~~South Coast AQMD management, starting with the Senior Engineering Manager of the permitting team, can consider unique and site-specific characteristics of an individual permit. The allowance for site-specific characteristics has been designed into the guidelines and can be reviewed with the manager of the section processing the permit. It is also possible to request review at the next level, with the Assistant Deputy Executive Officer of Engineering and Compliance. The Senior Engineering Managers and the Assistant Deputy Executive Officers are empowered to make case-by-case decisions on an individual permit. Further review can be obtained through a meeting with the Deputy Executive Officer (DEO) of Engineering and Compliance. Ultimately, all permitting decisions are the responsibility of the Executive Officer.

## THE BACT REVIEW COMMITTEE

Beyond meetings with South Coast AQMD management, an applicant may also request, prior to permit issuance or denial, that the proposed BACT for an individual permit be reviewed by the BACT Review Committee (BRC). The BRC is composed of five senior-level ~~SCAQMD~~South Coast AQMD officials - the DEO of ~~Public Affairs~~Legislative, Public Affairs/Media Office; the DEO of Science and Technology Advancement; the DEO of Engineering an Permitting; the DEO of Planning, Rule Development and Area Sources; and General Counsel. This committee can review pending individual applications and decide if the BACT determination is appropriate. The BRC can be accessed without any fee or legal representation, and will meet upon demand.

## THE SOUTH COAST AQMD HEARING BOARD

After the permit is issued or denied, the applicant can seek further independent review of an individual BACT determination through the ~~SCAQMD~~South Coast AQMD Hearing Board. In order to access this venue, the permit applicant would need to submit a petition and fee to appeal the final BACT determination by ~~SCAQMD~~South Coast AQMD (once the permit is denied or issued)[8]. The Hearing Board is an independent, quasi-judicial body composed of five members, who can

[8] Applicants must file an appeal petition with the Hearing Board within thirty days of the receipt of the permit or the notification of permit denial. See Rule 216 - *Appeals*, Regulation V - *Procedure Before the Hearing Board*, and Rule 303 - *Hearing Board Fees* for more information.

review a permitting decision by the Executive Officer. In this venue, legal counsel represents the ~~SCAQMD~~South Coast AQMD. Although not required, many petitioners choose to have legal counsel to represent their position.

## THE SOUTH COAST AQMD GOVERNING BOARD

Any applicant may petition the ~~SCAQMD~~South Coast AQMD Governing Board to review a pending application pursuant to ~~SCAQMD~~South Coast AQMD Regulation XII and Health and Safety Code Section 40509. While the Governing Board has the authority to hear and consider any pending permit application, it has rarely done so. It is important to note that this action must be taken while the permit application is pending with staff. Once staff reaches its decision, the only avenue of appeal is through the Hearing Board and ultimately to court.

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**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

# Best Available Control Technology Guidelines

**OVERVIEW**

**Part A: Policy and Procedures for Major Polluting Facilities**

**Part B: LAER/BACT Determinations for Major Polluting Facilities**

**Part C: Policy and Procedures for Non-Major Polluting Facilities**

**Part D: BACT Guidelines for Non-Major Polluting Facilities**

**Part E: Policy and Procedures for Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases**

**Part F: BACT Determinations for Facilities Subject to Prevention of Significant Deterioration for Greenhouse Gases**

August 17, 2000 (Revised June 6, 2003; December 5, 2003; July 9, 2004; July 14, 2006; December 2, 2016, February 2, 2018, February 1, 2019, February 5, 2021)

**Deputy Executive Officer**
**Science and Technology Advancement**
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# LIST OF ABBREVIATIONS

| | |
|---|---|
| **AIP** | Achieved in Practice |
| **APCD** | Air Pollution Control District |
| **AQMP** | Air Quality Management Plan |
| **BACT** | Best available control technology |
| **BRC** | BACT Review Committee, AQMD |
| **CAA** | Clean Air Act |
| **CAPCOA** | California Air Pollution Control Officers Association |
| **CARB** | California Air Resources Board |
| **CEP** | Certified Equipment Permit |
| **CFC** | Chlorofluorocarbons |
| **CFR** | Code of Federal Regulations |
| **CO** | Carbon monoxide |
| **DEO** | Deputy Executive Officer |
| **H&SC** | Health and Safety Code, California State |
| **LAER** | Lowest achievable emission rate |
| **LPG** | Liquefied petroleum gas |
| **MDAB** | Mojave Desert Air Basin |
| **MSBACT** | Minor Source BACT |
| **$NO_2$** | Nitrogen dioxide |
| **NOx** | Oxides of nitrogen |
| **NSR** | New Source Review |
| **ODC** | Ozone depleting compounds |
| **PM10** | Particulate matter less than 10 microns in diameter |
| **RACT** | Reasonably available control technology |
| **RECLAIM** | Regional Clean Air Incentives Market |
| **ROG** | Reactive organic gas |
| **South Coast ~~SC~~AQMD** | South Coast Air Quality Management District |
| **SIP** | State Implementation Plan |
| **SOCAB** | South Coast Air Basin |
| **SOx** | Oxides of sulfur |
| **SRC** | Scientific Review Committee |
| **SSAB** | Salton Sea Air Basin |
| **USEPA** | United States Environmental Protection Agency |
| **VOC** | Volatile organic compound |

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# INDEX OF EQUIPMENT CATEGORIES

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# Z

**ATTACHMENT C**

# PART A - POLICY AND PROCEDURES FOR MAJOR POLLUTING FACILITIES

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# Chapter 1 - How is LAER Determined for Major Polluting Facilities?

This chapter explains the criteria used for determining LAER[1] and the process for updating Part B of the BACT Guidelines for major polluting facilities.

## CRITERIA FOR DETERMINING LAER FOR MAJOR POLLUTING FACILITIES

~~SCAQMD~~South Coast AQMD staff determines LAER requirements on a permit-by-permit basis based on the definition of LAER. In essence, LAER is the most stringent emission limit or control technology for a class or category of source that is:

- found in a state implementation plan (SIP) pursuant to Health and Safety Code Section 40405(a)(1), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

For practical purposes, at this time, nearly all ~~SCAQMD~~South Coast AQMD LAER determinations will be based on AIP LAER because it is generally more stringent than LAER based on SIP, and because state law constrains ~~SCAQMD~~South Coast AQMD in using the third approach, as such a determination must go through the SB456 process, which may take more time than allowed for the permit decision.

Based on Governing Board policy, LAER also includes a requirement for the use of clean fuels. Terms such as “achieved in practice” and “technologically feasible” have not been defined in the rule, so the purpose of this section is to explain the criteria ~~SCAQMD~~South Coast AQMD permitting staff uses to make a LAER determination.

### LAER Based on a SIP

The most stringent emission limit found in an approved state implementation plan (SIP) might be the basis for LAER. This means that the most stringent emission limit adopted by any state as a rule, regulation or permit[2], and approved by USEPA, is eligible as a LAER requirement. No other parameters are required to be evaluated when this category is chosen. This does not include future emission limits that have not yet been implemented.

[1] In order to distinguish between BACT for major polluting facilities and BACT for minor polluting facilities, this document uses the term LAER when referring to BACT for major polluting facilities.

[2] Some states incorporate individual permits into their SIP as case-by-case Reasonably Available Control Technology requirements.

# Achieved in Practice LAER

## *Regulatory Documents*

An emission limit or control technology may be considered achieved in practice (AIP) for a category or class of source if it exists in any of the following regulatory documents or programs:

- ~~SCAQMD~~South Coast AQMD BACT Guidelines
- CAPCOA BACT Clearinghouse
- USEPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- BACT/LAER requirements in New Source Review permits issued by ~~SCAQMD~~South Coast AQMD or other agencies

However, staff will check with the permitting authority (other than ~~SCAQMD~~South Coast AQMD) on the status of the BACT or LAER requirement. If it is found that an emission limit is not being achieved or a control technology is not performing as expected in the equipment referenced in any of the above sources or in other equipment used as the basis for the BACT or LAER determination, then it will not be considered as AIP.

## *New Technologies/Emission Levels*

New technologies and innovations of existing technologies occasionally evolve without a regulatory requirement, but still deserve consideration. They may have been voluntarily installed to reduce emissions, and may or may not be subject to an air quality permit or an emission limit. Therefore, in addition to the above means of being determined as AIP, a control technology or emission limit may also be considered as AIP if it meets all of the following criteria:

Commercial Availability

At least one vendor must offer this equipment for regular or full-scale operation in the United States. A performance warranty or guaranty must be available with the purchase of the control technology, as well as parts and service.

Reliability

All control technologies must have been installed and operated reliably for at least six months. If the operator did not require the basic equipment to operate daily, then the equipment must have at least 183 cumulative days of operation. During this period, the basic and/or control equipment must have operated: 1) at a minimum of 50% design capacity; or 2) in a manner that is typical of the equipment in order to provide an expectation of continued reliability of the control technology.

Effectiveness

The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. If the control technology will be allowed to operate at lesser effectiveness during certain modes of operation, then those modes of operation must be identified. The verification shall be based on a performance test or tests deemed to be acceptable by ~~SCAQMD~~South Coast AQMD, when possible, or other performance data.

### *Technology Transfer*

LAER is based on what is AIP for a category or class of source. However, USEPA guidelines require that technology that is determined to be AIP for one category of source be considered for transfer to other source categories. There are two types of potentially transferable control technologies: 1) exhaust stream controls, and 2) process controls and modifications. For the first type, technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, technology transfer must be considered between source categories with similar processes.

## Federal $PM_{2.5}$ New Source Review and ~~SCAQMD~~South Coast AQMD Rule 1325

$PM_{2.5}$ NSR applies to a new major polluting facility, major modifications to a major polluting facility, and any modification to an existing facility that would constitute a major polluting facility. A major polluting facility would be a facility located in areas federally designated pursuant to 40 CFR 81.305 as non-attainment for $PM_{2.5}$ for the South Coast Air Basin (SOCAB) which has actual emissions of, or the potential to emit, 70 tons or more per year of $PM_{2.5}$, or its precursors for serious areas. For major modifications, LAER applies on a pollutant-specific basis to emissions of $PM_{2.5}$ and its precursors, for which (1) the source is major, (2) the modification results in a significant increase, and (3) the modification results in a significant net emissions increase.

Significant means in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates[3]:

Nitrogen oxides: 40 tons per year

Sulfur dioxide: 40 tons per year

Volatile organic compound (VOC): 40 tons per year[4]

$PM_{2.5}$: 10 tons per year

Ammonia: 40 tons per year[5]

A facility subject to the Federal $PM_{2.5}$ NSR will be required to comply with the following:

- Lowest Achievable Emission Rate (LAER)
- Emission increases offset
- Certification of compliance with Clean Air Act; and
- Analysis conducted of benefits of the proposed project outweigh the environmental and social costs associated with that project.

Please refer to ~~SCAQMD~~South Coast AQMD Rule 1325 for specific requirements.

[3] ~~SCAQMD~~South Coast AQMD Rule 1325(b)(12), as amended on ~~December~~January ~~45~~, 2019~~4~~

[4] VOC was added to Rule 1325 as a precursor to $PM_{2.5}$ pursuant to EPA's 2016 $PM_{2.5}$ SIP implementation Rule

[5] Ammonia ~~is being~~was added to Rule 1325 as a precursor to $PM_{2.5}$ pursuant to EPA's 2016 $PM_{2.5}$ SIP implementation Rule. ~~PAR 1325, scheduled for hearing in November 2016, would set a significance threshold of 40 tons per year for ammonia.~~

## Cost in LAER Determinations

USEPA guidelines do not allow for routine consideration of the cost of control in LAER determinations. However, USEPA guidelines say that LAER is not considered achievable if the cost of control is so great that a new source could not be built or operated with a particular control technology. If a facility in the same or comparable industry already uses the control technology, then such use constitutes evidence that the cost to the industry is not prohibitive.

State law (H&SC 40405) also defines BACT as the lowest achievable emission rate, which is the more stringent of either (i) the most stringent emission limitation contained in the SIP, or (ii) the most stringent emission limitation that is achieved in practice. There is no explicit reference or prohibition to cost considerations, and the applicability extends to all permitted sources. ~~SCAQMD~~South Coast AQMD rules implement both state BACT and federal LAER requirements simultaneously, and furthermore specify that ~~SCAQMD~~South Coast AQMD BACT must meet federal LAER requirements for major polluting facilities.

If a proposed LAER determination results in extraordinary costs to a facility, the applicant may bring the matter to ~~SCAQMD~~South Coast AQMD management for consideration as described in Overview, Chapter 6.

## Special Permitting Considerations

Although the most stringent, AIP LAER for a source category will most likely be the required LAER, ~~SCAQMD~~South Coast AQMD staff may consider special technical circumstances that apply to the proposed equipment which may allow deviation from that LAER. The permit applicant should bring any pertinent facts to the attention of the ~~SCAQMD~~South Coast AQMD permitting engineer for consideration.

### *Case-Specific Situations*

~~SCAQMD~~South Coast AQMD staff may consider unusual equipment-specific and site-specific characteristics of the proposed project that would warrant a reconsideration of the LAER requirement for new equipment. Here are some examples of what may be considered.

#### Technical infeasibility of the control technology

A particular control technology may not be required as LAER if the applicant demonstrates that it is not technically feasible to install and operate it to meet a specific LAER emission limitation in a specific permitting situation.

#### Operating schedule and project length

If the equipment will operate much fewer hours per year than what is typical, or for a much shorter project length, it can affect what is considered AIP.

#### Availability of fuel or electricity

Some LAER determinations may not be feasible if a project will be located in an area where natural gas or electricity is not available.

### Process requirements

Some LAER determinations specify a particular type of process equipment. ~~SCAQMD~~South Coast AQMD staff may consider requirements of the proposed process equipment that would make the LAER determination not technically feasible.

## *Equivalency*

The permit applicant may propose alternative means to achieve the same emission reduction as required by LAER. For example, if LAER requires a certain emission limit or control efficiency to be achieved, the applicant may choose any control technology, process modification, or combination thereof that can meet the same emission limit or control efficiency.

## *Super Compliant Materials*

~~SCAQMD~~South Coast AQMD will accept the use of super compliant materials in lieu of an add-on control device controlling ~~volatile organic compound~~ ~~(~~VOC~~)~~ emissions from coating operations. For example, if a permit applicant uses only surface coatings that meet the super compliant material definition in ~~SCAQMD~~South Coast AQMD Rule 109, an add-on control device would not be required for VOC LAER. This policy does not preclude any other LAER requirements for other contaminants.

## *Equipment Modifications*

As a general rule, it is more difficult to retrofit existing equipment with LAER as a result of NSR modification when compared to a new source. The equipment being modified may not be compatible with some past LAER determinations that specify a particular process type. There may also be space restrictions that prevent installation of some add-on control technology.

# Other Considerations

Although multiple process and control options may be available during the LAER determination process, considerations should be made for options that reduce the formation of air contaminants from the process, as well as ensuring that emissions are properly handled. In addition to evaluating the efficiency of the control stage, these additional considerations are needed to ensure that the system is capable of reducing or eliminating emissions from the facility on a consistent basis during the operational life of the equipment.

## *Pollution Prevention*

The Pollution Prevention Act of 1990 (42 U.S.C. §§13101-13109) established a national policy that pollution should be prevented or reduced at the source whenever feasible. In many cases, air pollution control is a process that evaluates contaminants at the exhaust of the system. Pollution prevention is the reduction or elimination of waste at the source by the modification of the production process. Pollution prevention measures may consist of the use of alternate or reformulated materials, a modification of technology or equipment, or improvement of energy efficiency changes that result in an emissions reduction. These measures should be considered as part of the LAER determination process if the measures will result in the elimination or reduction of

emissions, but are not required to include projects which are considered to fundamentally redefine the source. New and different emissions created by a process or material change will also need to be considered as part of the LAER determination process, in contrast to the overall emissions reductions from the implementation of pollution prevention measures. U.S. EPA policy defined pollution prevention as source reduction and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, and protection of natural resources by conservation[6]. U.S. EPA further specifies that pollution prevention does not include recycling (except in-process recycling), energy recovery, treatment or disposal. For purposes of these BACT Guidelines, and to be consistent with federal definitions, source reduction and pollution prevention may include, but not be limited to, a consideration of the feasibility of:

- equipment or technology modifications,
- process or procedure modifications,
- reformulation or redesign of products,
- substitution of raw materials, or
- improvements in housekeeping, maintenance or inventory control,

that reduce the amount of air contaminants entering any waste stream or otherwise released into the environment, including fugitive emissions.

## *Monitoring and Testing*

In order to ensure that LAER determinations continue to meet their initial emission and efficiency standards, periodic or continuous parameter monitoring and testing requirements may be required during the permitting process. Equipment and processes may experience some change over time, due to aging or operational methods of the equipment, which may affect emission rates or control efficiencies. In addition to other rule requirements, additional monitoring and testing requirements may need to focus on aspects directly related to the BACT determination, and may be made enforceable by permit conditions. Monitoring and testing requirements should be specific to characterize operating conditions (e.g. temperatures, pressures, flows, production rates) and measurement techniques when LAER is established to ensure clarity and consistency with the standard.

## *Capture Efficiency*

An integral part of controlling air pollutants emitted from a process with add-on air pollution control equipment is capturing those emissions and directing them to the air pollution control device. Emissions which are designed to be collected by an exhaust system but are vented uncontrolled into the atmosphere can have a much greater impact than controlled emissions. When applicable, the evaluation of a process and its associated control equipment should address the qualification and quantification of capture efficiency. By addressing capture efficiency during LAER determinations, a standard can be established to evaluate the capture efficiency of other systems, as well as ensure that the capture efficiency is maintained consistently over time.

[6] U.S. EPA Pollution Prevention Law and Policies (www.epa.gov/p2/pollution-prevention-law-and-policies#define)

If applicable, LAER determinations may include the percentage capture efficiency and the methods and measurements (e.g. EPA Method 204, capture velocity measurements, design using ACGIH's Industrial Ventilation, static pressures) used to determine and verify it. For various circumstances, several ~~SCAQMD~~South Coast AQMD rules (Table 4) already require an assessment of collection efficiency of an emission control system following EPA Method 204, EPA's "Guidelines for Determining Capture Efficiency", ~~SCAQMD~~South Coast AQMD's "Protocol for Determination of ~~Volatile Organic Compounds (~~VOC~~)~~ Capture Efficiency," or other methods approved by the Executive Officer, and are appropriate to include as LAER requirements. The capture efficiency for any LAER Determination shall be no less stringent than any applicable rule requirement. Other considerations that may affect capture, such as cross-drafts, thermal drafts and the volume of combustion products, should also be addressed during this process.

Table 4

~~SCAQMD~~South Coast AQMD Regulation XI and XIV Rules with Capture Efficiency Requirements or Considerations

- 1103
- 1104
- 1106
- 1107
- 1115
- 1122
- 1124
- 1125
- 1126
- 1128
- 1130
- 1130.1
- 1131
- 1132
- 1136
- 1141
- 1141.2
- 1144
- 1145
- 1155
- 1156
- 1162
- 1164
- 1171
- 1175
- 1178
- 1407
- 1420
- 1420.1
- 1420.2
- 1425
- 1469
- 1469.1

## LAER APPLICATION CUT-OFF DATES

For applications submitted by major polluting facilities, LAER requirements will be determined based on information available up to the date the permit to construct is issued. This requirement allows interested parties to comment on possible technologies that could provide lower emissions.

Applications for a Registration Permit for equipment issued a valid Certified Equipment Permit (CEP), which is valid for one year, will only be required to comply with LAER as determined at the time the CEP was issued. However, ~~SCAQMD~~South Coast AQMD staff will reevaluate the LAER requirements for the CEP upon renewal of the Title V permit.

## LAER UPDATE PROCESS

~~SCAQMD~~South Coast AQMD will update Section I – ~~SCAQMD~~South Coast AQMD LAER/BACT Determinations of Part B of the BACT Guidelines on an ongoing basis with actual LAER determinations for ~~SCAQMD~~South Coast AQMD permits issued to major polluting facilities. The process will depend on whether or not the LAER requirement is more stringent than previous ~~SCAQMD~~South Coast AQMD LAER determinations for the same equipment category.

When ~~SCAQMD~~South Coast AQMD permitting staff makes a LAER determination that is no more stringent than previous ~~SCAQMD~~South Coast AQMD LAER determinations, the permitting team will issue the permit and forward information

regarding this LAER determination to the BACT Team.[7] The BACT Team will review this LAER determination with the BACT SRC prior to listing in the BACT Guidelines.

Whenever permitting staff makes a LAER determination that is more stringent than what ~~SCAQMD~~South Coast AQMD has previously required as LAER, the permit to construct may be subject to a public review. In any event depending on Rule 212, the permitting team will forward the preliminary LAER determination to the BACT Team, who will prepare and send a public notice of the preliminary determination to the BACT SRC, potentially interested persons, and anyone else requesting the information. Staff will consider all comments filed during the 30-day review period before making a permit decision. Staff will make every effort to conduct the public review consistent with the requirements of state law. However, if the 30-day review period conflicts with the deadline of the Permit Streamlining Act[8] for issuing the permit, the permit will be issued in accordance with state law. The 30-day public review may also be done in parallel with other public reviews mandated by *Rule 212 - Standards for Approving Permits and Issuing Public Notice* or *Regulation XXX - Title V Permits* in applicable cases.

On a periodic basis, the ~~SCAQMD~~South Coast AQMD BACT Team will provide standing status reports to the ~~SCAQMD~~South Coast AQMD Governing Board's Stationary Source Committee and to the Governing Board.

In summary, as technology advances, many categories in the ~~SCAQMD~~South Coast AQMD's BACT Guidelines will be updated with new listings. This on-going process will reflect new lower emitting technologies not previously identified in the Guidelines.

## CLEAN FUEL GUIDELINES

In January 1988, the ~~SCAQMD~~South Coast AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT/LAER. A clean fuel is one that produces air emissions equivalent to or lower than natural gas for $NO_x$, $SO_x$, ROG, and fine respirable particulate matter ($PM_{10}$). Besides natural gas, other clean fuels are liquid petroleum gas (LPG), hydrogen and electricity. Utilization of zero and near-zero emission technologies are also integrated into the Clean Fuels Policy. The burning of landfill, digester, refinery and other by-product gases is not subject to the clean fuels requirement. However, the combustion of these fuels must comply with other ~~SCAQMD~~South Coast AQMD rules, including the sulfur content of the fuel.

The requirement of a clean fuel is based on engineering feasibility. Engineering feasibility considers the availability of a clean fuel and safety concerns associated with that fuel. Some state and local safety requirements limit the types of fuel, which can be used for emergency standby purposes. Some fire departments or fire marshals do not allow the storage of LPG near occupied buildings. Fire officials have, in some cases, vetoed the use of methanol in hospitals. If special handling or safety considerations preclude the use of the clean fuel, the ~~SCAQMD~~South Coast AQMD has allowed the use of fuel oil as a standby fuel in boilers and heaters, fire suppressant pump engines and for emergency standby generators. The use of these fuels must

[7] To reduce the burden on ~~SCAQMD~~South Coast AQMD of preparing hundreds of LAER Determination Forms each month, forms will not be prepared for routine LAER determinations after Part B, Section I of the guidelines has sufficient entries to demonstrate typical LAER requirements.

[8] The requirements of the Permit Streamlining Act are also found in ~~SCAQMD~~South Coast AQMD's Rule 210.

meet the requirements of ~~SCAQMD~~South Coast AQMD rules limiting $NO_x$ and sulfur emissions.

## AIR QUALITY-RELATED ENERGY POLICY

In September 2011, the ~~SCAQMD~~South Coast AQMD Governing Board adopted an air quality-related energy policy to help guide a unified approach to reducing air pollution while addressing other key environmental concerns including environmental justice, climate change and energy independence. The air quality-related energy policy outlines 10 policies and 10 action steps to help meet federal health-based standards for air quality in the South Coast Air Basin while also promoting the development of zero- and near-zero emission technologies.

Policy 7 is to require any new/repowered in-Basin fossil-fueled generation power plant to incorporate BACT/LAER as required by ~~District~~South Coast AQMD rules, considering energy efficiency for the application. These power plants will need to comply with any requirements adopted by the California Air Resources Board, California Energy Commission, Public Utilities Commission, California Independent System Operator, or the governing board of a publicly-owned electric utility, as well as state law under the California Environmental Quality Act. In recognizing that fossil fuel electric generation will still be needed in the Basin to complement projected increased use of renewable energy sources, this policy ensures that all fossil-fueled plants will meet existing BACT/LAER requirements and ~~SCAQMD~~South Coast AQMD's BACT/LAER determinations will also take into consideration generating efficiency in setting the emission limits. Parts E and F of the BACT Guidelines complement and support this policy.

# Chapter 2 - How to Use Part B of the BACT Guidelines

This chapter explains the LAER information found in Part B - LAER/BACT Determinations for Major Polluting Facilities. Part B is a listing of LAER/BACT determinations for major polluting facilities contained in ~~SCAQMD~~South Coast AQMD and other air pollution control agencies' permits, and data on new and emerging technologies. These LAER/BACT determinations and data are guides and will be used, along with other information, to determine LAER as outlined in Chapter 1. For a listing of equipment types, refer to the List of Equipment Categories. LAER determination for equipment not found in Part B of the BACT Guidelines is done according to the process outlined in Chapter 1.

## GENERAL

Part B is divided into three sections. Section I – ~~SCAQMD~~South Coast AQMD LAER/BACT Determinations, contains information on LAER/BACT determinations contained in permits issued by ~~SCAQMD~~South Coast AQMD, with permit limits based on achieved in practice technology. Section II – Non-AQMD LAER/BACT Determinations, lists LAER/BACT determinations contained in other air pollution control agencies' permits or BACT Guidelines, with permit limits based on achieved in practice technology. Section III – Other Technologies, consists of information on technologies which have been achieved in practice and may be~~but are not~~ reflected in a permit limit, ~~and~~ information on emerging technologies or emission limits which have not yet been achieved in practice but overall have not met all the criteria for achieved in practice. All three sections are subdivided based on the attached List of Equipment Categories. Within each category, the LAER/BACT determinations will be listed in order of stringency.

Each listing includes the following information, in addition to other information detailing the description and operation of the equipment:

- ~~Basic~~ Equipment Information

This provides information on the ~~type, model, style,~~ manufacturer, model, description, function, size/dimensions/capacity, combustion sources, and cost of the ~~basic~~ equipment. ~~It also lists applicable SCAQMD Regulation XI rules.~~ Cost data are generally obtained from the ~~SCAQMD~~South Coast AQMD application forms, manufacturer or owner/operator, and are not verified.

~~Basic Equipment Rating/Size~~

~~This identifies the size, dimensions, capacity, or rating of the basic equipment.~~ It also provides additional information such as fuel type for combustion equipment and equipment information comments that can provide ~~,~~ weight of parts cleaned per load for degreasers~~,~~ and the number and size of blowers for spray booths.

- Company Information

This identifies the contact person and owner/operator of the equipment, along with telephone numbers.

- Permit Information

This identifies the permitting agency and the name and telephone number of the agency's contact person. It also provides information on Permits to Construct/Operate. The ~~SCAQMD~~South Coast AQMD is always the issuing agency for LAER determinations listed in Section I.

- Emission Information

This identifies the actual permit limits and LAER/BACT requirements set forth by the issuing agency for the equipment being evaluated, concise description of the BACT requirements for each regulated contaminant, and basis of the BACT/LAER determination.

- Control Technology

This provides information on the manufacturer, model, description, size/dimensions/capacity, permit information and required control efficiencies on the control technology used to achieve the permit limit and the LAER/BACT requirements.

~~Comment~~

~~This provides additional information relevant to basic equipment and control technology assessment, or further explains or clarifies the LAER/BACT determination.~~

- Demonstration of Compliance

This provides information such as source test or other method that was used to demonstrate compliance and any monitoring or testing requirements.

- Additional South Coast AQMD Reference Data

This identifies the BCAT (for basic equipment[9]), CCAT (for control equipment), RECLAIM and Title V facilities, and source test ID. It also lists applicable South Coast AQMD Regulation XI rules. Additionally, it provides health risk data for the permit unit.

The above information will enable permit applicants to assess the applicability of each LAER/BACT determination to their particular equipment.

The LAER requirements usually found in the LAER Determination listings are in the form of:

- an emission limit;
- a control technology;
- equipment requirements; or
- a combination of the last two

If the requirement is an emission limit, the applicant may choose any control technology to achieve the emission limit. The ~~SCAQMD~~South Coast AQMD prefers to set an emission limit as LAER because it allows an applicant the most flexibility in reducing emissions. If control technology and/or equipment requirements are the only specified LAER, then either emissions from the equipment are difficult to measure or it was not possible to specify an emission limit that applies to all equipment within the category. Where possible, an emission

[9] Basic equipment is the process or equipment, which emits the air contaminant for which BACT is being determined.

limit or control efficiency condition will be specified on the permit along with the control technology or equipment requirements to ensure that the equipment is properly operated with the lowest emissions achievable.

## HOW TO DETERMINE LAER

The Part B LAER determinations are only examples of LAER determinations for equipment that have been issued permits or that have been demonstrated in practice. As described in Chapter 1, LAER is determined on a case-by-case basis. To find out what LAER is likely to be for a particular equipment, the applicant should review the Part B LAER determinations found at the ~~SCAQMD~~South Coast AQMD website www.aqmd.gov/home/permits/bact. The CAPCOA Clearinghouse maintained by the California Air Resources Board and the USEPA RACT/BACT/LAER Clearinghouse should also be reviewed. These compendiums contain information from other districts, local agencies, and states that may not be included in the ~~SCAQMD~~South Coast AQMD BACT Guidelines. Finally, the ~~SCAQMD~~South Coast AQMD permitting staff may be contacted to discuss LAER prior to submitting a permit application.

As described in Chapter 1, the permit applicant should bring to the attention of the ~~SCAQMD~~South Coast AQMD permitting engineer any special permitting considerations that may affect the LAER determination.

# Section I – South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **437199**

Equipment Category: **Furnace, Heat Treating**

Equipment Subcategory: **Aluminum, <970 °F**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Granco Clark | B. MODEL: N/A Serial #10238-88 |
| C. DESCRIPTION: Aluminum Billet Furnace or Oven, for 7" diameter billets. Natural gas fired with a 25 HP circulation fan and a 7.5 HP combustion air blower. | |
| D. FUNCTION: The furnace treats aluminum billets prior to and during extrusion process, where they are fed through dies to form the extruded aluminum channels. | |
| E. SIZE/DIMENSIONS/CAPACITY: 2ft 6in W. x 36ft L. x 3ft H. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 5.47 MMBtu/hr | |
| G. BURNER INFORMATION: Low-NOx Burner | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| N/A | 5.47 MMBtu/hr | 1 |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: Natural Gas | I. OTHER FUEL: N/A |
| J. OPERATING SCHEDULE: Hours 24 HRS//DAY 7 DAYS/WEEK 52 WKS/YR | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: The equipment is a RECLAIM process unit. Thermocouple is in contact with the billet during the operation. Billet temperature ranges from 900 to 970 °F. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Sierra Aluminum Company | B. FAC ID: 54402 |
| C. ADDRESS: 2345 Fleetwood Drive<br>CITY: Riverside STATE: CA ZIP: 92509 | D. NAICS CODE: 33211 |
| E. CONTACT PERSON: Naro Kuch | F. TITLE: Environmental Manager |
| G. PHONE NO.: (951) 781-7800 | H. EMAIL: naro.kuch@sierraaluminum.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: MODIFICATION |
| C. SCAQMD ENGINEER: Monica Fernandez-Neild | |
| D. PERMIT INFORMATION: P/C ISSUANCE DATE: 12/31/99<br>P/O NO.: F74295 P/O ISSUANCE DATE: 3/23/2005 | |
| E. START-UP DATE: 2/2/2005 | |
| F. OPERATIONAL TIME: 15 years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 25 PPMV | | | | |
| Averaging Time | | 1 Hour | | | | |
| Correction | | 3% $O_2$ | | | | |

B. OTHER BACT REQUIREMENTS: N/A

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: This is an older model billet oven. Facility stated that rigorous maintenance is required to keep the unit in compliance for NOx. Fuel nozzles and insulation have to be maintained/replaced periodically.

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: N/A | B. MODEL: N/A |
| C. DESCRIPTION: N/A | |
| D. SIZE/DIMENSIONS/CAPACITY: N/A | |
| E. CONTROL EQUIPMENT PERMIT INFORMATION:<br>APPLICATION NO.: N/A PC ISSUANCE DATE: N/A<br>PO NO.: N/A PO ISSUANCE DATE: N/A | |
| F. REQUIRED CONTROL EFFICIENCIES: N/A | |

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS Enter comments for additional information regarding Control Technology.

## 6. DEMONSTRATION OF COMPLIANCE

| |
|---|
| A. COMPLIANCE DEMONSTRATED BY: Method 100.1 Source Test |
| B. DATE(S) OF SOURCE TEST: 4/10/2013 |
| C. COLLECTION EFFICIENCY METHOD: N/A |
| D. COLLECTION EFFICIENCY PARAMETERS: N/A |
| E. SOURCE TEST/PERFORMANCE DATA: 16.4 PPMV NOx @3% O2 |

| |
|---|
| F. TEST OPERATING PARAMETERS AND CONDITIONS: Normal |
| G. TEST METHODS (SPECIFY AGENCY): SCAQMD Method 100.1 |

| |
|---|
| H. MONITORING AND TESTING REQUIREMENTS: For RECLAIM Process Units, the NOx concentration limit is tested every 5 years. |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: The unit has shown compliance with the 25 ppm NOx @ 3% O2 through the years. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: 000302 | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE: 50 |
| D. RECLAIM FAC? YES ☒ NO ☐ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): R16209 |
| G. SCAQMD SOURCE SPECIFIC RULES: None. Only RECLAIM R2012. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I – South Coast AQMD BACT/LAER Determination

| | |
|---|---|
| Source Type: | **Major/LAER** |
| Application No.: | **526607** |
| Equipment Category: | **Burner** |
| Equipment Subcategory: | **Duct Burner, Natural Gas & Refinery Gas Fired** |
| Date: | **February 5, 2021** |

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: COEN | B. MODEL: |
| C. DESCRIPTION: Duct Burner | |
| D. FUNCTION: This duct burner is part of the Cogen Train D. The cogen includes a combustion Gas Turbine (CGT), Heat Recovery Steam Generator (HRSG) and back-pressure Steam Turbine Generator. Low-NOx combustion and steam injection are used in the turbine for NOx control. The HRSG has been designed with duct burner for extra steam generation, Selective Catalytic Reduction (SCR) for control of NOx emissions and oxidation catalyst for control of CO emissions. CGT burns natural gas and the Duct Burner in the HRSG burns natural gas and/or refinery gas. | |
| E. SIZE/DIMENSIONS/CAPACITY: 132 MMBtu/hr | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 132 MMBTU/hr | |
| G. BURNER INFORMATION: Low-NOx Burner | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| | Rated heat input of single burner, in btu/hr | Number of burners |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: Refinery Fuel Gas | I. OTHER FUEL: Natural Gas |
| J. OPERATING SCHEDULE: Hours 24 HRS//DAY 7 DAYS/WEEK 52 WKS/YR | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: Enter additional comments regarding Equipment Information | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Chevron Products Co | B. FAC ID: 800030 |
| C. ADDRESS: 324 W El Segundo Blvd.<br>CITY: El Segundo STATE: CA ZIP: 90245 | D. NAICS CODE: 2911 |
| E. CONTACT PERSON: Peter Allen | F. TITLE: Air Permitting Lead |
| G. PHONE NO.: (310) 615-4182 | H. EMAIL: PAllen@chevron.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Rafik Beshai | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 10/27/10<br>P/O NO.: PO ISSUANCE DATE: 6/14/2019 | |
| E. START-UP DATE: Select date from pull down. The start-up date is the first date that the equipment operates for any reason. Use the best estimate at the PC stage and actual date at the PO stage. | |
| F. OPERATIONAL TIME: Enter the approximate amount of time, in days or months that the equipment has been operating. The minimum demonstration time is six months for LAER, and one year for Minor Source BACT | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections ($\%O_2$, $\%CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | | * | | | |
| Averaging Time | | | | | | |
| Correction | | | | | | |

B. OTHER BACT REQUIREMENTS: *Pipeline quality Natural Gas with Sulfur content ≤1 grains/100 scf; Refinery Fuel gas with Total Reduced Sulfur $\leq 40\ PPMV, 1-HR\ rolling\ avg.\ and\ \leq 30\ PPMV, 24-HR\ rolling\ avg.$

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: The sulfur limit is to limit the SOx emissions (Rule 2005 SOx BACT).

## 5. CONTROL TECHNOLOGY

| A. MANUFACTURER: Manufacturer of the equipment | B. MODEL: Model name and number |
|---|---|

C. DESCRIPTION: The total reduced sulfur concentration limit must be measured in the refinery fuel gas before blending with natural gas for all but 72 hours per year. The total reduced sulfur concentration of the refinery fuel gas may be measured after blending with natural gas for a maximum of 72 hours per year.

D. SIZE/DIMENSIONS/CAPACITY:

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. PC ISSUANCE DATE: Click here to enter a date.
PO NO.: M57432 PO ISSUANCE DATE: Click here to enter a date.

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS Enter comments for additional information regarding Control Technology.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Maintaining the CPMS to continuously monitor the total reduced sulfur compounds calculated as $H_2S$ concentration in the fuel gases.

B. DATE(S) OF SOURCE TEST: An appropriate size parameter such as rated product throughput, usable volume, and/or one more characteristic dimensions.

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: Enter source test results for each criteria contaminant or precursor (mass emissions, concentrations or efficiencies) if they differ from the requirements previously listed. As previously requested in Section 4, identify any corrections or averaging times

F. TEST OPERATING PARAMETERS AND CONDITIONS: List any important operating conditions maintained during the source test or normal operations. Examples include, but may not be limited to, pressure differentials across control devices, feed rates, firing rates, temperatures, flow rates, or other parameters used to evaluate the level of operation of the equipment during the test or operations that may affect emissions from the equipment.

| |
|---|
| G. TEST METHODS (SPECIFY AGENCY): |
| H. MONITORING AND TESTING REQUIREMENTS: Continuous Parametric Monitoring System (conditions # 90.40 and 90.41) |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Unit has shown compliance from CPMS data. |

b

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: Click here to enter text. | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE: Click here to enter text. |
| D. RECLAIM FAC? YES ☒ NO ☐ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I – South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **601928, 601929 and 601930**

Equipment Category: **Gas Turbine**

Equipment Subcategory: **Simple Cycle, Natural Gas**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: General Electric | B. MODEL: LM6000 PC SPRINT |
| C. DESCRIPTION: Simple Cycle natural gas fired turbine with Intercooler and water injection. | |
| D. FUNCTION: The City of Riverside Public Utilities Department operates the Riverside Energy Resource Center facility which operates this gas turbine which produces electrical power for the city.<br>The equipment is at a "Peaker" plant to support California Independent System Operator (CAISO) during periods of high electricity demand. | |
| E. SIZE/DIMENSIONS/CAPACITY: Net Power Output 49.8 MW | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 490 MMBTU/hr | |
| G. BURNER INFORMATION: | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| N/A | Rated heat input of single burner, in btu/hr | Number of burners |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: Natural Gas | I. OTHER FUEL: Supplementary or standby fuels |
| J. OPERATING SCHEDULE: Hours 24 HRS//DAY 7 DAYS/WEEK 52 WKS/YR | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: Gas turbine is equipped with SCR and Oxidation catalyst. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: City of Riverside Public Utilities Dept. | B. FAC ID: 139796 |
| C. ADDRESS: 5901 Payton Avenue<br>CITY: Riverside STATE: CA ZIP: 92504 | D. NAICS CODE: 221112 |
| E. CONTACT PERSON: Charles Casey | F. TITLE: Utility Generation Manager |
| G. PHONE NO.: 951-710-5010 | H. EMAIL: ccasey@riversideca.gov |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Vicky Lee | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 2/20/09<br>P/O NO.: G57637 PO ISSUANCE DATE: 6/13/2019 | |
| E. START-UP DATE: 6/14/2013 | |
| F. OPERATIONAL TIME: 6+ years (original P/O issued on 6/14/13, G25360, A/N: 481647) | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 2.3 PPMV | | 4 PPMV | | |
| Averaging Time | | 1 HOUR | | 1 HOUR | | |
| Correction | | 15 % $O_2$ | | 15 % $O_2$ | | |

B. OTHER BACT REQUIREMENTS: The NOx and CO emission limit shall not apply during turbine commissioning, start-up, shutdown, and equipment tuning.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS:

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: SCR - Cormetech, CO OxyCat – BASF Catalyst LLC | B. MODEL: SCR – No. 3, CO OxyCat - Canmet |

C. DESCRIPTION: Ammonia Injection Grid with aqueous ammonia 19% stored in a 12,000-gallon tank.

D. SIZE/DIMENSIONS/CAPACITY: SCR – 1024 cu ft: Width 8'- 11.6", Height 6' – 5", Length 3' – 2". CO Oxycat – 90 cu ft: Width 2'- 0", Height 2' – 4", Depth 0' – 3"

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 481651 PC ISSUANCE DATE: 6/19/09

PO NO.: G25363 PO ISSUANCE DATE: 6/26/2013

F. REQUIRED CONTROL EFFICIENCIES: .

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: The permit also has a limit of 2 ppm for VOC and 5 ppm for ammonia slip corrected to 15% O2.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: CEMS data for a period of one year (2019) and Source Test results

B. DATE(S) OF SOURCE: Please refer to Section E

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: Enter source test results for each criteria contaminant or precursor (mass emissions, concentrations or efficiencies) if they differ from the requirements previously listed. As previously requested in Section 4, identify any corrections or averaging times

| RATA Test Date | Unit 3 | RATA Test Date | Unit 4 |
|---|---|---|---|
| **4/15/20** | NOx = 1.83 ppm<br>CO = 3.58 ppm | **4/16/20** | NOx = 2.13 ppm<br>CO = 2.71 ppm |
| **9/10/19** | NOx = 2.14 ppm<br>CO = 2.97 ppm | **10/3/19** | NOx = 2.23 ppm<br>CO = 2.28 ppm |
| **8/14/18** | NOx = 2.01 ppm<br>CO = 2.98 ppm | **2/2/18** | NOx = 2.26 ppm<br>CO = 2.95 ppm |

F. TEST OPERATING PARAMETERS AND CONDITIONS: Full load.

G. TEST METHODS (SPECIFY AGENCY): Method 100.1 for NOx and CO.

H. MONITORING AND TESTING REQUIREMENTS: Continuous Emissions Monitoring System and Compliance test every three years.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Unit has shown compliance from source test and CEMS data.

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: 013008 | B. CCAT: 81 | C. APPLICATION TYPE CODE: 20 |
| D. RECLAIM FAC?<br>YES ☒ NO ☐ | E. TITLE V FAC:<br>YES ☒ NO ☐ | F. SOURCE TEST ID(S): |
| G. SCAQMD SOURCE SPECIFIC RULES: Rule 2012 | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I – South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **585124**

Equipment Category: **Thermal Fluid Heater**

Equipment Subcategory: **Natural Gas**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Sigma Thermal | B. MODEL: HC2-6.0-H-SF |
| C. DESCRIPTION: Hot oil heater | |
| D. FUNCTION: Owens Corning Roofing and Asphalt is a manufacturer asphalt roofing shingles and operates a thermal fluid heater circulating hot oil through hollow agitators in a closed mixing vessel to heat limestone filler which is blended with asphalt prior to application on shingles. | |
| E. SIZE/DIMENSIONS/CAPACITY: | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 4.5 MM Btu/hr | |
| G. BURNER INFORMATION: MAXON M-PAKT, MODEL: MPBD4RSFNNNA | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| Low NOX | 4.5 MM Btu/hr | one |
| Enter additional burner types, as needed, add extra rows | | |

| | |
|---|---|
| H. PRIMARY FUEL: Natural Gas | I. OTHER FUEL: N/A |
| J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52 | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: Exhaust system consisting of one 200 HP exhaust fan. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Owens Corning Roofing and Asphalt, LLC | B. FAC ID: 35302 |
| C. ADDRESS: 1501 N. Tamarind Ave.<br>CITY: Compton STATE: CA ZIP: 90222 | D. NAICS CODE: 324121 |
| E. CONTACT PERSON: Tim Hellem | F. TITLE: EH&S Leader |
| G. PHONE NO.: (424) 296-6039 | H. EMAIL: tim.hellem@owenscorning.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Gregory Jacobson | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 12/20/16<br>P/O NO.: G48769 PO ISSUANCE DATE: 10/17/2017 | |
| E. START-UP DATE: 10/17/2017 | |
| F. OPERATIONAL TIME: 2+ years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 9 ppm | | 100 | | |
| Averaging Time | | 60 min | | 60 min | | |
| Correction | | 3% $O_2$ on a dry basis | | 3% $O_2$ on a dry basis | | |

B. OTHER BACT REQUIREMENTS: Burner emissions only.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS:

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: Manufacturer of the equipment | B. MODEL: Model name and number |
| C. DESCRIPTION: | |
| D. SIZE/DIMENSIONS/CAPACITY: | |
| E. CONTROL EQUIPMENT PERMIT INFORMATION:<br>APPLICATION NO. Click here to enter text. PC ISSUANCE DATE:<br>PO NO.:Click here to enter text. PO ISSUANCE DATE: Click here to enter a date. | |
| F. REQUIRED CONTROL EFFICIENCIES: . | |

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS

## 6. DEMONSTRATION OF COMPLIANCE

| |
|---|
| A. COMPLIANCE DEMONSTRATED BY: Source Test (R18252) |
| B. DATE(S) OF SOURCE TEST: 12/13/17 & 12/15/17 |
| C. COLLECTION EFFICIENCY METHOD: N/A |
| D. COLLECTION EFFICIENCY PARAMETERS: N/A |
| E. SOURCE TEST/PERFORMANCE DATA:N/A |

| |
|---|
| F. TEST OPERATING PARAMETERS AND CONDITIONS:. |
| G. TEST METHODS (SPECIFY AGENCY): N/A |
| H. MONITORING AND TESTING REQUIREMENTS: |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | | |
|---|---|---|---|
| A. BCAT: 000340 | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE: 60 | |
| D. RECLAIM FAC? YES ☒ NO ☐ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): R18252 | |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | | |
| H. HEALTH RISK FOR PERMIT UNIT | | | |
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I - South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **571478**

Equipment Category: **I.C. Engine**

Equipment Subcategory: **Stationary, Non-Emergency, Electrical Generator**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Generac | B. MODEL: 6.8GNGD-100 |
| C. DESCRIPTION: I.C. Engine, Stationary, Non-Emergency, Rich-Burn | |
| D. FUNCTION: SoCalGas' Aliso Canyon Storage Facility is an underground natural gas storage site. This is one of four prime engines generating electrical power to remote sites where various equipment is located, such as pumps and/or compressors and/or controls. | |
| E. SIZE/DIMENSIONS/CAPACITY: 147 BHP, naturally aspirated, 10 cylinders driving a 100 kW generator and 385 BHP, naturally aspirated, 6 cylinders driving a 250 kW generator. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: N/A | |
| G. BURNER INFORMATION: N/A | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| N/A | N/A | N/A |
| Enter additional burner types, as needed, add extra rows | | |

| | |
|---|---|
| H. PRIMARY FUEL: NATURAL GAS | I. OTHER FUEL: N/A |
| J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52 | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: This engine was retrofitted with the Tecogen Ultera Retrofit Emissions Kit. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Southern California Gas Company | B. FAC ID: 800128 |
| C. ADDRESS: 12801 Tampa Ave.<br>CITY: Northridge STATE: CA ZIP: 91326 | D. NAICS CODE: 486210 |
| E. CONTACT PERSON: John Clarke | F. TITLE: Principal Air Quality Specialist |
| G. PHONE NO.: (818) 700-3812 | H. EMAIL: JCLARKE1@SEMPRAUTILITIES.COM |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: MODIFICATION |
| C. SCAQMD ENGINEER: Roy Olivares | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 9/9/16<br>P/O NO.: G52129 PO ISSUANCE DATE: 8/13/2019 | |
| E. START-UP DATE: 6/19/2017 | |
| F. OPERATIONAL TIME: 2+ years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | 0.1 lbs/MW-hr | 0.07 lbs/MW-hr | | 0.2 lbs/MW-hr | | |
| Averaging Time | 15 min | 15 min | | 15 min | | |
| Correction | 15% $O_2$ | 15% $O_2$ | | 15% $O_2$ | | |

B. OTHER BACT REQUIREMENTS: Concise description of the BACT requirements for each regulated contaminant from the equipment, other than the requirements list in Section 4(A).

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS:

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: TECOGEN / DCL | B. MODEL: SSC150/2-DC49 CC |

C. DESCRIPTION: Tecogen Ultera Emissions Retrofit Kit control system, comprised of Three-Way Catalyst (DCL) with Air/Fuel Ratio Controller (Continental Controls Air/Fuel Ratio Controller Model EGO2) and Oxidation Catalyst (Tecogen proprietary).

D. SIZE/DIMENSIONS/CAPACITY: N/A

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. same PC ISSUANCE DATE: same

PO NO.: same PO ISSUANCE DATE: same

F. REQUIRED CONTROL EFFICIENCIES: .

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: This system is retrofitted with an electrical load bank, which must be operated in order to continuously meet permitted emissions limits. Catalyst life has been short due to system back pressure, condensation, and high exhaust temperatures.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: 10/22-26/19

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA:N/A

F. TEST OPERATING PARAMETERS AND CONDITIONS:

G. TEST METHODS (SPECIFY AGENCY): South Coast AQMD

H. MONITORING AND TESTING REQUIREMENTS:

| |
|---|
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: This test includes results for five engines at So Cal Gas' Aliso Canyon storage facility. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | | |
|---|---|---|---|
| A. BCAT: 040001 | B. CCAT: 00 | C. APPLICATION TYPE CODE: 60 | |
| D. RECLAIM FAC? YES ☒ NO ☐ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): 18316 | |
| G. SCAQMD SOURCE SPECIFIC RULES: Rule 1110.2 | | | |
| H. HEALTH RISK FOR PERMIT UNIT | | | |
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I – South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: A/N 582931 P/O G49447

Equipment Category: **Thermal Oxidizer**

Equipment Subcategory: Flare - Liquid Transfer and Handling Marine Loading

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: AEREON | B. MODEL: CEB 800-CA |
| C. DESCRIPTION: Marine Vapor Control System – two thermal oxidizers | |
| D. FUNCTION: Controlling vapors from marine vessel loading | |
| E. SIZE/DIMENSIONS/CAPACITY: Each thermal oxidizer is 39 mmbtu/hr and handles 3500 bbl/hr loading rate | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: Each thermal oxidizer is 39 mmbtu/hr | |
| G. BURNER INFORMATION | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| Ultra low emissions | 39,000,000 btu/hr | 1 |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: petroleum liquid vapors | I. OTHER FUEL: natural gas supplemental |
| J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR (Maximum but actually only operated during marine vessel loading) | |
| K. EQUIPMENT COST: Enter sum of all Cost Factors in Table 6 of SCAQMD BACT Guidelines | |
| L. EQUIPMENT INFORMATION COMMENTS: | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Tesoro Logistics Long Beach Terminal | B. FAC ID: 172878 |
| C. ADDRESS: 820 Carrack Ave CITY: Long Beach STATE: CA ZIP: 90813 | D. NAICS CODE: 424710 |
| E. CONTACT PERSON: Donna DiRocco | F. TITLE: Sr. Env. Advisor |
| G. PHONE NO.: (562) 499-2202 | H. EMAIL: donna.m.dirocco@andeavor.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast A.Q.M.D | B. APPLICATION TYPE: MODIFICATION |
| C. SCAQMD ENGINEER: Linda Dejbakhsh | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 11/28/17<br>P/O NO.: G49447 (This was issued as P/C-P/O) PO ISSUANCE DATE: 11/28/2017 | |
| E. START-UP DATE: 8/7/2018 | |
| F. OPERATIONAL TIME: less than 2000 hours since August 2018 (per email from DiRocco 6/14/19) | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 0.036 lb/MMBtu (30 ppm) | | 0.01 lb/MMBtu (10 ppm) | | |
| Averaging Time | | 15 min | | 15 min | | |
| Correction | | 3% $O_2$ on a dry basis | | 3% $O_2$ on a dry basis | | |

B. OTHER BACT REQUIREMENTS: Concise description of the BACT requirements for each regulated contaminant from the equipment, other than the requirements list in Section 4(A).

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: AEREON guaranteed and confirmed with source test

## 5. CONTROL TECHNOLOGY

| A. MANUFACTURER: AEREON | B. MODEL: CEB 800-CA |
|---|---|

C. DESCRIPTION: Equipment controls VOCs displaced from marine vessel loading of petroleum liquids (such as gasoline, diesel, or crude). The thermal oxidizers can operate in parallel or individually

D. SIZE/DIMENSIONS/CAPACITY: Each thermal oxidizer is rated at 39 mmbtu/hr and 3500 bbl/hr load rate

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 582931 PC ISSUANCE DATE: 11/28/17
PO NO.: G49447 PO ISSUANCE DATE: 11/28/2017

F. REQUIRED CONTROL EFFICIENCIES: Minimum efficiencies of the system control equipment as required by permit, or the most stringent rule requirement. The control or destruction efficiency is determined across the control device (e.g. inlet-outlet). Collection or capture efficiency is based at each point of contaminant collection in the system. Enter each contaminant that applies. Add rows as needed.

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | __% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: Whenever the thermal oxidizer (flare) is in operation, a temperature not less than 1,400 degrees Fahrenheit (on a 15 minute average) shall be maintained in the combustion chamber when the equipment it serves is in operation (marine vessel loading only), except for periods of startup and shutdown. VOC emissions are limited to 2 lbs/1000 bbls liquid loaded or 95% VOC reduction by weight from uncontrolled emissions.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source test conducted April 2019 by Almega

B. DATE(S) OF SOURCE TEST: April 9, 2019

C. COLLECTION EFFICIENCY METHOD: SCAQMD 25.3 and 25.1

D. COLLECTION EFFICIENCY PARAMETERS: The quantitative parameters used to verify the method or procedures in Section 6(C). Examples include static pressure measurements, anemometer measurements, and mass balance results.

E. SOURCE TEST/PERFORMANCE DATA: NOx <0.012 lb/mmbtu (<9.61 ppm@3%O2), NOx <0.013 lb/mmbtu (9.83 ppm@3%O2), CO < 0.0074 lb/mmbtu (9.61 ppm@3%O2), CO <0.0054 lb/mmbtu (6.95 ppm@3%O2)

| |
|---|
| F. TEST OPERATING PARAMETERS AND CONDITIONS: NOx and CO conducted during first 50% of liquid cargo loaded. TNMNEO and toxics conducted during last 50% of cargo loaded. Load condition of ThOx's were 13.3 MMBtu/hr and 12.8 MMBtu/hr of capacity. Vessel was loading Arab LT Crude Oil. Previous load was high sulfur fuel oil |
| G. TEST METHODS (SPECIFY AGENCY): SCAQMD Method 100.1, 25.3, 25.1, EPA TO-15 |
| H. MONITORING AND TESTING REQUIREMENTS: NOx, CO, and VOC tested every 5 years |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: Click here to enter text. | B. CCAT: 05 | C. APPLICATION TYPE CODE: Click here to enter text. |
| D. RECLAIM FAC? YES ☐ NO ☒ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): P18289 |
| G. SCAQMD SOURCE SPECIFIC RULES: R1118.1, R1142 | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section 1 - South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **563766**

Equipment Category: **Thermal Oxidizer**

Equipment Subcategory: **Recuperative**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Catalytic Products International | B. MODEL: Quadrant SRS-12,000 |

C. DESCRIPTION: The Recuperative Thermal Oxidizer is a control equipment unit controlling VOC emissions from coating and curing system. It contains one Shell-and-Tube heat exchanger and employs a single MAXON Kinedizer LE Low NOx Burner firing natural gas with a maximum rated heat capacity of 9.8 MMBtu/hr. The unit operates at a minimum combustion chamber temperature of 1,400 degree Fahrenheit.

D. FUNCTION: 3M Industrial Adhesive and Tape Company a manufacturer of specialty tapes and fabrics used in various industries. 3M operates a recuperative thermal oxidizer and two tower coaters (coating stations and ovens) used to cure impregnated fabrics. The emissions measurement was conducted at the exhaust from a total enclosure.

E. SIZE/DIMENSIONS/CAPACITY: 47’-8” W x 18’-6” D x 40’-0” H

**COMBUSTION SOURCES**

F. MAXIMUM HEAT INPUT: Gross heat input in btu per hour at the higher heating value of the fuel

G. BURNER INFORMATION: Low-$NO_X$

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| Maxon, Kinedizer LE 6 inch | 9.8 MM Btu/hr | one |

| | |
|---|---|
| H. PRIMARY FUEL: Natural gas | I. OTHER FUEL: N/A |

J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52

K. EQUIPMENT COST: N/A

L. EQUIPMENT INFORMATION COMMENTS: Exhaust system consisting of one 75 hp blower venting the coating and curing lines operations within a total enclosure.

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: 3M Company | B. FAC ID: 35188 |
| C. ADDRESS: 1601 S. Shamrock Ave.<br>CITY: Monrovia STATE: CA ZIP: 91016 | D. NAICS CODE: 2295 |
| E. CONTACT PERSON: Jen Cowman Moore | F. TITLE: Senior Environmental Engineer |
| G. PHONE NO.: (651) 737 - 3596 | H. EMAIL: JCMOORE@MMM.COM |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Rene Loof | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 6/25/14<br>P/O NO.: G42337 PO ISSUANCE DATE: 8/17/2016 | |
| E. START-UP DATE: Select date from pull down. The start-up date is the first date that the equipment operates for any reason. Use the best estimate at the PC stage and actual date at the PO stage. | |
| F. OPERATIONAL TIME: 3+ year | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 30 PPM | | 250 PPM | | |
| Averaging Time | | * | | | | |
| Correction | | 3% $O_2$ on a dry basis | | 3% $O_2$ on a dry basis | | |

B. OTHER BACT REQUIREMENTS: Fresh air only.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: * Compliance with Rule 1147 averaging time.

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: Catalytic Products International | B. MODEL: Quadrant SRS-12,000 |

C. DESCRIPTION: Recuperative Thermal Oxidizer controlling VOC emissions contains one Shell-and-Tube heat exchanger and employs a single MAXON Kinedizer LE Low NOx Burner firing natural gas.

D. SIZE/DIMENSIONS/CAPACITY: : 47'-8" W x 18'-6" D x 40'-0" H

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. same PC ISSUANCE DATE: same

PO NO.: same PO ISSUANCE DATE: same

F. REQUIRED CONTROL EFFICIENCIES: .

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: The combustion chamber temperature shall be maintained at a minimum of 1,400 degree Fahrenheit whenever the equipment it serves is in operation. The equipment shall be maintained and operated at a minimum destruction efficiency of 95% and an overall VOC control efficiency (collection and destruction) of 95% when the basic equipment it serves is in operation.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test PR14344

B. DATE(S) OF SOURCE TEST: 7/22/2015

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA:

NOx: 24.3 PPMVD @ 3% $O_2$

CO: 39.1 PPMVD @ 3% $O_2$

Inlet VOC (TGNMNEO) as methane: 9,521 PPMV

Exhaust VOC (TGNMNEO) as methane: 1.4 PPMV

VOC Destruction Removal Efficiency (DRE): 99.98%

F. TEST OPERATING PARAMETERS AND CONDITIONS:

VOC DRE test results are based on the average of three 60-minute sample runs.

G. TEST METHODS (SPECIFY AGENCY):

NOx, CO, O2, and CO2 using South Coast AQMD Method 100.1

VOC: South Coast AQMD Method 25.1 (Inlet) and Method 25.3 (Exhaust)

| |
|---|
| H. MONITORING AND TESTING REQUIREMENTS: |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: Click here to enter text. | B. CCAT: 5 | C. APPLICATION TYPE CODE: 60 |
| D. RECLAIM FAC?<br>YES ☐ NO ☒ | E. TITLE V FAC:<br>YES ☒ NO ☐ | F. SOURCE TEST ID(S): P14344 |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Section I – South Coast AQMD BACT/LAER Determination

Source Type: **Major/LAER**

Application No.: **602295**

Equipment Category: **Thermal Oxidizer**

Equipment Subcategory: **Regenerative**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: TANN | B. MODEL: TR3092 |
| C. DESCRIPTION: Regenerative Thermal Oxidizer (RTO) controlling VOC emissions. | |
| D. FUNCTION: Steelscape is a supplier of metallic-coated and pre-painted steel, servicing the construction industry. Steelscape conducts metal coil coatings operations at the facility. Steelscape owns and operates an RTO. The prime and finish coating heads are housed in separate rooms that were prepared as PTE's and vented indirectly to the RTO. | |
| E. SIZE/DIMENSIONS/CAPACITY: 42' W x 23'-6" L, Dual Ceramic Heat Exchanger Media and 25 HP combustion air blower. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 9.8 MM Btu/hr start-up natural gas injection system | |
| G. BURNER INFORMATION: Low-$NO_X$ | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| MAXON, Kinedizer LE | 9.8 MM Btu/hr | one |
| Enter additional burner types, as needed, add extra rows | | |

| | |
|---|---|
| H. PRIMARY FUEL: NATURAL GAS | I. OTHER FUEL: N/A |
| J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52 | |
| K. EQUIPMENT COST: N/A | |
| L. EQUIPMENT INFORMATION COMMENTS: Exhaust system consisting of one 400 hp exhaust blower. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Steelscape Inc. | B. FAC ID: 126498 |
| C. ADDRESS: 11200 Arrow Hwy<br>CITY: Rancho Cucamonga STATE: CA ZIP: 91730 | D. NAICS CODE: 3479 |
| E. CONTACT PERSON: Frank Ramos | F. TITLE: EHS Coordinator |
| G. PHONE NO.: (909) 484-4653 | H. EMAIL: Francisco.Ramos@steelscape.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: **Hemang Desai** | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 10/30/18<br>P/O NO.: Click here to enter text PO ISSUANCE DATE: 2/27/2020 | |
| E. START-UP DATE: Select date from pull down. The start-up date is the first date that the equipment operates for any reason. Use the best estimate at the PC stage and actual date at the PO stage. | |
| F. OPERATIONAL TIME: 6+ months | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 30 ppm | | 100 ppm | | |
| Averaging Time | | * | | | | |
| Correction | | 3% $O_2$ on a dry basis | | 3% $O_2$ on a dry basis | | |

B. OTHER BACT REQUIREMENTS: Burner emissions only.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: * Compliance with Facility Permit - Section E averaging time.

## 5. CONTROL TECHNOLOGY

| A. MANUFACTURER: TANN | B. MODEL: TR3092 |
|---|---|

C. DESCRIPTION: Regenerative Thermal Oxidizer venting prime and finish coaters.

D. SIZE/DIMENSIONS/CAPACITY: 42' W x 23'-6" L, Dual Ceramic Heat Exchanger Media and 25 HP combustion air blower.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. same PC ISSUANCE DATE: same

PO NO.: same PO ISSUANCE DATE: same

F. REQUIRED CONTROL EFFICIENCIES: .

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: The combustion chamber temperature shall be maintained at a minimum of 1,500 degrees Fahrenheit whenever the equipment it serves is in operation. The operator shall maintain this equipment to achieve a minimum destruction efficiency of 95 percent and a minimum overall control efficiency of 95 percent for VOC during the normal operation of the equipment it vents.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: 3/26/2019

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA:

CO concentration at startup: 83 ppm @ 3% O2

NOx concentration at startup: 23.4 ppm @ 3% O2

F. TEST OPERATING PARAMETERS AND CONDITIONS: N/A

G. TEST METHODS (SPECIFY AGENCY):

South Coast AQMD Method 100.1 for NOx and CO.

South Coast AQMD Method 25.1/25.3 for VOC destruction efficiency.

| |
|---|
| H. MONITORING AND TESTING REQUIREMENTS: |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: Click here to enter text. | B. CCAT: 12 | C. APPLICATION TYPE CODE: 60 |
| D. RECLAIM FAC? YES ☒ NO ☐ | E. TITLE V FAC: YES ☒ NO ☐ | F. SOURCE TEST ID(S): PR18364 |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

**ATTACHMENT E**

# PART C - POLICY AND PROCEDURES FOR NON-MAJOR POLLUTING FACILITIES

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# Chapter 1 - How Is MSBACT Determined for Minor Polluting Facilities?

This chapter explains the definitions of BACT for non-major polluting facilities (minor source BACT or MSBACT) found in ~~SCAQMD~~South Coast AQMD rules and state law and how they are interpreted. It also explains the criteria used for initializing the Part D MSBACT Guidelines and the process for updating the MSBACT Guidelines.

## PART D OF THE MSBACT GUIDELINES

Part D of the MSBACT Guidelines specifies the MSBACT requirements for all of the commonly permitted categories of equipment (See Chapter 2 for a full explanation of Part D).

The initial listings in Part D of the MSBACT Guidelines reflected the current BACT determinations at the time for sources at non-major polluting facilities as of April 2000. These did not represent new requirements but rather memorialized BACT determinations and emission levels at that time. This initialization was necessary to benchmark the transition from federal LAER to MSBACT for non-major polluting facilities. The control technologies and emission levels identified applied to any non-major source subject to NSR until the Guideline was updated or became out of date. The dates listed on the BACT determinations in Part D refer to the date of adoption of the determination. The dates listed do not grandfather the equipment from complying with any new requirements or limits that are implemented after the approval of a BACT determination[17].

## CRITERIA FOR NEW MSBACT AND UPDATING PART D

MSBACT requirements are determined for each source category based on the definition of MSBACT. In essence, MSBACT is the most stringent emission limit or control technology for a class or category of source that is:

- found in a state implementation plan (SIP) pursuant to Health and Safety Code section 40405(a)(1), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

For practical purposes, nearly all ~~SCAQMD~~South Coast AQMD MSBACT determinations will be based on AIP BACT because it is generally more stringent than MSBACT based on SIP, and because state law contains some constraints on ~~SCAQMD~~South Coast AQMD from using the third approach. For minor polluting facilities, MSBACT will also take economic feasibility into account.

Based on Governing Board policy, MSBACT also includes a requirement for the use of clean fuels.

Terms such as “achieved in practice” and “technologically feasible” (including technology transfer) have not been defined in the rule, so one of the purposes of this

[17] ~~SCAQMD~~South Coast AQMD Rule 1303(a)(3)

section is to explain the criteria ~~SCAQMD~~South Coast AQMD permitting staff uses to make a MSBACT determination.

## MSBACT Based on a SIP

The most stringent emission limit found in an approved state implementation plan (SIP) may be an option for establishing MSBACT. This means that the most stringent emission limit adopted by any state as a rule, regulation or permit[18] and approved by USEPA is eligible as a MSBACT requirement. This does not include future emission limits that have not yet been implemented.

## Achieved in Practice MSBACT

MSBACT may be an option for establishing ~~also be based on~~ the most stringent control technology or emission limit that has been achieved in practice (AIP) for a category or class of source. AIP control technology may be in operation in the United States or any other part of the world. ~~SCAQMD~~South Coast AQMD permitting engineers will review the following sources to determine the most stringent AIP MSBACT:

- LAER/BACT determinations in Part B of the BACT Guidelines
- CAPCOA BACT Clearinghouse
- USEPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- Permits to operate issued by ~~SCAQMD~~South Coast AQMD or other agencies
- Any other source for which the requirements of AIP can be demonstrated

### *Achieved in Practice Criteria*

A control technology or emission limit found in any of the references above may be considered as AIP if it meets all of the following criteria:

Commercial Availability

At least one vendor must offer this equipment for regular or full-scale operation in the United States. A performance warranty or guaranty must be available with the purchase of the control technology, as well as parts and service.

Reliability

The control technology must have been installed and operated reliably for at least twelve months on a comparable commercial operation. If the operator did not require the basic equipment to operate continuously, such as only eight hours per day and 5 days per week, then the control technology must have operated whenever the basic equipment was in operation during the twelve months.

Effectiveness

The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. If the control technology will be allowed to operate at lesser effectiveness during certain modes of operation, then those modes must be identified. The verification shall be based on a ~~District~~South Coast AQMD-approved performance test or tests, when possible, or other performance data.

[18] Some states incorporate individual permits into their SIP as case-by-case Reasonably Available Control Technology requirements.

Cost Effectiveness

The control technology or emission rate must be cost effective for a substantial number of sources within the class or category. Cost effectiveness criteria are described in detail in a later section. Cost criteria are not applicable to an individual permit but rather to a class or category of source.

### *Technology Transfer*

MSBACT is based on what is AIP for a category or class of source. However, technology transfer must also be considered across source categories, in view of the other AIP criteria. There are two types of potentially transferable control technologies: 1) exhaust stream controls, and 2) process controls and modifications. For the first type, technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, process similarity governs the technology.

## Requirements of Health & Safety Code Section 40440.11

Senate Bill 456 (Kelley) was chartered into state law in 1995 and became effective in 1996. H&SC Section 40440.11 specifies the criteria and process that must be followed by the ~~SCAQMD~~South Coast AQMD to establish new MSBACT limits for source categories listed in the MSBACT Guidelines. In general, the provisions require:

- Considering only control options or emission limits to be applied to the basic production or process equipment;
- Evaluating cost to control secondary pollutants;
- Determining the control technology is commercially available;
- Determining the control technology has been demonstrated for at least one year on a comparable commercial operation;
- Calculating total and incremental cost-effectiveness;
- Determining that the incremental cost-effectiveness is less than ~~SCAQMD~~South Coast AQMD's established cost-effectiveness criteria;
- Putting BACT Guideline revisions on a regular meeting agenda of the ~~SCAQMD~~South Coast AQMD Governing Board;
- Holding a Board public hearing prior to revising maximum incremental cost-effectiveness values;
- Keeping a BACT determination made for a particular application unchanged for at least one year from the application deemed complete date; and
- Considering a longer period for a major capital project (> $10,000,000)

After consultation with the affected industry, the CARB, and the U.S. EPA, and considerable legal review and analysis, staff concluded that the process specified in SB 456 to update the BACT Guidelines should be interpreted to apply only if the ~~SCAQMD~~South Coast AQMD proposes to make BACT more stringent than LAER or where LAER is inapplicable (e.g. in establishing minor source BACT). Staff intends to incorporate the spirit and intent of the SB 456 provisions into the MSBACT update process, as explained below, because non-major polluting facilities are no longer subject to federal LAER, according to Regulation XIII. Therefore, MSBACT may consider cost as specified herein.

# COST EFFECTIVENESS METHODOLOGY

Cost effectiveness is measured in terms of control costs (dollars) per air emissions reduced (tons). If the cost per ton of emissions reduced is less than the maximum required cost effectiveness, then the control method is considered to be cost effective. This section also discusses the updated maximum cost effectiveness values, and those costs, which can be included in the cost effectiveness evaluation.

There are two types of cost effectiveness: average and incremental. Average cost effectiveness considers the difference in cost and emissions between a proposed MSBACT and an uncontrolled case. On the other hand, incremental cost effectiveness looks at the difference in cost and emissions between the proposed MSBACT and alternative control options.

Applicants may also conduct a cost effectiveness evaluation to support their case for the special permit considerations discussed in Chapter 2.

## Discounted Cash Flow Method

The discounted cash flow method (DCF) is used in the MSBACT Guidelines. This is also the method used in ~~SCAQMD~~South Coast AQMD Air Quality Management Plan. The DCF method calculates the present value of the control costs over the life of the equipment by adding the capital cost to the present value of all annual costs and other periodic costs over the life of the equipment. A real interest rate[19] of four percent, and a 10-year equipment life is used. The cost effectiveness is determined by dividing the total present value of the control costs by the total emission reductions in tons over the same 10-year equipment life.

## Maximum Cost Effectiveness Values

The MSBACT maximum cost effectiveness values, shown in Table 5, are based on a DCF analysis with a 4% real interest rate.

**Table 5: Maximum Cost Effectiveness Criteria (3rd Quarter ~~2018~~2020)**

| Pollutant | Average (Maximum $ per Ton) | Incremental (Maximum $ per Ton) |
|---|---|---|
| ROG | ~~30,765~~31,432 | ~~92,296~~94,297 |
| NOx | ~~29,090~~29,721 | ~~87,117~~89,007 |
| SOx | ~~15,383~~15,716 | ~~46,148~~47,149 |
| $PM_{10}$ | ~~6,854~~7,002 | ~~20,409~~20,851 |
| CO | ~~609~~622 | ~~1,751~~1,789 |

The cost criteria are based on those adopted by the ~~SCAQMD~~South Coast AQMD Governing Board in the 1995 BACT Guidelines, adjusted to ~~second~~third quarter ~~2016~~2020 dollars using the Marshall and Swift Equipment Cost Index. Cost effectiveness analyses should use these figures adjusted to the latest Marshall and Swift Equipment Cost Index. Contact the BACT Team for current figures.

[19] The real interest rate is the difference between market interest rates and inflation, which typically remains constant at four percent.

## Top-Down Cost Methodology

The ~~SCAQMD~~South Coast AQMD uses the top-down approach for evaluating MSBACT and cost effectiveness. This means that the best control method, with the highest emission reduction, is first analyzed. If it is not cost effective, then the second-best control method is evaluated for cost effectiveness. The process continues until a control method is found to be cost-effective. This process provides a mechanism for all practical and potential control technologies to be evaluated. As part of the permitting process, the applicant is responsible for preparing the MSBACT analysis, and submitting it to the District for review and approval.

The top-down process consists of five steps:

### *1. Identify all control technologies*

Identify all possible air pollution control options for the emissions unit. In addition to add-on control, control options may include production process methods and techniques. Innovative, transferable technologies, and LAER technologies should also be identified.

### *2. Eliminate technically infeasible options*

The technologies identified in Step 1 should be evaluated for technical feasibility. Elimination of any of the technologies identified in Step 1 should be well-documented and based on physical, chemical and engineering principles.

### *3. Rank remaining control technologies*

Based on overall control effectiveness, all remaining technically feasible control options should be ranked for the pollutants under review. A list should be generated for each pollutant subject to the MSBACT analysis. This list should include control efficiencies, emission rates, emission reductions, environmental impacts and energy impacts. Environmental impacts may include multimedia impacts and the impacts of the control option on toxic emissions.

### *4. Evaluation*

Evaluate the most effective controls and document the results. For each option, the applicant is responsible for objectively discussing each of the beneficial and adverse impacts. Typically, the analysis should focus on the direct impacts. Calculations for both incremental and average cost effectiveness should be completed during this step. The MSBACT option must be cost effective for both analyses. In the event that the top option from Step 4 is ruled out after the impacts and cost effectiveness are evaluated, the decision and reasoning should be fully documented. The next most stringent alternative from Step 4, should then be evaluated.

### *5. Select MSBACT*

The most effective control option not eliminated in Step 4 is proposed as MSBACT for the pollutant and permit unit and presented to the ~~District~~ South Coast AQMD for review and approval.

## Costs to Include in a Cost Effectiveness Analysis

Cost effectiveness evaluations consider both capital and operating costs. Capital cost includes not only the price of the equipment, but the cost for shipping, engineering and installation. Operating or annual costs include expenditures associated with utilities, labor and replacement costs. Finally, costs are reduced if any of the materials or energy created by the process result in cost savings. These cost items are shown in Table 6. Methodologies for determining these values are given in documents prepared by USEPA through their Office of Air Quality Planning and Standards (EPA Air Pollution Control Cost Manual, Sixth Edition, 2002, EPA 452/B-02-001).

The cost of land will not be considered because 1) add-on control equipment usually takes up very little space, 2) add-on control equipment does not usually require the purchase of additional land, and 3) land is non-depreciable and has value at the end of the project. In addition, the cost of controlling secondary emissions and cross-media pollutants caused by the primary MSBACT requirement should be included in any required cost effectiveness evaluation of the primary MSBACT requirement.

**Table 6: Cost Factors**

**Total Capital Investment**

Purchased Equipment Cost
- Control Device
- Ancillary (including duct work)
- Instrumentation
- Taxes
- Freight

Direct Installation Cost
- Foundations and Supports
- Handling and Erection
- Electrical
- Piping
- Insulation
- Painting

Indirect Installation Costs
- Engineering
- Construction and Field Expenses
- Start-Up
- Performance Tests
- Contingencies

**Total Annual Cost**

Direct Costs
- Raw Materials
- Utilities
  - Electricity
  - Fuel
  - Steam
  - Water
  - Compressed Air
- Waste Treatment/Disposal
- Labor
  - Operating
  - Supervisory
  - Maintenance
- Maintenance Materials
- Replacement Parts

Indirect Costs
- Overhead
- Property Taxes
- Insurance
- Administrative Charges

Recovery Credits
- Materials
- Energy

## CLEAN FUEL GUIDELINES

In January 1988, the ~~SCAQMD~~South Coast AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT. A clean fuel is one that produces air emissions equivalent to or lower than natural gas for $NO_X$, $SO_X$, ROG, and fine respirable particulate matter ($PM_{10}$). Besides natural gas, other clean fuels are liquid petroleum gas (LPG), hydrogen and electricity. Utilization of zero and near- zero emission technologies are also integrated into the Clean Fuels Policy. The burning of landfill, digester, refinery and other by-product gases is not subject to the clean fuels requirement. However, the combustion of these fuels must comply with other ~~SCAQMD~~South Coast AQMD rules, including the sulfur content of the fuel.

The requirement of a clean fuel is based on engineering feasibility. Engineering feasibility considers the availability of a clean fuel and safety concerns associated with

that fuel. Some state and local safety requirements limit the types of fuel, which can be used for emergency standby purposes. Some fire departments or fire marshals do not allow the storage of LPG near occupied buildings. Fire officials have, in some cases, vetoed the use of methanol in hospitals. If special handling or safety considerations preclude the use of the clean fuel, the ~~SCAQMD~~South Coast AQMD has allowed the use of fuel oil as a standby fuel in boilers and heaters, fire suppressant pump engines and for emergency standby generators. The use of these fuels must meet the requirements of ~~SCAQMD~~South Coast AQMD rules limiting $NO_X$ and sulfur emissions. In addition, the Clean Fuel requirements for MSBACT are subject to the provisions of California Health and Safety Code Section 40440.11.

## AIR QUALITY-RELATED ENERGY POLICY

In September 2011, the ~~SCAQMD~~South Coast AQMD Governing Board adopted an air quality-related energy policy to help guide a unified approach to reducing air pollution while addressing other key environmental concerns including environmental justice, climate change and energy independence. The air quality-related energy policy outlines 10 policies and 10 action steps to help meet federal health-based standards for air quality in the South Coast Air Basin while also promoting the development of zero- and near-zero emission technologies.

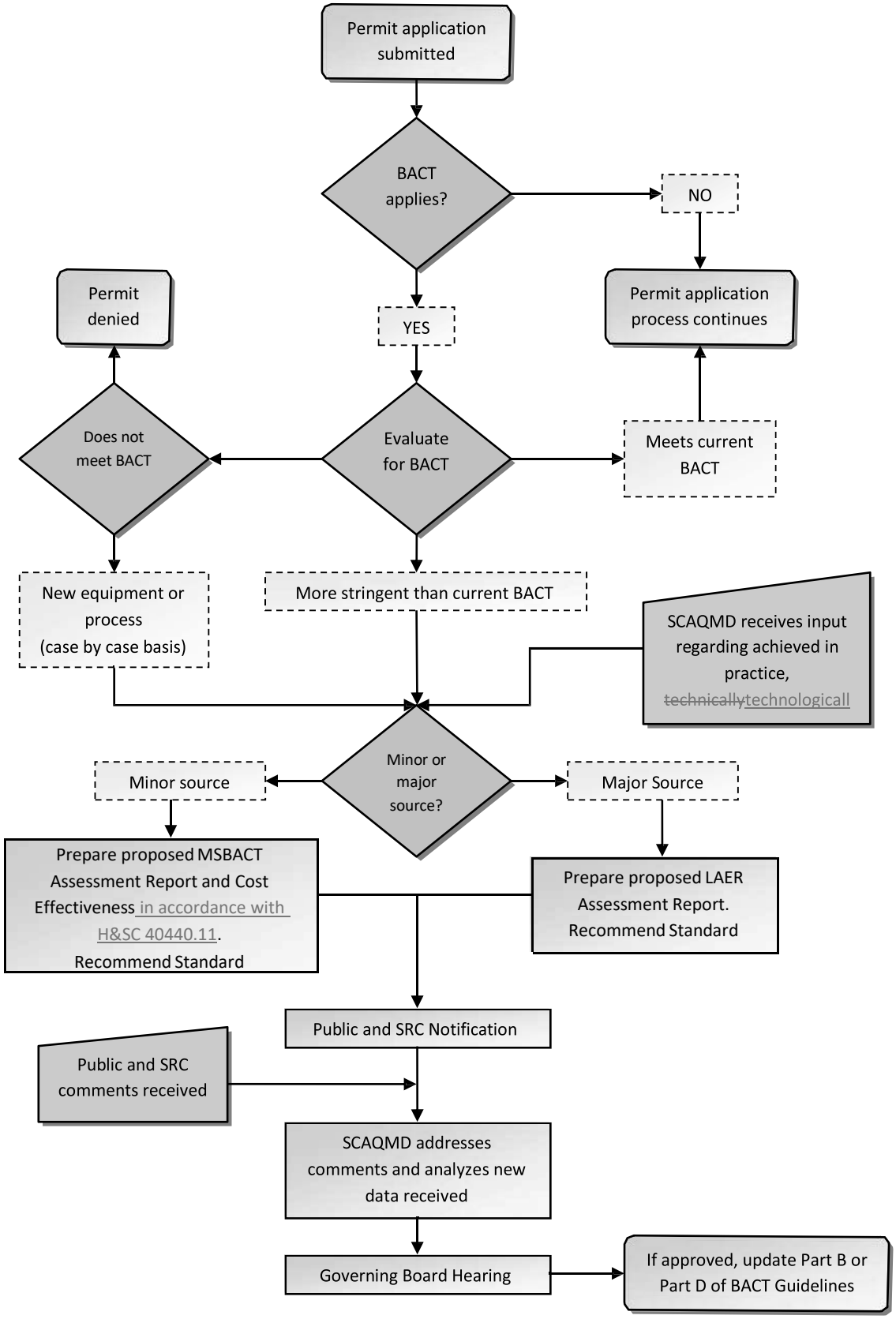
Policy 7 is to require any new/repowered in-Basin fossil-fueled generation power plant to incorporate BACT/LAER as required by District rules, considering energy efficiency for the application. These power plants will need to comply with any requirements adopted by the California Air Resources Board, California Energy Commission, Public Utilities Commission, California Independent System Operator, or the governing board of a publicly-owned electric utility, as well as state law under the California Environmental Quality Act. In recognizing that fossil fuel electric generation will still be needed in the Basin to complement projected increased use of renewable energy sources, this policy ensures that all fossil-fueled plants will meet existing BACT/LAER requirements and ~~SCAQMD~~South Coast AQMD's BACT/LAER determinations will also take into consideration generating efficiency in setting the emission limits. Parts E and F of the BACT Guidelines complement and support this policy.

## MSBACT UPDATE PROCESS

As technology advances, the ~~SCAQMD~~South Coast AQMD's MSBACT Part D Guidelines will be updated. Updates will include revisions to the guidelines for existing equipment categories, as well as new guidelines for new categories.

The MSBACT Guidelines will be revised based on the criteria outlined in the previous sections. Once a more stringent emission limit or control technology has been reviewed by staff and is determined to meet the criteria for MSBACT, it will be reviewed through a public process. The process is shown schematically in Figure 2. The public will be notified and the BACT Scientific Review Committee will have an opportunity to comment. Following the public process and comment period, the guidelines will be presented to the Governing Board for approval at a public hearing, prior to updates of the MSBACT Guidelines, Part D.

**Figure 2: The Ongoing BACT Update Process**



# Chapter 2 - How to Use Part D of the MSBACT Guidelines

This chapter explains the MSBACT information found in Part D - MSBACT Guidelines. The Guidelines in Part D should be used to determine MSBACT for non-major polluting facilities. For a listing of equipment, refer to the Part D Table of Contents. Determination of MSBACT for equipment not found in Part D of the MSBACT Guidelines is also explained.

## GENERAL

Part D includes MSBACT Guidelines for more than 100 categories of equipment commonly processed by ~~SCAQMD~~South Coast AQMD. Some guidelines are further subdivided by equipment size, rating, type or the material used, as appropriate.

The MSBACT requirements are in the form of:

1) an emission limit;
2) a control technology;
3) equipment requirements; or
4) a combination of the last two.

If the requirement is an emission limit, the applicant may choose any control technology to achieve the emission limit. The ~~SCAQMD~~South Coast AQMD prefers to set an emission limit as MSBACT because it allows an applicant the most flexibility in reducing emissions.

If a control technology and/or equipment requirements are the only specified MSBACT, then either emissions from the equipment are difficult to measure or it was not possible to specify an emission limit that applies to all equipment within the category. Where possible, an emission limit or control efficiency condition will be specified in the permit along with the control technology or equipment requirements to ensure that the equipment is properly operated with the lowest emissions achievable. An applicant may still propose to use other ways to achieve the same or better emission reduction than the specified MSBACT.

MSBACT is the control technology or emission limit given in Part D for the basic equipment or process being evaluated, unless the guideline is out of date, or there are special permitting conditions, or the equipment is not identified in Part D. In those cases, the procedures described in the following sections will be used to determine MSBACT. Applicants or other interested parties are encouraged to contact the ~~SCAQMD~~South Coast AQMD permitting staff if there are any questions about MSBACT.

# SPECIAL PERMITTING CONSIDERATIONS

Although the most stringent, AIP BACT for a source category will most likely be the required MSBACT, ~~SCAQMD~~South Coast AQMD staff may consider special technical circumstances that apply to the proposed equipment which may allow deviation from that MSBACT. The permit applicant should bring any pertinent facts to the attention of the ~~SCAQMD~~South Coast AQMD permitting engineer for consideration.

## Case-Specific Situations

~~SCAQMD~~South Coast AQMD staff may consider unusual equipment-specific and site-specific characteristics of the proposed project that would warrant a reconsideration of the MSBACT requirement for new equipment.

### Technical infeasibility of the control technology

A particular control technology may not be required as MSBACT if the applicant demonstrates that it is not technically feasible to install and operate it to meet a specific MSBACT emission limitation in a specific permitting situation.

### Operating schedule and project length

If the equipment will operate much fewer hours per year than what is typical, or for a much shorter project length, it can affect what is considered AIP.

### Availability of fuel or electricity

Some MSBACT determinations may not be feasible if a project will be located in an area where natural gas or electricity is not available.

### Process requirements

Some MSBACT determinations specify a particular type of process equipment. ~~SCAQMD~~South Coast AQMD staff may consider requirements of the proposed process equipment that would make the MSBACT determination not technically feasible.

## Equivalency

The permit applicant may propose alternative means to achieve the same emission reduction as required by BACT. For example, if BACT requires a certain emission limit or control efficiency to be achieved, the applicant may choose any control technology, process modification, or combination thereof that can meet the same emission limit or control efficiency.

## Super Compliant Materials

~~SCAQMD~~South Coast AQMD will accept the use of super compliant materials in lieu of an add-on control device controlling volatile organic compound (VOC) emissions from coating operations. For example, if a permit applicant uses only surface coatings that meet the super compliant material definition in ~~SCAQMD~~South Coast AQMD Rule 109, it may qualify as VOC MSBACT. This policy does not preclude any other MSBACT requirement for other contaminants.

## Equipment Modifications

As a general rule, it is more difficult to retrofit existing equipment with MSBACT as a result of NSR modification when compared to a new source. The equipment being modified may not be compatible with some past MSBACT determinations that specify a particular process type. There may also be space restrictions that prevent installation of some add-on control technology.

## Other Considerations

Although multiple process and control options may be available during the MSBACT determination process, considerations should be made for options that reduce the formation of air contaminants from the process, as well as ensuring that emissions are properly handled. In addition to evaluating the efficiency of the control stage, these additional considerations are needed to ensure that the system is capable of reducing or eliminating emissions from the facility on a consistent basis during the operational life of the equipment. Measures listed in this section for MSBACT are subject to the requirements of California Health and Safety Code Section 40440.11.

### *Pollution Prevention*

The Pollution Prevention Act of 1990 (42 U.S.C. §§13101-13109) established a national policy that pollution should be prevented or reduced at the source whenever feasible. In many cases, air pollution control is a process that evaluates contaminants at the exhaust of the system. Pollution prevention is the reduction or elimination of waste at the source by the modification of the production process. Pollution prevention measures may consist of the use of alternate or reformulated materials, a modification of technology or equipment, or improvement of energy efficiency changes that result in an emissions reduction. These measures should be considered as part of the MSBACT determination process if the measures will result in the elimination or reduction of emissions, but are not required to include projects which are considered to fundamentally redefine the source. New and different emissions created by a process or material change will also need to be considered as part of the MSBACT determination process, in contrast to the overall emissions reductions from the implementation of pollution prevention measures.
U.S. EPA policy defined pollution prevention as source reduction and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, and protection of natural resources by conservation[20]. U.S. EPA further specifies that pollution prevention does not include recycling (except in-process recycling), energy recovery, treatment or disposal. For purposes of these BACT Guidelines, and to be consistent with federal definitions, source reduction and pollution prevention shall may include, but not be limited to, consideration of the feasibility of:

- equipment or technology modifications,
- process or procedure modifications,
- reformulation or redesign of products,
- substitution of raw materials, or
- improvements in housekeeping, maintenance or inventory control,

that reduce the amount of air contaminants entering any waste stream or otherwise released into the environment, including fugitive emissions.

[20] U.S. EPA Pollution Prevention Law and Policies (www.epa.gov/p2/pollution-prevention-law-and-policies#define)

### *Monitoring and Testing*

In order to ensure that MSBACT determinations continue to meet their initial emission and efficiency standards, periodic or continuous parameter monitoring and testing requirements may be required during the permitting process. Equipment and processes may experience some change over time, due to aging or operational methods of the equipment, which may affect emission rates or control efficiencies. In addition to other rule requirements, additional monitoring and testing requirements may need to focus on aspects directly related to the MSBACT determination, and may be made enforceable by permit conditions. Monitoring and testing requirements should be specific to characterize operating conditions (e.g. temperatures, pressures, flows, production rates) and measurement techniques when MSBACT is established to ensure clarity and consistency with the standard.

### *Capture Efficiency*

An integral part of controlling air pollutants emitted from a process with add-on air pollution control equipment is capturing those emissions and directing them to the air pollution control device. Emissions which are designed to be collected by an exhaust system but are vented uncontrolled into the atmosphere can have a much greater impact than controlled emissions. When applicable, the evaluation of a process and its associated control equipment should address the qualification and quantification of capture efficiency. By addressing capture efficiency during MSBACT determinations, a standard can be established to evaluate the capture efficiency of other systems, as well as ensure that the capture efficiency is maintained consistently over time.

If applicable, MSBACT determinations may include the percentage capture efficiency and the methods and measurements (e.g. EPA Method 204, capture velocity measurements, design using ACGIH's Industrial Ventilation, static pressures) used to determine and verify it. For various circumstances, several ~~SCAQMD~~South Coast AQMD rules (see Table 5, Part A, Chapter 1) already require an assessment of collection efficiency of an emission control system following EPA Method 204, EPA's "Guidelines for Determining Capture Efficiency", ~~SCAQMD~~South Coast AQMD's "Protocol for Determination of Volatile Organic Compounds (VOC) Capture Efficiency," or other methods approved by the Executive Officer, and are appropriate to include as BACT requirements. The capture efficiency for any MSBACT Determination shall be no less stringent than any applicable rule requirement. Other considerations that may affect capture, such as cross-drafts, thermal drafts and the volume of combustion products, should also be addressed during this process.

## Equipment Not Identified in the MSBACT Guidelines

Although the BACT Guidelines contains an extensive listing of practically everything the ~~SCAQMD~~South Coast AQMD 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~~South Coast AQMD 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.

## MSBACT Determinations Should the Guidelines Become Out of Date

Should the MSBACT Guideline Part D become out of date with state BACT requirements or permits issued for similar equipment in other parts of the state, staff will evaluate permits consistent with the definition of BACT considering technical and economic criteria as required by Rule 1303 (a) and Health & Safety Code Section 40405. The technical and economic factors to be considered are those identified in Chapter 1.

## MSBACT APPLICATION CUT-OFF DATES

These guidelines apply to all non-major polluting facility applications deemed complete subsequent to ~~SCAQMD~~South Coast AQMD Governing Board adoption of the Regulation XIII amendments in 2000.

Applications for a Registration Permit for equipment issued a valid Certified Equipment Permit (CEP), which is valid for one year, will only be required to comply with MSBACT as determined at the time the CEP was issued. However, ~~SCAQMD~~South Coast AQMD staff will reevaluate the MSBACT requirements for the CEP upon annual renewal of the CEP by the equipment manufacturer.

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ATTACHMENT F

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

# Best Available Control Technology Guidelines

## Part D: BACT Guidelines for Non-Major Polluting Facilities

October 20, 2000 (Revised June 6, 2003; December 5, 2003; July 9, 2004; December 3, 2004; July 14, 2006; October 3, 2008; December 2, 2016; February 2, 2018; February 1, 2019; February 5, 2021)


**Deputy Executive Officer**
**Science and Technology Advancement**
Matt Miyasato
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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Abrasive Blasting – Enclosed

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse; or Cartridge Dust Collector (07-11-97) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Absorption Chiller

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | ≤ 20 ppmv dry corrected to 3% O2 (10-20-2000) | Natural Gas (10-20-2000) | ≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% $O_2$ (10-20-2000) | Natural Gas (10-20-2000) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Air Stripper – Ground Water Treatment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Carbon Adsorber, Thermal Oxidizer, or Catalytic Oxidizer (10-20-2000) | | | | | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Aluminum Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible or Pot | | ≤60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (07-11-97) | | Natural Gas with Ingots or Non-contaminated Scrap Charge, or Baghouse (10-20-2000) | |
| Reverberatory, Non-Sweating < 5 MM BTU/HR | | ≤60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Same as above. (10-20-2000) | |
| Reverberatory, Non-Sweating ≥ 5 MM BTU/HR | | Natural Gas with Low NOx Burner ≤ 60 ppmvd @ 3% $O_2$ (10-20-2000) | Natural Gas (1990) | | Same as above. (10-20-2000) | |
| Reverberatory or Rotary, Sweating < 5 MM BTU/HR | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F) or Secondary Combustion Chamber (1990) | ≤60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Baghouse and:<br>- Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or<br>- Secondary Combustion Chamber (1990) | |
| Reverberatory or Rotary, Sweating ≥ 5 MM BTU/HR | Same as Above (1990) | Natural Gas with Low NOx Burner ≤ 60 ppmvd @ 3% $O_2$ (10-20-2000) | Natural Gas (1990) | | Same as above. (1990) | |

Note: Some of this equipment may also subject to 40 CFR 63, Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ammonium Bisulfate and Thiosulfate Production

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Packed Column Scrubber with Heat Exchanger and Mist Eliminator (1990) | Packed Column Scrubber for NH3 (1990) |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asbestos Machining Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Air Cleaning Equipment (40 CFR Part 61 Subpart M) (07-11-97) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphalt Batch Plant

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner<br>≤ 33 ppmvd @ 3% $O_2$<br>(10-20-2000)<br>~~NEED COST-EFFECTIVENESS~~ | | | Baghouse<br>(1990) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphalt Roofing Line

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with High Velocity Filter and Mist Eliminator (1990) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Asphaltic Day Tanker

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Fiberglass or Steel Wool Filter (07-11-97) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Auto Body Shredder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse with Water Sprays in Hammermill (1988) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ball Mill

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (07-11-97) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Beryllium Machining Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | High Efficiency Particulate Air Filter and Compliance with 40CFR Part 61, Subpart D (1988) | |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0; 10-03-2008 Rev. 1; 12-02-2016 Rev. 2

2-1-2019 Rev. 3

Equipment or Process: Boiler

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx[1]** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas Fired, > 2 and < 20 MMBtu/HR | | Compliance with ~~SCAQMD~~ Rules 1146 or 1146.1[2] (12-02-2016) | Natural Gas (10-20-2000) | ≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, corrected to 3% $O_2$ (04-10-98) | Natural Gas (04-10-98) | |
| Propane Fired, > 2 and < 20 MMBtu/HR | | ≤ 12 ppmvd corrected to 3% $O_2$[2] (10-20-2000) | | ≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, corrected to 3% $O_2$ (04-10-98) | | |
| Natural Gas or Propane Fired, ≥ 20 and < 75 MM Btu/HR | | Compliance with ~~SCAQMD~~ Rule 1146 (2-1-2019) | Natural Gas (10-20-2000) | Same as above. (04-10-98) | Natural Gas (04-10-98) | With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2<br><br>≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000) |
| Natural Gas or Propane Fired, ≥ 75 MM Btu/HR | | Compliance with ~~SCAQMD~~ Rule 1146 (12-02-2016) | Natural Gas (10-20-2000) | Same as above. (04-10-98) | Natural Gas (04-10-98) | With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2<br><br>≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000) |

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx[1]** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Oil Fired[3] | | Compliance with ~~SCAQMD~~ Rule 1146 or 1146.1 (10-20-2000) | Fuel Sulfur Content ≤ 0.0015% by weight (10-03-2008) | ≤ 50 ppmvd for firetube type ≤ 100 ppmvd for watertube type, corrected to 3% $O_2$ (04-10-98) | | |
| Atmospheric Unit, ≥ 2 and ≤ 10 MMBtu/HR | | Compliance with ~~SCAQMD~~ Rules 1146 and 1146.1 (12-02-2016) | | Compliance with ~~SCAQMD~~ Rules 1146 and 1146.1 (12-02-2016) | | |
| Landfill Gas Fired, < 75 MMBTU/Hr | | Compliance with ~~SCAQMD~~ Rules 1146 and 1146.1 (12-02-2016) | | ≤ 100 ppmvd at 3% $O_2$ dry. (04-10-98) | ≤ 0.1 gr/scf at 12% $CO_2$ (Rule 409) (04-10-98) | |
| Digester Gas Fired, < 75 MMBTU/Hr | | Compliance with ~~SCAQMD~~ Rules 1146 and 1146.1 (12-02-2016) | | ≤ 100 ppmvd at 3% $O_2$ dry. (04-10-98) | ≤ 0.1 gr/scf at 12% $CO_2$ (Rule 409) (04-10-98) | |

1) Electric utility boilers, refinery boilers rated >40 MMBtu/hr and sulfur plant reaction boilers rated ≥5 MMBtu/hr are excluded; and there are exceptions for low-use boilers and boilers that met a 12-ppm limit prior to 9/5/08. Applicants are advised to review these rules for further details.

2) A higher NOx limit may be allowed for facilities required to have a standby fuel, where use of a clean standby fuel is not possible and an ultra low-NOx burner is not available.

3) See Clean Fuels Policy in Part C of the BACT Guidelines. Oil firing is only allowed as a standby fuel, and where use of a clean standby fuel is not possible.

* Means those facilities that are minor facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Brakeshoe Debonder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner or Secondary Combustion Chamber with ≥0.3 Second Retention Time at ≥1,400°F Achieved within 15 Minutes of Primary Burner Ignition (07-11-97) | Natural Gas (07-11-97) | Natural Gas (07-11-97) | | Natural Gas (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Brass Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible, ≤ 300 Lbs/Hr Process Rate | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas, Charge Clean Metal Only and Maintain Slag Cover Over Entire Melt Surface (1990) | |
| Crucible, > 300 Lbs/Hr Process Rate | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas, with Baghouse (1990) | |
| Reverberatory or Rotary, Non-Sweating | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Baghouse (1990) | |
| Reverberatory or Rotary, Sweating | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1990) | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1990) | Natural Gas with Baghouse (1990) | |
| Tilting Induction, ≤ 300 Lbs/Hr Process Rate | | | | | Charge Clean Metal Only and Slag Cover Maintained Over Entire Melt Surface (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | | | | | |
|---|---|---|---|---|---|---|
| Tilting Induction, > 300 Lbs/Hr Process Rate | | | | | Baghouse (7-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Handling – Other

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory[3)]/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Animal Feed Mfg. – Dry Material Handling | | | | | Baghouse (07-11-97) | |
| Clay, Ceramics and Refractories Handling (Except Mixing) | | | | | Baghouse (1988) | |
| Coal, Coke and Sulfur Handling | | | | | Compliance with ~~SCAQMD~~ Rule 1158 (10-20-2000) | |
| Feed and Grain Handling | | | | | Baghouse (1988) | |
| Natural Fertilizer Handling [1)] | | | | | Baghouse or Equivalent Material Moisture (07-11-97) | |
| Paper and Fiber Handling | | | | | High Efficiency Cyclone with Baghouse (10-20-2000) | |
| Pneumatic Conveying, Except Paper and Fiber | | | | | Baghouse (1988) | |
| Railcar Dumper | | | | | Enclosed Dump Station and Water Spray for Wet Material (1988) | |
| Other Dry Materials Handling [2)] | | | | | Enclosed Conveyors and Baghouse (7-11-97) | |
| Other Wet Materials Handling [2)] | | | | | Water Spray or Adequate Material Moisture (1988) | |

1. Includes conveying, size reduction, classification and packaging.
2. Includes conveying, size reduction and classification.
3. Also see Catalyst Manufacturing, Coffee Roasting, Non-Metallic Mineral Processing, Nut Roasting, Rendering, Pharmaceutical Operations, and Rock-Aggregate Processing for other bulk solid material handling.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Ship Loading

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Non-White Commodities | | | | | Enclosed Conveyor and<br>- Water Spray; or<br>- Adequate Material Moisture<br>(1988) | |
| White Commodities | | | | | Enclosed Conveyor and Baghouse Venting Ship Holds and Transfer Points<br>(07-11-97) | |

Notes:
1. Non-White commodities include coal, copper concentrate, sulfur, iron slag, iron ore, iron pellets, green petroleum coke and other wet commodities
2. White commodities include soda ash, salt cake, potash and other dry commodities.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Ship Unloading

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Bulk Cement | | Shore Utility Power (1988) | Shore Utility Power (1988) | | Enclosed, Self-Unloading Ship (1988) | |
| Other Bulk Solid Materials | | | | | Enclosed Hold and Baghouse; or Material Moisture Equivalent to an Enclosed Hold and Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Bulk Solid Material Storage

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Coal, Petroleum Coke, Sulfur | | | | | Enclosed Storage in Compliance with ~~SCAQMD~~Rule 1158 (10-20-2000) | |
| Other Non-White Commodities | | | | | Water Spray and Chemical Additives or Charged Fog Spray (1988) | |
| White Commodities | | | | | Enclosed Storage and Baghouse (1988) | |
| Storage Tanks and Silos | | | | | Baghouse or Filtered Vent for Dry Material; Water Spray or Adequate Moisture for Wet Material (07-11-97) | |
| Other Open Storage | | | | | Water with Chemical Additives (1988) | |

Notes:
1. Other non-white commodities include copper concentrate, iron slag, iron ore, and iron pellets.
2. White commodities include cement, gypsum, lime, soda ash, borax and flour.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Burnoff or Burnout Furnace (Excluding Wax Furnace)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner or Secondary Combustion Chamber with ≥0.3 Second Retention Time at ≥1,400°F Achieved within 15 Minutes of Primary Burner Ignition (07-11-97) | Compliance with Rule 1147 (2-1-2019) | Natural Gas (07-11-97) | | Natural Gas (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Calciner

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Petroleum Coke | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | Compliance with Rule 1147 (2-1-2019) | Natural Gas with Flue Gas Desulfurization (> 90% Removal Efficiency) (1988) | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | 0.005 gr/dscf Corrected to 3% $0_2$ (1988) | |
| Other | | Compliance with Rule 1147 (2-1-2019) | Natural Gas (1988) | | Natural Gas with Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Carpet Beating and Shearing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Catalyst Manufacturing and Regeneration

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Calcining | | Three-Stage NOx Reduction Scrubber (1990) | Natural Gas (1990) | | Baghouse (10-20-2000) | |
| Reactor | | $NO_x$ Scrubber (07-11-97) | | | | |
| Rotary or Spray Dryer | | | | | Baghouse (07-11-97) | |
| Regeneration, Hydrocarbon Removal | Flare, Firebox, or Afterburner (≥ 0.3 Second Retention Time at ≥ 1,400 °F) (07-11-97) | | | | | |
| Catalyst Solids Handling | | | | | Baghouse (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Charbroiler, Chain-driven (conveyorized)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Catalytic Oxidizer (12-12-97) | | | | Catalytic Oxidizer (12-12-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

~~Equipment or Process: Chemical Milling Tanks~~

| | ~~Criteria Pollutants~~ | | | | | |
|---|---|---|---|---|---|---|
| ~~Subcategory/ Rating/Size~~ | ~~VOC~~ | ~~NOx~~ | ~~SOx~~ | ~~CO~~ | ~~$PM_{10}$~~ | ~~Inorganic~~ |
| ~~Aluminum and Magnesium[1]~~ | | | | | | |
| ~~Nickel Alloys, Stainless Steel and Titanium~~ | | ~~Packed Chemical Scrubber (10-20-2000)~~ | | | ~~High Efficiency Mist Eliminator (10-20-2000)~~ | |

~~1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic SCAQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.~~

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Chip Dryer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400°F) (10-20-2000) | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1989) | | Natural Gas with:<br>- Baghouse and Limestone Filter Coating; or<br>- Baghouse and Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400°F)<br>(1989) | |

Note: This equipment may also subject to 40 CFR 63, Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Chrome Plating

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Decorative Chrome | | | | | Packed Scrubber and Mist Suppressant (1988) Compliance with SCAQMD Rule 1469 (10-20-2000) | |
| Hard Chrome | | | | | Packed Scrubber and Mist Suppressant (1988) Compliance with SCAQMD Rule 1469 (10-20-2000) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Circuit Board Etcher

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch Immersion Type, Subtractive Process | | | | | Packed Water Scrubber and Etchant Solution Temperature Control (10-20-2000) | |
| Conveyorized Spray Type, Subtractive Process | | | | | Packed Water Scrubber and Etchant Solution Temperature Control (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Cleaning Compound Blender

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse or Wet Centrifugal Collector or Cyclone (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev. 1
2-5-2021 Rev. 2

Equipment or Process: Coffee Roasting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Roaster, < 110,000 BTU/Hr | | ~~Compliance with Rule 1147 (2-1-2019)~~ | Natural Gas (1988) | | Natural Gas (1988) | |
| Roaster, ≥ 110,000 BTU/Hr | Afterburner [1] (0.3 Sec Retention Time at 1200 °F) (1990) | ~~Compliance with Rule 1147 (2-1-2019)~~ | Natural Gas (1990) | | Natural Gas with Cyclone and Afterburner (≥ 0.3 Second Retention Time at ≥ 1200 °F) (1990) | |
| Handling Equipment, < 1,590 Lbs/Hr All[2] | | | | | | |
| Handling Equipment, ≥ 1,590 Lbs/Hr All | | | | | Cyclone (1990) | |

1) Gaseous process emissions from roasting operations which are ducted to a thermal oxidizer or catalytic oxidizer as control technology will be subject to the NOx requirements of thermal oxidizer or catalytic oxidizer BACT listing in Part D. (2-5-2021)

2) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic ~~SCAQMD~~South Coast AQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0
2-1-2019 Rev. 1

Equipment or Process: Composting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic (Ammonia)** |
| Co-composting[a)] | Compliance with ~~SCAQMD~~Rule 1133.2[b)] (12-5-2003) | | | | | Compliance with ~~SCAQMD~~Rule 1133.2[b)] (12-5-2003) |
| Greenwaste composting | Compliance with ~~SCAQMD~~Rule 1133.3 (2-1-2019) | | | | | Compliance with ~~SCAQMD~~Rule 1133.3 (2-1-2019) |

a) Co-composting is composting where biosolids and/or manure are mixed with bulking agents to produce compost.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Concrete Batch Plant

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Central Mixed, < 5 Cubic Yards/Batch | | | | | Water Spray (1988) | |
| Central Mixed, ≥ 5 Cubic Yards/Batch | | | | | Baghouse for Cement Handling and Adequate Moisture in Aggregate (1988) | |
| Transit-Mixed | | | | | Baghouse Venting the Cement Weigh Hopper and the Mixer Truck Loading Station; and Adequate Aggregate Moisture (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Concrete Blocks and Forms Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Cotton Gin

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Rotary Drum Filter and Cyclone (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev. 1

Equipment or Process: Crematory

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Secondary Combustion Chamber, ≥ 1500 °F (1990) | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Secondary Combustion Chamber, ≥ 1500 °F (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Degreaser – Other

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch-Loaded or Conveyorized Cold Cleaners | Use of solvents containing 50 grams of VOC or less per liter of material (12-12-97) | | | | | |
| Film Cleaning Machine | Carbon Adsorber (10-20-2000) | | | | | |
| Solvent Spraying[1)], 1,1,1 Trichloroethane | Carbon Adsorber (1990) and Compliance with 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning (10-20-2000) | | | | | |
| Solvent Spraying[1)], Other VOCs | Compliance with ~~SCAQMD~~Rule 1171 (10-20-2000) | | | | | |

Note: Use of certain halogenated solvents is also subject to 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning

1) This subcategory includes solvent spray booths and remote reservoir cleaners.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Degreaser –Vapor Cleaning, Volatile Organic Compounds

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch | Tier 1: Use of an automatically operated airtight or airless cleaning system that emits no more than [4.3 x $V^{0.6}$] lb/month of VOCs, where V is the cleaning chamber volume in cubic feet. Use of alternative equipment is allowed provided such equipment is subject to the same emissions limitation (lb/month of VOCs) as calculated above.<br><br>Tier 2: Use of equipment that does not exceed [22 x A] lb/month of VOCs, where A is the solvent surface area in square feet, provided it is technically infeasible to use Tier 1 equipment because of part deformation, inherent part pressure, part type or geometry, soil type or amount, cleanliness sensitivity, or other reasons.<br>(4-10-98) | | | | | |
| Conveyorized | Use of a conveyorized vapor degreaser that does not exceed [17 x A] lb/month of VOCs, where, A is the solvent surface area in square feet<br>(04-10-98) | | | | | |

Notes:

1. Use of certain halogenated solvents is also subject to 40 CFR 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning
2. Use of VOCs not subject to the above-described NESHAP is also subject to ~~SCAQMD~~Rule 1122.
3. Any permit applicant may demonstrate that the Tier 1 BACT may not be technologically feasible for the applicant's permit unit. For batch-loaded vapor degreasing equipment, ~~SCAQMD~~South Coast AQMD will consider the following three factors taken together as a whole, as well as any other technical factors presented by the applicant: a) Part Type and Geometry – In that different parts and part geometries lend themselves to different cleaning methods that may be acceptable to achieve proper cleanliness, ~~SCAQMD~~South Coast AQMD will consider information presented by the applicant regarding the type and geometry of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in questions; b) Soil Type and Amount – In that different types and quantities of soils being cleaned from parts lend themselves to different cleaning methods, ~~SCAQMD~~South Coast AQMD will consider information presented by the applicant regarding the soil type and soil quantity of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in question; c) Cleanliness Sensitivity – In that (i) different parts have different levels of sensitivity to cleanliness (e.g., medical and high technology device parts may need to achieve an extremely high level of cleanliness, whereas standard plumbing supplies may tolerate a lower level of cleanliness), and (ii) the integrity of certain parts may be compromised by exposure to the reduced pressure environment of airless cleaning systems; ~~SCAQMD~~South Coast AQMD will consider information presented by the applicant regarding the cleanliness sensitivity of the part(s) proposed to be cleaned in determining what cleaning technologies are available for the part(s) in question.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Detergent Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Solids Handling | | | | | Cyclone and Baghouse (07-11-97) | |
| Spray Dryer | | Natural Gas with Low-NOx Burner (1988) | Natural Gas (1988) | | Natural Gas with:<br>- Cyclone and Baghouse; or<br>- Cyclone, Scrubber and Electrostatic Precipitator<br>(1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Drum Reclamation Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention time at ≥ 1400 °F) (1990) | Natural Gas (1990) | Natural Gas (1990) | | Natural Gas with After-burner (> 0.3 Sec. Retention Time at ≥ 1400 °F) and Baghouse (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-9-2004 Rev. 1

Equipment or Process: Dry Cleaning

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Perchloroethylene | Delisted as a VOC. See ~~SCAQMD~~Rule 1421 – Control of Perchloroethylene Dry Cleaning Operations[1] (06-13-97) | | | | | |
| Petroleum Solvent[2] | Closed Loop, Dry-to-Dry Machine with a Refrigerated Condenser (10-20-2000) or Evaporatively Cooled Condenser (7-9-2004) | | | | | |

[1] Rule 1421 implements the federal National Emission Standard for Hazardous Air Pollutant for Perchloroethylene Dry Cleaning Facilities (40 Code of Federal Regulations [CFR] 63.320, *et seq*) and the state Airborne Toxic Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations (17 California of Regulation [CCR] 93109, *et seq*).

[2]This Equipment may also be subject to AQMD Rule 1102 – Dry Cleaners Using Solvent Other Than Perchloroethylene.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Dryer – Kiln

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All[1] | | Compliance with Rule 1147 (2-1-2019) | Natural Gas (1988) | | Natural Gas (1988) | |

[1]Does not include digester gas or landfill gas fired units

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-2-2018 Rev. 1
2-1-2019 Rev. 2

Equipment or Process: Dryer or Oven

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Carpet Oven | | 30 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas (1990) | |
| Rotary, Spray and Flash Dryers[1)] | | Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Baghouse (1990) | |
| Tray, Agitated Pan, and Rotary Vacuum Dryers | | Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas (1990) | |
| Tenter Frame Fabric Dryer | | 30 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (10-20-2000) | | Natural Gas (10-20-2000) | |
| Other Dryers and Ovens – Direct and Indirect Fired[2,3] | | 30 ppmvd corrected to 3% $O_2$ (04-10-98) | Natural Gas (10-20-2000) | | Natural Gas (10-20-2000) | |

1. Dryers for foodstuff, pharmaceuticals, aggregate & chemicals.
2. Does not include food or bakery ovens. See listing for "Food Oven."
3. Does not include digester gas or landfill gas units.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Electric Furnace – Pyrolyzing, Carbonizing and Graphitizing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (1988) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Electrical Wire Reclamation – Insulation Burn-Off Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F); Or Secondary Combustion Chamber (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988) | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse and:<br>- Afterburner ((≥ 0.3 Second Retention Time at ≥ 1400 °F) or<br>- Secondary Combustion Chamber (≥ 0.3 Second Retention Time at ≥ 1400 °F)<br>(1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Ethylene Oxide Sterilization

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Aeration | Recirculation Vacuum Pump-Seal Fluid with Fluid Reservoir Vented to: Chemical Scrubber; or Afterburner (≥ 0.3 second retention time at ≥ 1,400°F); or Catalytic Afterburner (at ≥ 280°F) (07-11-97) | | | | | |
| Quarantine Storage | Unvented Enclosure with Internal Circulation Through Activated Carbon Impregnated with Sulfuric Acid (1989) | | | | | |

Note: Ethylene Oxide Sterilization may also be Subject to 40 CFR 63, Subpart O – Emission Standards for Ethylene Oxide Sterilization Facilities.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Expanded Polystyrene Manufacturing Using Blowing Agent

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | For VOC Emissions: Incineration (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) (1990) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fatty Acid – Fat Hydrolyzing and Fractionation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Condenser or Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1300 °F) (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Fatty Alcohol

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 second retention time at ≥ 1,400°F) (07-11-97) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-5-2021 Rev. 2

Equipment or Process: Fermentation, Beer and Wine

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All Closed Systems | Carbon Adsorber (10-20-2000) | | | | | |
| All Open Systems | Scrubber with Approved Liquid Waste Disposal (10-20-2000) | | | | | |
| Wine Fermentation Tanks: Closed-Top ≤ 30,000 gallons capacity of each tank in system (2-5-2021) | Water Scrubber or Chiller Condenser with 67.0% combined capture and control efficiency averaged over length of fermentation season (mass balance basis) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Fiberglass Operations

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Fabrication – Hand and Spray Layup | Compliance with SCAQMDRule 1162 (10-20-2000) | | | | Airless Spray Equipment and Spray Booth with Mesh Type Filter (1988) | |
| Panel Manufacturing | Curing Oven, Impregnation Tables and Mixing Tanks Vented to an Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 °F). Storage and Holding Tanks Vented to a Carbon Adsorber (1988) | Natural Gas Fired Curing Oven, Electrically Heated Cellophane Oven and Laminating Table (1988) | Natural Gas (10-20-2000) | | Natural Gas Fired Curing Ovens, Cellophane Ovens Vented to an Electrostatic Precipitator and Panel Cutting Saw Vented to Baghouse (1988) | |
| Pultrusion | Styrene Suppressed Resin (1988), and Compliance with SCAQMDRule 1162 (10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev. 1
2-5-2021 Rev. 2

Equipment or Process: Fish Reduction

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Cooker | Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1988) | ~~Compliance with Rule 1147 (2-1-2019)~~ | | | | |
| Digestor, Evaporator and Acidulation Tank | Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990) | ~~Compliance with Rule 1147 (2-1-2019)~~ | | | Natural Gas with Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990) | |
| Dryer | Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1990) | ~~Compliance with Rule 1147 (2-1-2019)~~ | | | Natural Gas and Scrubber with Chlorinated Solution (≤ 20 ppmv $Cl^-$ Outlet Conc., ≥ 0.6 Sec. Retention Time and ≤ 200 °F Outlet Temp.) (1990) | |
| Meal Handling[1] | | | | | | |
| Rendering – Presses, Centrifuges, Separators, Tanks, Etc. | Water Condenser and Vent to Dryer Firebox (1988) | | | | | |

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1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic ~~SCAQMD~~South Coast AQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-5-2021 Rev. 2

Equipment or Process: Flare

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Digester Gas or Landfill Gas from Non-Hazardous Waste Landfill | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988) Compliance with Rule 1118.1 (Landfill gas only) (2-5-2021) | 0.06 lbs/MM Btu (1988) Compliance with Rule 1118.1. (2-5-2021) | | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, and Auto Combustion Air Control (1988) Compliance with Rule 1118.1 (Landfill gas only) (2-5-2021) | Knockout Vessel (1988) | |
| Landfill Gas from Hazardous Waste Landfill | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988) Compliance with Rule 1118.1 | 0.06 lbs/MM Btu ~~(1988)~~(2020) Compliance with Rule 1118.1 (2-5-2021) | | Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, and Auto Combustion Air Control (1988) Compliance with Rule 1118.1 (2-5-2021) | Knockout Vessel (1988) | |
| Produced Gas (2-5-2021) | Compliance with Rule 1118.1 | Compliance with Rule 1118.1 | | Compliance with Rule 1118.1 | | |
| Organic Liquid Storage (2-5-2021) | | Compliance with Rule 1118.1 | | Compliance with Rule 1118.1 | | |
| Organic Liquid Loading (2-5-2021) | | Compliance with Rule 1118.1 | | Compliance with Rule 1118.1 | | |
| Other Flare Gas (2-5-2021) | | Compliance with Rule 1118.1 | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Flow Coater, Dip Tank and Roller Coater

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| < 36 lbs/day VOC | Compliance with Regulation XI (10-20-2000) | | | | | |
| ≥ 36 lbs/day VOC | Coating with Lower VOC Content than Required by Applicable Rules, and Emissions from Coating Area, Flash Off Area, Drying Area, and Oven Vented to Control Device Achieving ≥ 90% Overall Efficiency (1988)<br><br>Or Super Compliant Materials with ≤ 5% VOC by Weight (10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Equipment or Process: Food Oven

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory[1]** | **Rating/ Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Ribbon Burner | > 500°F | | 60 ppmvd @ 3% $O_2$ (2-2-2018) | Natural Gas (2-2-2018) | Compliance with applicable ~~SCAQMD~~Rules 407 or 1153.1(2-2-2018) | Natural Gas (2-2-2018) | |
| | ≤ 500°F | | 30 ppmvd @ 3% $O_2$ (2-2-2018) | Same as above | Same as above | Same as above | |
| Other Direct Fired Burner | | | 30 ppmvd @ 3% $O_2$ (2-2-2018) | | | | |
| Infrared Burner | | | 30 ppmvd @ 3% $O_2$ (2-2-2018) | | | | |
| Add-on Control for Bakery Oven processing yeast leavened products with emissions ≥ 30 lb VOC/day | | Catalytic oxidizer with 95% overall control efficiency (mass basis); catalyst inlet temperature ≥ 600°F; ceramic prefilter (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1147 at the time of applicability (2-2-2018) | | | | |

[1]Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Foundry Sand Mold – Cold Cure Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | Packed Column Scrubber with pH of Solution Maintained at a Minimum of 8.0 (1988) | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Fryer – Deep Fat

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Integrated Afterburner/Oil Heater < 2 MM Btu/hr | ≥ 0.3 Sec. Retention Time at ≥ 1400 °F (2-1-2019) | Natural Gas (1990) | Natural Gas (1990) | | ≥ 0.3 Sec. Retention Time at ≥ 1400 °F | |
| Integrated Afterburner/Oil Heater ≥ 2 MM Btu/hr | ≥ 0.3 Sec. Retention Time at ≥ 1400 °F (2-1-2019) | Natural Gas (1990) | Natural Gas (1990) | | ≥ 0.3 Sec. Retention Time at ≥ 1400 °F, and Electrostatic Precipitator or High Efficiency Mist Eliminator (10-20-2000) (2-1-2019) | |
| Non-Integrated Direct and In-Direct Oil Heater (Steam, Thermal Fluid Heater and burner exhaust gases) | | 60 ppm Compliance with ~~SCAQMD~~Rule 1147 (2-1-2019) | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Fugitive Emission Sources at Natural Gas Plants and Oil and Gas Production Fields

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Centrifugal Type | Seal System with a Higher Pressure Barrier Fluid (04-10-98); and Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Compressors, Rotary Type | Enclosed Seal System Connected to Closed Vent System (04-10-98); and Compliance with ~~SCAQMD~~Rule 1173 | | | | | |
| Pressure Relief Valves | Connected to Closed Vent System or Equipped with Rupture Disc if Applicable (4-10-98); and Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Pumps – In Heavy Liquid Service | Single Mechanical (4-10-1998); and Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Pumps – In Light Liquid Service | Sealless Type if Available and Compatible; or Double or Tandem Seals, and Vented to Closed Vent System (4-10-98); and Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Sampling Connections | Closed-Purge, Closed-Loop, or Closed-Vent System (4-10-98); and Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Valves, Fittings, Diaphragms, Hatches, Sight-Glasses, Open-Ended Pipes and Meters in VOC Service | Compliance with ~~SCAQMD~~Rule 1173 (12-5-2003) | | | | | |
| Compressors, Centrifugal Type | Seal System with a Higher Pressure Barrier Fluid; < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0; 12-5-2003 Rev. 1

Equipment or Process: Fugitive Emission Sources at Organic Liquid Bulk Loading Facilities

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Rotary Type | Enclosed Seal System Connected to Closed Vent System; < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |
| Connectors[2)] in Gas, Vapor or Light Liquid VOC Service | < 500 ppmv by USEPA Method 21 with Quarterly I&M Program[1)] (04-10-98) | | | | | |
| Open Ended Valves and Pipes | Compliance with ~~SCAQMD~~Rule 1173 where Applicable (10-20-2000) | | | | | |
| Pressure Relief Valves | Connected to Closed Vent System or Equipped with Rupture Disc if Applicable (4-10-98); and Compliance with AQMD Rule 1173 (10-20-2000) | | | | | |
| Process Valves – Gate, Globe and Ball | Compliance with AQMD Rule 1173, where Applicable (10-20-2000) | | | | | |
| Pumps – In Heavy Liquid Service | Single Mechanical; < 1000 ppmv by USEPA Method 21 with Quarterly I&M (4-10-1998) | | | | | |
| Pumps – In Light Liquid Service | 1. Sealless Type if Available and Compatible, or<br>2. Double or Tandem Seals and Vented to Closed Vent System; < 1000 ppmv by USEPA Method 21 with Approved ~~SCAQMD~~South Coast AQMD I&M; <1000 ppmv by USEPA Method 21 with Approved ~~SCAQMD~~South Coast AQMD I&M (4-10-98) | | | | | |
| Sampling Connections | Closed-Purge, Closed-Loop, or Closed-Vent System (4-10-98) | | | | | |

1) Quarterly I&M shall be consistent with ~~SCAQMD~~Rule 1173 and other applicable requirements except that leaks between 500 and 1000 ppmv must be repaired within 14 days after detection.
2) Connectors include flanges, screwed or other joined fittings

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Fugitive Emission Sources, Other Facilities

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| Compressors, Fittings, Open Ended Pipes, Pressure Relief Devices, , Valves, Pumps, Sampling Connections, Diaphragms, Hatches, Sight-Glasses and Meters in VOC Service | Compliance with Rule 1173, where Applicable by Rule (12-5-2003) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Galvanizing Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Batch Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Baghouse with Lime Coating (1988) | |
| Continuous Sheet Metal Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Packed Column Scrubber Serving the Caustic, Acid Pickling Tanks and/or Metal Preparation Tanks (1988, 2000) | |
| Continuous Wire Operations | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (1988) | | Natural Gas with Noncombustible Covering on Molten Metal Surface, Baghouse, and Packed Column Scrubber Serving the Metal Preparation Tanks (1988, 2000) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Garnetting Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse or Rotary Drum Filter (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-3-2004 Rev. 1

Equipment or Process: Gas Turbine

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas Fired, < 3 MWe | | 9 ppmvd @ 15% $O_2$ (10-20-2000) | | 10 ppmvd @ 15% $O_2$ (10-20-2000) | | With Add-On Controls: 9 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Natural Gas Fired, ≥ 3 MWe and < 50 MWe | | 2.5 ppmvd @ 15% $O_2$ x efficiency (%)[1)] / 34% (6-12-98) | | 10 ppmvd @ 15% $O_2$ (6-12-98) | | With Add-On Controls: 5.0 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Natural Gas Fired, ≥ 50 MWe | 2.0 ppmvd (as methane) @ 15% $O_2$, 1-hour avg. OR 0.0027 lbs/MMBtu (higher heating value) (10-20-2000) | 2.5 ppmvd @ 15% $O_2$, 1-hour rolling avg. OR 2.0 ppmvd @ 15 %$O_2$, 3-hour rolling avg. x efficiency (%)[1)] / 34% (10-20-2000) | | 6.0 ppmvd @ 15% $O_2$, 3-hour rolling avg. (10-20-2000) | | With Add-On Controls: 5.0 ppmvd ammonia @ 15% $O_2$ (10-20-2000) |
| Emergency | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | | | | | |
|---|---|---|---|---|---|---|
| Landfill or Digester Gas Fired | | 25 ppmv, dry, corrected to 15 $\%O_2$ (1990) | Compliance with Rule 431.1 (10-20-2000) | 130 ppmv, dry, corrected to 15 $\%O_2$ (10-20-2000) | Fuel Gas Treatment for Particulate Removal (1990) | |

Notes: 1) The turbine efficiency correction for NOx is limited to 1.0 as a minimum. The turbine efficiency is the demonstrated percent efficiency at full load (corrected to the higher heating value of the fuel) without consideration of any downstream heat recovery (12-3-2004).

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Glass Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Decorator Glass | | Natural Gas with Low NOx Burner (10-20-2000); Cullet in Raw Material Charged > 80% (1988) | | | Baghouse (10-20-2000) | |
| Flat Glass | | Natural Gas with Heating Modifications:<br>- Excess Oxygen in Ports < 5%<br>- Cullet in Raw Material Charged > 15%<br>- Hot Spot Temperature < 2,700 °F<br>(1988) | Process Modification: Sulfur Content of Batch Charged < 0.25% by Weight of Total Batch (1988) | | Baghouse (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-5-2021 Rev. 0

Equipment or Process: Glass Screen Printing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Flat Glass | Compliance with Rule 1145 or use of Rule 1145 compliant UV/EB or water-based coatings | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Incinerator – Hazardous Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Automatic Combustion Air Control, ≥ 2 Sec. Retention Time and ≥ 1800 °F (1988) | Natural Gas Supplemental Fuel with Selective Non-catalytic Reduction (1988) | Natural Gas Supplemental Fuel and Spray Dryer with Lime Injection (1988) | Automatic Combustion Air Control, ≥ 2 Sec. Retention Time and ≥ 1800 °F (1988) | 0.002 gr/dscf at 12% $CO_2$ (1988) | |

Note: The equipment may also be subject to 40 CFR 264, Subpart O--Incinerators

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Incinerator – Infectious Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| ≤ 300 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Natural Gas as Auxiliary Fuel (1988) | Natural Gas as Auxiliary Fuel with Wet Scrubber (1988) | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | | |
| > 300 lbs/hr | Same as Above | Same as Above | Same as Above | Same as Above | 0.04 gr/dscf Corrected to 12% $CO_2$, with Enclosed Automatic Feed and Ash Removal System (1988) | |

Note: The equipment may also be subject to 40 CFR 60, Subpart Ec--Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction Is Commenced After June 20, 1996

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-9-2004 Rev. 1

Equipment or Process: Incinerator – Non-Infectious, Non-Hazardous Waste

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| ≤ 300 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1600 °F} (1988) | Natural Gas as Auxiliary Fuel (1988) | Natural Gas as Auxiliary Fuel with Wet Scrubber (1988) | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1600 °F) (1988) | Natural Gas as Auxiliary Fuel with Enclosed Automatic Feed and Fly ash Removal System (1988) | |
| > 300 lbs/hr and < 750 lbs/hr | Same as Above | Same as Above | Same as Above | Same as Above | 0.04 gr/dscf Corrected to 12% $CO_2$, with Enclosed Automatic Feed and Ash Removal System (1988) | |
| ≥ 750 lbs/hr | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Same as Above | Same as Above | Multiple Chamber Starved Air Design (≥ 0.5 Sec. Retention Time at ≥ 1800 °F) (1988) | Same as Above | |

Note: The equipment may also be subject to 40 CFR 60, Subpart CCCC--Standards of Performance for New Stationary Sources: Commercial and Industrial Solid Waste Incineration Units.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
6-6-2003 Rev. 1
7-14-2006 Rev. 21
12-02-2016 Rev. 32
2-2-2018 Rev. 43

Equipment or Process: I.C. Engine, Portable [1]

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| Compression-Ignition[3] | 50 ≤ HP < 75 | | | Tier 4 Final: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (12-02-2016) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003) | Tier 4 Final: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (12-02-2016) | Tier 4 Final: 0.03 grams/kW-hr (0.02 grams/bhp-hr) and CARB ATCM for portable diesel engines[4] (12-02-2016) |
| | 75≤ HP < 175 | | Tier 4 Final: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (2-2-2018) | Tier 4 Final: NMHC only: 0.19 grams/kW-hr (0.14 grams/bhp-hr) (2-2-2018) | | Tier 4 Final: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (2-2-2018) | Tier 4 Final: 0.02 grams/kW-hr (0.01 grams/bhp-hr) and CARB ATCM for portable diesel engines[4] (2-2-2018) |
| | 175 ≤ HP < 750 | | Tier 4 Final: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (12-02-2016) | Tier 4 Final: NMHC only: 0.19 grams/kW-hr (0.14 grams/bhp-hr) (12-02-2016) | | Tier 4 Final: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (12-02-2016) | Tier 4 Final: 0.02 grams/kW-hr (0.01 grams/bhp-hr) and CARB ATCM for portable diesel engines[4] (12-02-2016) |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Compression-Ignition[3]* | *≥750 HP [5]* | | *Tier 4 Interim:* ***For Generator Sets > 1200 HP:*** *0.67 grams/kW-hr (0.50 grams/bhp-hr)* ***For All Engines Except "Generator Sets > 1200 HP":*** *3.5 grams/kW-hr (2.6 grams/bhp-hr) (12-02-2016)* | *Tier 4 Interim: NMHC only: 0.4 grams/kW-hr (0.30 grams/bhp-hr) (12-02-2016)* | *Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)* | *Tier 4 Interim: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (12-02-2016)* | *Tier 4 Interim: 0.10 grams/kW-hr (0.07 grams/bhp-hr)and CARB ATCM for portable diesel engines[4] (12-02-2016)* |
| Spark Ignition | All | 1.5 grams/bhp-hr, or 240 ppmvd as methane @ 15% O2 (4-10-1998) | 1.5 grams/bhp-hr, or 80 ppmvd @ 15% O2 (4-10-1998) | | | 2.0 grams/bhp-hr, or 176 ppmvd @ 15% O2 (4-10-1998) | |

Notes:

1) BACT for "I.C. Engine, Portable" is determined by deemed complete date of permit application not date of manufacture or installation.
2) NMHC + NOx means the sum of non-methane hydrocarbons and oxides of nitrogen emissions, unless specified as "NMHC only", which only includes NMHC emissions.
3) The engine must be certified by U.S. EPA or CARB to meet the Tier 4 emission requirements of 40 CFR Part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table– or otherwise demonstrate that it meets the Tier 4 emission limits. If, because of the averaging, banking, and trading program, there is no new engine from any manufacturer that meets the above standards, then the engine must meet the family emission limits established by the manufacturer and approved by U.S. EPA. Based on the model year, the CARB Airborne Toxic Control Measure (ATCM) for Portable Diesel Engines (see www.arb.ca.gov/diesel/peatcm/peatcm.htm) requires in-use portable

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

diesel engines to be certified to Tier 1, 2, 3 or 4 by their respective deadlines, all of which have passed. All exceptions allowed in the ATCM are also allowed in this guideline.

4) The CARB ATCM also requires in-use portable diesel engines to meet fleet-average PM standards beginning 1/1/2013. The PM limits in the table apply only to filterable PM.
5) CARB has extended the Tier 4 Final requirements deadline "until further notice" for Portable, Compression-Ignition Engines for HP ≥ 750.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
6-6-2003 Rev. 1
12-3-2004 Rev. 2
7-14-2006 Rev. 3
10-3-2008 Rev. 4
12-2-2016 Rev. 5
2-1-2019 Rev.6

Equipment or Process: I.C. Engine, Stationary, Emergency [1]

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| Compression Ignition, Fire Pump [3, 4] | 50 ≤ HP < 100 | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (~~SCAQMD~~Rule 431.2). (6-6-2003) | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470 (12-3-2004)<br><br>Tier 3:<br>0.40 grams/kW-hr (0.30 grams/bhp-hr) (10-03-2008) |
| | 100 ≤ HP < 175 | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008) | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470 (12-3-2004)<br><br>Tier 3:<br>0.30 grams/kW-hr (0.22 grams/bhp-hr) (10-03-2008) |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| Compression Ignition, Fire Pump [3, 4] (continued) | 175 ≤ HP < 750 | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>4.0 grams/kW-hr (3.0 grams/bhp-hr): (10-03-2008) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (~~SCAQMD~~Rule 431.2). (6-6-2003) | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470 (12-3-2004)<br><br>Tier 3:<br>0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| | ≥750 HP | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 2:<br>6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008) | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 2:<br>3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 2:<br>0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| Compression-Ignition, Other[3, 4] | 50 ≤ HP < 100 | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016)<br><br>Tier 3:<br>5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470 (12-3-2004)<br><br>Tier 3:<br>0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) |
| Compression-Ignition, Other[3, 4] (continued) | 100 ≤ HP < 175 | | | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016) | Diesel fuel with a sulfur content no greater than 0.0015% by | Compliance with ~~SCAQMD~~Rule 1470 (12-02-2016) | Compliance with ~~SCAQMD~~Rule 1470 (12-3-2004) |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| | | | | Tier 3:<br>4.0 grams/kW-hr<br>(3.0 grams/bhp-hr)<br>(10-03-2008) | weight (Rule 431.2).<br>(6-6-2003) | Tier 3:<br>5.0 grams/kW-hr<br>(3.7 grams/bhp-hr)<br>(10-03-2008) | Tier 3:<br>0.20 grams/kW-hr<br>(0.15 grams/bhp-hr)<br>(2-01-2019) |
| | 175≤ HP < 300 | | | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 3:<br>4.0 grams/kW-hr<br>(3.0 grams/bhp-hr)<br>(10-03-2008) | | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 3:<br>3.5 grams/kW-hr<br>(2.6 grams/bhp-hr)<br>(10-03-2008) | Compliance with ~~SCAQMD~~Rule 1470<br>(12-3-2004)<br><br>Tier 3:<br>0.20 grams/kW-hr<br>(0.15 grams/bhp-hr)<br>(10-03-2008) |
| | 300≤ HP < 750 | | | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 3:<br>4.0 grams/kW-hr<br>(3.0 grams/bhp-hr)<br>(7-14-2006) | | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 3:<br>3.5 grams/kW-hr<br>(2.6 grams/bhp-hr) (7-14-2006) | Compliance with ~~SCAQMD~~Rule 1470<br>(12-3-2004)<br><br>Tier 3:<br>0.20 grams/kW-hr<br>(0.15 grams/bhp-hr)<br>(7-14-2006) |
| Compression-Ignition, Other[3, 4] (continued) | ≥750 HP | | | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 2:<br>6.4 grams/kW-hr<br>(4.8 grams/bhp-hr) | Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2).<br>(6-6-2003) | Compliance with ~~SCAQMD~~Rule 1470<br>(12-02-2016)<br><br>Tier 2:<br>3.5 grams/kW-hr | Compliance with ~~SCAQMD~~Rule 1470<br>(12-3-2004)<br><br>Tier 2:<br>0.20 grams/kW-hr |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

| | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| **Subcategory** | **Rating/Size** | **NMHC or VOC** | **NOx** | **NOx + NMHC[2]** | **SOx** | **CO** | **PM** |
| | | | | (10-03-2008) | | (2.6 grams/bhp-hr) (10-03-2008) | (0.15 grams/bhp-hr) (10-03-2008) |
| Spark Ignition[5] | < 130 HP | VOC: 1.5 grams/bhp-hr (10-20-2000) | 1.5 grams/bhp-hr (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | 2.0 grams/bhp-hr (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) |
| | ≥ 130 HP | VOC: 1.0 grams/bhp-hr[6] (12-02-2016) | 1.5 grams/bhp-hr (10-20-2000) | | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) | 2.0 grams/bhp-hr (10-20-2000) | See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000) |

1) An emergency engine is an engine which operates as a temporary replacement for primary mechanical or electrical power sources during periods of fuel or energy shortage or while a primary power source is under repair. This includes fire pumps, emergency electrical generation and other emergency uses.

2) NMHC + NOx means the sum of non-methane hydrocarbons and oxides of nitrogen emissions.

3) ~~SCAQMD~~South Coast AQMD restricts operation of emergency compression-ignition engines to 50 hours per year, or less if required by Rule 1470, for maintenance and testing and a maximum of 200 hours per year total operation. For engines used to drive standby generators, operation beyond 50 hours per year for maintenance and testing is allowed only in the event of a loss of grid power or up to 30 minutes prior to a rotating outage provided that the electrical grid operator or electric utility has ordered rotating outages in the control area where the engine is located or has indicated that it expects to issue such an order at a certain time, and the engine is located in a control area that is subject to the rotating outage.

4) The engine must be certified by U.S. EPA or CARB to meet the Tier 1, 2 or 3 emission requirements of 40 CFR Part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table– or otherwise demonstrate that it meets the Tier 1, 2 or 3 emission limits. If, because of the averaging, banking, and trading program, there is no new engine from any manufacturer that meets the above standards,

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

then the engine must meet the family emission limits established by the manufacturer and approved by U.S. EPA. The PM limits apply only to filterable PM.

5) ~~SCAQMD~~South Coast AQMD restricts operation of emergency spark-ignition engines to 50 hours per year for maintenance and testing and a maximum of 200 hours per year total operation. Emergency spark-ignition engines may be used in a Demand Response Program, however the engine will require additional evaluation and may be subject to more stringent regulatory requirements. Since some requirements are based upon the California Airborne Toxic Control Measure for Stationary Compression Ignition Engines, applicants are referred to Title 17, Section 93115.3 of the California Code of Regulations for possible exemptions.

6) VOC limit is based on the requirement listed in Table 1 of 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-02-2016 Rev. 0
2-2-2018 Rev. 1

Equipment or Process: I.C. Engine, Stationary, Non-Emergency, Non-Electrical Generators

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| > 50 bhp | Compliance with ~~SCAQMD~~Rule 1110.2 (12-02-2016) | Compliance with ~~SCAQMD~~Rule 1110.2 (12-02-2016) | See Clean Fuels Policy in Part C of the BACT Guidelines (12-02-2016) | Compliance with ~~SCAQMD~~Rule 1110.2 (12-02-2016) | See Clean Fuels Policy in Part C of the BACT Guidelines (12-02-2016) Compliance with Rule 1470 (12-02-2016) | |
| Landfill or Digester Gas Fired[1] | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 431.1 (12-02-2016) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | | |

1) For the adoption of this new listing, the requirements for this subcategory were transferred directly from the existing requirements under "I.C. Engine, Stationary, Non-Emergency." The requirements are not new, but the date listed was updated to reflect the date of adoption of the new listing.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-2-2018 Rev. 0

Equipment or Process: I.C. Engine, Stationary, Non-Emergency, Electrical Generators [1]

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **PM10** | **Inorganic** |
| > 50 bhp | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | See Clean Fuels Policy in Part C of the BACT Guidelines (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | See Clean Fuels Policy in Part C of the BACT Guidelines (2-2-2018) Compliance with Rule 1470 (2-2-2018) | |
| Landfill or Digester Gas Fired | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 431.1 (2-2-2018) | Compliance with ~~SCAQMD~~Rule 1110.2 (2-2-2018) | | |

1) This BACT listing was adapted from the previous "I.C. Engine, Stationary, Non-Emergency," Part D BACT listing.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Jet Engine Test Facility

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Experimental High Altitude Testing | | | | | Venturi Scrubber with Water Spray in Exhaust (1988) | |
| Experimental Sea Level (Low Altitude) Testing[1] | | | | | | |
| Performance Testing[1] | | | | | | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic ~~SCAQMD~~South Coast AQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Landfill Gas Gathering System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with ~~SCAQMD~~Rule 1150.1 - Control of Gaseous Emissions from Municipal Solid Waste Landfills (10-20-2000) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Latex Manufacturing - Reaction

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Catalytic Incinerator and Caustic Scrubber (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev. 1

Equipment or Process: Lead Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Pot or Crucible, Non-Refining Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas and Melt only Sows, Pigs, Ingots or Clean Scrap (1990) | |
| Pot or Crucible, Refining Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas with Scrubber; or Natural Gas with Sulfur Free Refining Agents (1990) | | Natural Gas with Baghouse (1990) | |
| Reverberatory, Secondary Melting Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas with Scrubber (1990) | | Natural Gas with Baghouse (1990) | |

Note: Some secondary lead smelting operations must also comply with the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 63, Subpart X.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Lead Oxide Manufacturing – Reaction Pot Barton Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-02-2016 Rev.1

Equipment or Process: Liquid Transfer and Handling

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Marine, Loading | For VOC Emissions: Vapor Collection System Vented to Incinerator (1990) | | | | | |
| Tank Truck and Rail Car Bulk Loading, Class A (~~SCAQMD~~Rule 462) | Compliance with ~~SCAQMD~~Rule 462 (0.08 Lbs/1000 Gals) (10-20-2000) | | | | | For Ammonia: Bottom Loading with Vapor Collection System Vented to Packed Column Scrubber (10-20-2000) |
| Tank Truck and Rail Car Bulk Loading, Classes B and C (~~SCAQMD~~Rule 462) | Bottom Loading with Vapor Collection System Vented to:<br>- Incinerator; or<br>- Compression/absorption with Tail Gas Vented to Incinerator; or<br>- Refrigeration System; or<br>- Carbon Adsorption system<br>and Compliance with ~~SCAQMD~~Rule 462 (10-20-2000) | | | | | Same as Above |
| Gasoline Transfer and Dispensing | Compliance with Rule 461 (12-02-2016) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Metal Heating Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner ≤ 50 ppmvd at 3% $O_2$, dry. (10-20-2000) | Natural Gas (1990) | | | Natural Gas (1990) |

Note: This category includes metal aging, annealing, forging, heat treating, and homogenizing.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Metallizing Spray Gun

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Water Wash Spray Booth or Scrubber (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Mixer, Blender or Mill

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Dry | | | | | Baghouse (07-11-97) | |
| Wet | Carbon Adsorber; or Refrigerated Condenser; or Afterburner (VOC Emissions Only); or Vapor Recovery (07-11-97) | | | | Baghouse if Dry Ingredients are Added (07-11-97) | Packed Column Scrubber (07-11-97) |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Nitric Acid Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Catalytic Reduction Furnace (07-11-97) | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Non-Metallic Mineral Processing – Except Rock or Aggregate

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse for Enclosed Operations<br><br>Water Fog Spray for Open Operations (1988) | |

Notes:
1. Non-metallic Minerals are minerals such as rock salt, sodium compounds, pumice, gilsonite, talc and pyrophyllite, boron, barite, fluorspar, feldspar, diatomite, perlite, vermiculite, mica, carbon black, silicon and kyanite.
2. This category includes conveying, size reduction and classification.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Nut Roasting

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Roaster | | Natural Gas (1988) | | | Afterburner (≥ 0.3 second Retention Time at ≥ 1,400°F) (10-20-2000) | |
| Handling Equipment | | | | | Baghouse (10-20-2000) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-02-2016 Rev. 1

Equipment or Process: Oil and Gas Production

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Combined Tankage | All Tanks Vented to:<br>- Vacuum Gas Gathering System; or<br>- Positive Pressure Gas Gathering System; or<br>- Incinerator or Firebox (1988)<br><br>Compliance with ~~SCAQMD~~Rules 1148 and 1148.1 (12-02-2016) | | | | | |
| Wellhead | All Wellheads Vented to:<br>- Vacuum Gas Gathering System; or<br>- Positive Pressure Gas Gathering System; or<br>- Incinerator or Firebox (10-20-2000)<br>Compliance with ~~SCAQMD~~Rules 1148 and 1148.1 (12-02-2016) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-5-2021 Rev. 1

Equipment or Process: Open Process Tanks: Chemical Milling (Etching) and Plating

| Subcategory/ Rating/Size | | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|---|
| | | VOC | NOx | SOx | CO | $PM_{10}$ | Inorganic |
| Plating | Decorative Chrome | | | | | ~~Packed Scrubber and Mist Suppressant (1988)~~ (10-20-2000) Compliance with Rule 1469 (2-5-2021) | |
| | Hard Chrome | | | | | ~~Packed Scrubber and Mist Suppressant (1988)~~ (10-20-2000) Compliance with Rule 1469 (2-5-2021) | |

1) At the date of the last revision for this category, there was no Achieved In Practice BACT Determination for this subcategory. Technologically Feasible options listed in historic South Coast AQMD BACT Guidelines for this subcategory require cost effective analyses before they can be listed in these current Guidelines.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

Equipment or Process: Open Spraying – Spray Gun**

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with Regulation XI (10-20-2000) | | | | Compliance with Regulation XI (10-20-2000)* | |

** The open spraying must be conducted in a spray booth where feasible.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Perlite Manufacturing System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low NOx Burner (10-20-2000) | Natural Gas (10-20-2000) | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
7-9-2004 Rev. 1

Equipment or Process: Pharmaceutical Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Operations Involving Solvents | Afterburner (≥0.3 second Retention Time at ≥1,400°F), Refrigerated Condenser, or Carbon Adsorber (07-11-97) | | | | | |
| Solids Handling | | | | | Baghouse (07-11-97) | |
| Solids Storage Tanks | | | | | Baghouse or Vent Filter (07-11-97) | |

Note: This equipment may also be subject to ~~SCAQMD~~Rule 1103 and 40 CFR 63 Subpart GGG – National Emission Standards Pharmaceuticals Production. (7-9-2004)

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Phosphoric Acid - Thermal Process

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Fiber Mist Filter, Electrostatic Precipitator, or Packed Scrubber with Mist Eliminator (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Phthalic Anhydride

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Afterburner (≥0.3 Second Retention Time at ≥1,400°F) or Water Cooled Condenser (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Plasma Arc Metal Cutting Torch

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| > 30 KVA Electrical Input | | | | | Water Table and Nozzle Water Shroud; or Electrostatic Precipitator (1988) | |

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~~Equipment or Process:~~ ~~Polyester Resin Operations - Molding and Casting~~

| | ~~Criteria Pollutants~~ | | | | | |
|---|---|---|---|---|---|---|
| ~~Rating/Size~~ | ~~VOC~~ | ~~NOx~~ | ~~SOx~~ | ~~CO~~ | ~~$PM_{10}$~~ | ~~Inorganic~~ |
| ~~All~~ | ~~Compliance with SCAQMD's Rule 1162 and Use of Aqueous Emulsion Cleaner or Acetone for Clean-Up to Maximum Extent Possible (1988/10-20-2000)~~ | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-5-2021 Rev. 11

Equipment or Process: Polyester Resin Operations

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Fabrication – Hand and Spray Layup | Compliance with Rule 1162 (10-20-2000) | | | | Airless Spray Equipment and Spray Booth with Mesh Type Filter (1988) | |
| Molding and Casting | Compliance with Rule 1162 and Use of Aqueous Emulsion Cleaner or Acetone for Clean-Up to Maximum Extent Possible (1988/10-20-2000) | | | | | |
| Panel Manufacturing | Curing Oven, Impregnation Tables and Mixing Tanks Vented to an Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 °F). Storage and Holding Tanks Vented to a Carbon Adsorber (1988) | Natural Gas Fired Curing Oven, Electrically Heated Cellophane Oven and Laminating Table (1988) | Natural Gas (10-20-2000) | | Natural Gas Fired Curing Ovens, Cellophane Ovens Vented to an Electrostatic Precipitator and Panel Cutting Saw Vented to Baghouse (1988) | |
| Pultrusion | Styrene Suppressed Resin (1988), and Compliance with Rule 1162 (10-20-2000) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
Equipment or Process: Polystyrene Extruder

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Electrostatic Precipitator or Fiber Mist Filter (07-11-97) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Polystyrene Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Water Cooled Condenser (07-11-97) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-5-2021 Rev. 1

Equipment or Process: Powder Coating Booth

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| ~~<~~≤ 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)~~<br>1. Baghouse (≥99%); or<br>2. Cartridge Filters (≥99%); or<br>3. HEPA Filters (≥99.97%)<br>(1988/10-20-2000) (2-5-2021) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Precious Metal Reclamation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Incineration | | Natural Gas (1988) | Natural Gas (1988) | | Natural Gas with Baghouse and: - Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or -Secondary Combustion Chamber (≥ 0.3 sec. Retention Time at ≥ 1400° F) (1988) | |
| Chemical Recovery and Chemical Reactions | | 3-Stage NOx Reduction Scrubber (07-11-97) | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1
7-14-2006 Rev 2
2-2-2018 Rev 3
2-1-2019 Rev 4

Equipment or Process: Printing (Graphic Arts)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Flexographic | Inks with ≤ 1.5 Lbs VOC/Gal, Less Water and Less Exempt Compounds (1990); or use of UV/EB or water-based inks/coatings ≤ 180 g VOC/L. Compliance with ~~SCAQMD~~Rules 1130 and 1171 (2-2-2018) | | | | | |
| ~~Control~~Alternatively | For add-on control required by ~~SCAQMD~~Rule 1130(c)(5) or other South Coast AQMD~~District~~ requirement: EPA M. 204 Permanent Total Enclosure (100% collection) vented to ~~afterburner~~ thermal oxidizer with 95% overall control efficiency; Combustion Chamber: Temp ≥ 1500°F[1], Retention Time > 0.3 seconds (2-2-2018) | Compliance with ~~SCAQMD Rule 1147 at time of applicability (2-2-2018)~~Thermal Oxidizer BACT requirements | | Compliance with Thermal Oxidizer BACT requirements | | |
| Letterpress | Compliance with ~~SCAQMD~~Rules 1130 and 1171 (12-5-2003) | | | | | |
| 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) | Compliance with Thermal Oxidizer BACT requirements | | Compliance with Thermal Oxidizer BACT | Venting to ~~an afterburner~~a thermal oxidizer (≥ 0.3 sec. Retention Time at ≥ 1400 $^0$F) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| | | | | requirements | (10-20-2000) (2-1-2019) | |
| ~~Control~~ | ~~Oven Venting to an Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400 $^0$F; 95% Overall Efficiency) (10-20-2000)~~ | ~~Compliance with SCAQMD Rule 1147~~ | | | | |
| Lithographic or Offset, Non-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. (2-1-2019) | | | | | |
| Rotogravure or Gravure—Publication and Packaging | Compliance with ~~SCAQMD~~Rules 1130 and 1171 (10-20-2000) | | | | | |
| Screen Printing and Drying | Compliance with ~~SCAQMD~~Rules 1130.1 and 1171; or use of Rule 1130.1 and 1171 compliant UV/EB or water-based inks/coatings. (2-2-2018). | | | | | |

1) or temperature demonstrating equivalent overall control efficiency in a ~~District~~South Coast AQMD-approved source test.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
10-03-2008 Rev. 1
12-02-2016 Rev. 2
2-1-2019 Rev. 3

Equipment or Process: Process Heater – Non-Refinery

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/Rating/ Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Natural Gas or Propane Fired, >2 and < 20 MM Btu/hr | | Compliance with ~~SCAQMD~~Rules 1146 or 1146.1 (12-02-2016) | Natural Gas (10-20-2000) | ≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% $O_2$ (10-20-2000) | Natural Gas (10-20-2000) | |
| Natural Gas or Propane Fired, ≥ 20 MM Btu/hr | | Compliance with ~~SCAQMD~~Rules 1146 (2-1-2019) | Natural Gas (10-20-2000) | Same as above. (10-20-2000) | Natural Gas (10-20-2000) | With SCR: ≤ 5 ppmvd NH3, corrected to 3% O2 With LTO: ≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000) |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Reactor with Atmospheric Vent [a)]

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC/ODC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | - Carbon Adsorber; or<br>- Afterburner (VOC Only); or<br>- Refrigerated Condenser; or<br>- Scrubber with Approved Liquid Waste Disposal (VOC only)<br>(1990) | | | | | |

a) Also see "Resin Manufacturing" and "Surfactant Manufacturing". (12-5-2003)

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rendering

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Processing Equipment[1)] | | | | | Vent to Afterburner or Boiler Fire Box (≥ 0.3 sec. Retention Time at ≥ 1200 °F) (1988) | |
| Meal Grinding and Handling System | | | | | Enclosed Grinding and Screening Operation with Mechanical Conveyors Transporting Meal (1988) | |
| Tanks and Miscellaneous Equipment | | | | | Maintain Internal Temperature Below 140 °F (1988) | |

1) Processing equipment includes crax pressing, filtering, centrifuging, evaporators, cookers, dryers, and grease and blood processing.

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0

Equipment or Process: Resin Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Continuous Polystyrene Process | Compliance with ~~SCAQMD~~Rule 1141:<br>≤0.12 Pounds VOC per 1000 Pounds Completed Resin Product from Vacuum Devolatilizer and Styrene Recovery Systems<br>(12-5-2003) | | | | | |
| Liquid-Phase, High-Density Polyethylene Slurry Process | Compliance with ~~SCAQMD~~Rule 1141:<br>≥98% Reduction from Reactors, Recycle Treaters, Thinning Tanks, Blending Tanks and Product Finishing Section<br>(12-5-2003) | | | | | |
| Liquid-Phase Polypropylene Process | Compliance with ~~SCAQMD~~Rule 1141:<br>≥98% Reduction from Organic Resin Reactors, Slurry Vacuum Filter System, Diluent Recovery Section and Product Finishing Section<br>(12-5-2003) | | | | | |
| Other Resin Manufacturing | Compliance with ~~SCAQMD~~Rule 1141:<br>≤0.5 Pounds VOC per 1000 Pounds Completed Resin Product,<br>or ≥95% Reduction from Resin Reactors, Thinning Tanks and Blending Tanks<br>(12-5-2003) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rock – Aggregate Processing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse Venting Jaw Crushers, Cone Crushers, and Material Transfer Points Adjacent to and after these Items; and Water Sprays at Other Material Transfer Points (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rocket Engine Test Cell

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Chemical Packed Scrubber (1988) | | | Chemical Packed Scrubber and Water Spray in Exhaust with Steam Ejectors (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rubber Compounding – Banbury Type Mixer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Sand Handling System with Shakeout and/or Muller in System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Sewage Treatment Plants

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Carbon Adsorber or Scrubbing System, Covers for Primary Raw Sewage Processing, and Digester Gas Incineration or Recovery (1988) | | Ferrous Chloride Injection and Caustic Scrubber for Hydrogen Sulfide Removal (1988) | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Smokehouse

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | Steam Heated Smokehouse and Electrically Heated Smoke Generator (1990) | | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1990) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-1-2019 Rev. 0

Equipment or Process: Soil Vapor Extraction – Thermal/Catalytic Oxidation (Natural Gas – burner only)

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | . | Compliance with Rule 1147. | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Solder Leveling –Hot Oil or Hot Air

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Electrostatic Precipitator (1988) | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Solvent Reclamation

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Refrigerated or Water Cooled Condenser (07-11-97) | | | | | |

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# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1
2-5-2021 Rev. 1

Equipment or Process: Spray Booth

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Fully-enclosed~~Automotive~~, Down-Draft Type, < 667 Lbs/Month of VOC Emissions (2-5-2021) | Compliance with Applicable ~~SCAQMD~~Regulation XI Rules (10-20-2000) | If booth has a Make-up Air Unit or a Heater; Compliance with Rule 1147 (2-5-2021) | | | Dry Filters or Waterwash (1990) | |
| Other Types, < 1170 Lbs/Month of VOC Emissions | Compliance with Applicable ~~SCAQMD~~Regulation XI Rules (10-20-2000) | If booth has a Make-up Air Unit or a Heater; Compliance with Rule 1147 (2-5-2021) | | | Same as Above (1990) | |
| Fully-enclosed~~Automotive~~, Down-Draft Type, ≥ 22 Lbs/Day of VOC Emissions (2-5-2021) | - Compliance with Applicable ~~SCAQMD~~Regulation XI Rules, and VOC Control System with ≥ 90% Collection Efficiency and ≥ 95% Destruction Efficiency, or<br>- Use of Super Compliant Materials (~~<~~<50 grams of VOC per liter of material ~~5% VOC by weight~~): or<br>- Use of Low-VOC Materials Resulting in an Equivalent Emission Reduction (10-20-2000) | If booth has a Make-up Air Unit or a Heater; Compliance with Rule 1147 (2-5-2021) | | | Same as Above (1990) | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Other Types, ≥ 1170 Lbs/Month of VOC Emissions | - Compliance with Applicable Regulation XI Rules, and VOC Control System with ≥ 90% Collection Efficiency and ≥ 95% Destruction Efficiency, or<br>- Use of Super Compliant Materials (<50 grams of VOC per liter of material): or<br>- Use of Low-VOC Materials Resulting in an Equivalent Emission Reduction<br>~~Same as Above~~<br>(10-20-2000) | If booth has a Make-up Air Unit or a Heater; Compliance with Rule 1147 (2-5-2021) | | | Same as Above (1990) | |
| Enclosed with automated spray nozzles for wood cabinets, < 1170 Lbs/Month of VOC Emissions (2-5-2021) | Compliance with Rule 1136 or use of Rule 1136 compliant UV/EB or water-based coatings. | If booth has a Make-up Air Unit or a Heater; Compliance with Rule 1147 | | | | |

Note: The sum of all VOC emissions from all spray booths within the same subcategory applied for in the previous two years at the same facility are considered toward the emission threshold.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Steel Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Electric Arc | | | | | Baghouse (1988) | |
| Induction, ≤ 300 Lb. Capacity | | | | | Charge Only Ingots or Clean Returns, or Baghouse (10-20-2000) | |
| Induction, > 300 Lb. Capacity | | | | | Baghouse (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Storage Tanks - Liquid

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Asphalt | | | | | Cool Gases to < 120 °F and Vent to a Fiberglass or Steel Wool Filter. (07-11-97) | |
| External Floating Roof, VP ≤ 11 psia | Category A Tank Seals and Compliance with Rule 463 (10-20-2000) | | | | | |
| Fixed Roof | Vapor Recovery System with an Overall System Efficiency of ≥ 95% (7-11-97) | | | | | |
| Fuming Sulfuric Acid | | | | | Scrubber Followed by Fiber Mist Filter; or Water Spray Followed by Fiber Mist Filter (1988) | |
| Grease or Tallow | | | | | Maintain Temperature ≤ 140 °F (1988) | |
| Internal Floating Roof | Category A Tank Seals and Compliance with Rule 463 (10-20-2000) | | | | | |
| Sulfuric Acid | | | Caustic Scrubber and Mist Eliminator (1988) | | | |
| Underground, > 250 Gallons | ≥ 95% Removal Efficiency for VOC (1990) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0

Equipment or Process: Surfactant Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Compliance with ~~SCAQMD~~Rule 1141.2[a]: ≤ 0.5 Pounds per 1000 Pounds of Surfactant Product, or ≥ 95% (Wt.) Reduction From All Surfactant Manufacturing Equipment Vented to Atmosphere (12-5-2003) | | | | | |

a) Does not apply to soap manufacturing operations or facilities that only blend and package surfactants.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Tank – Grease or Tallow Processing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Water Cooled or Atmospheric Condenser and Afterburner (≥ 0.3 sec. Retention Time at ≥ 1200 °F) (1990) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

2-1-2019 Rev. 0
2-5-2021 Rev. 1

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** | **$PM_{10}$** | **Inorganic** |
| Regenerative Thermal Oxidizer (2-5-2021) | | 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) | | | | |

** Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Tire Buffer

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Cyclone and Water Spray at Rasp (07-11-97) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Vegetable Oil Purification

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Scrubber and Barometric Condenser (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Vinegar Manufacturing

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | Scrubber with ~~SCAQMD~~South Coast AQMD- and Sanitation District-Approved Liquid Disposal (1988) | | | | | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
12-5-2003 Rev. 1

Equipment or Process: Wastewater System

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Oil/Water Separator | Cover and Vent to Vapor Disposal System (1988); and Compliance with ~~SCAQMD~~Rule 1176 (12-5-2003) | | | | | |
| Other Equipment | Compliance with ~~SCAQMD~~Rule 1176 if Applicable by Rule[a)] (12-5-2003) | | | | | |

a) Not required for sanitary sewer system.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Wax Burnoff Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | Natural Gas with Low Nox Burner (1988)] | Natural Gas (1988) | | Natural Gas with Afterburner or Secondary Combustion Chamber (≥ 0.3 sec. Retention Time at ≥ 1200° F) (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Wood Processing Equipment

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| All | | | | | Baghouse (1988) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

12-5-2003 Rev. 0

Equipment or Process: Woodworking

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Pneumatic Conveyance System | | | | | Compliance with ~~SCAQMD~~Rule 1137[a)]: Baghouse with No Visible Emissions Except During Startup and Shutdown (12-5-2003) | |

a) Not required if system vents solely to stand-alone control device or into a closed room.

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
## Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0
2-1-2019 Rev 1

Equipment or Process: Zinc Melting Furnace

| | Criteria Pollutants | | | | | |
|---|---|---|---|---|---|---|
| **Subcategory/ Rating/Size** | **VOC** | **NOx** | **SOx** | **CO** | **$PM_{10}$** | **Inorganic** |
| Crucible or Pot | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Ingot and/or Clean Scrap Charge Only, or Baghouse (1988/2000) | |
| Reverberatory, Non-Sweating Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Same as Above (10-20-2000) | |
| Reverberatory, Sweating Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Natural Gas with Baghouse and: Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or Secondary Combustion (≥ 0.3 sec. Retention Time at ≥ 1400° F); (1990) | |
| Rotary, Sweating Operations | | 60 ppm Compliance with Rule 1147 (2-1-2019) | Natural Gas (1990) | | Same as Above (1990) | |

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

# Part D- South Coast AQMD BACT Determination

Source Type: **Minor**

Application No.: **15044**

Equipment Category: **Fermentation, Wine**

Equipment Subcategory: **Tanks Closed Top ≤ 30,000 gallons**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: NoMoVo / EcoPAS | B. MODEL: NMV4-1836 / PAS-100 |
| C. DESCRIPTION: Wine fermentation tanks vented to five (5) wet scrubbers with continuously recycled slurry tank achieving a 67% capture/control efficiency. | |
| D. FUNCTION: Central Coast Wine Services is a winery that receives and crushes fruit for winemaking, ferments and ages wine, bottles wine, warehouses and ships cases of bottled wine. Also leases space to licensed wineries for winemaking. | |
| E. SIZE/DIMENSIONS/CAPACITY: 143 closed-top stainless-steel wine fermentation tanks ranging in size from 450 gallons to 21,232 capacity. All tanks with piping manifold to capture and route fermentation exhaust gases to control system. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: N/A | |
| G. BURNER INFORMATION | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| N/A | N/A | N/A |
| Enter additional burner types, as needed, add extra rows | | |

| | |
|---|---|
| H. PRIMARY FUEL: N/A | I. OTHER FUEL: N/A |
| J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 32 | |
| K. EQUIPMENT COST: | |
| L. EQUIPMENT INFORMATION COMMENTS: Fermentation season is 223 days per year. Both control systems wet scrubber and chilled tube-in-shell condenser are considered achieved in practice by Santa Barbara APCD. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Central Coast Wine Services | B. FAC ID: 11042 |
| C. ADDRESS: 2717 Aviation Way, Suite 101<br>CITY: Santa Maria STATE:CA ZIP: 93455 | D. NAICS CODE: 312130 |
| E. CONTACT PERSON: Jim Lunt | F. TITLE: General Manager |
| G. PHONE NO.: (805) 928-9210 | H. EMAIL: |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: Santa Barbara APCD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Michael Goldman, Manager Engineering Division Santa Barbara APCD | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 6/5/18<br>P/O NO.: 15044 PO ISSUANCE DATE: 2/5/2019 | |
| E. START-UP DATE: 12/1/2014 | |
| F. OPERATIONAL TIME: 1 ½+ years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections ($\%O_2$, $\%CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | 67% COMBINED CAPTURE AND CONTROL EFFICIENCY | | | | | |
| Averaging Time | | | | | | |
| Correction | | | | | | |

B. OTHER BACT REQUIREMENTS: Over entire fermentation season sample slurry from wet scrubbers and condensate from condensation chillers every 24 hrs and analyze using approved method to determine ethanol volume fraction to be used to quantify captured and controlled ethanol.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: The system is entirely passive, whereby the release of ethanol gas and moisture from the close-loop wine fermentation tanks is used to drive the exhaust toward the control system

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: NoMoVo Wet Scrubber / EcoPAS Chilled Condenser | B. MODEL: NMV4-1836 / PAS-100 |

C. DESCRIPTION: Release of ethanol from closed top fermentation tanks via piping manifold drives exhaust toward control systems. In wet scrubber, ethanol is captured in a slurry tank. In chilled condenser, ethanol and water vapors are condensed and collected.

D. SIZE/DIMENSIONS/CAPACITY: Five Water Scrubbers 48" L x 24" W x 132" H, 16-22 zones, 100 gal. capacity. One Chiller Condenser 25' L x 24" W x 25" H, 700 lbs Glycol refrigerant.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 15044-02 PC ISSUANCE DATE: 6/5/18
PO NO.: 15044 PO ISSUANCE DATE: 2/5/2019

F. REQUIRED CONTROL EFFICIENCIES: 67% Combined capture and control.

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | 67% | ___% | ___% |
| NOx | --% | ___% | ___% |
| SOx | --% | ___% | ___% |
| CO | --% | ___% | ___% |
| PM | --% | ___% | ___% |
| $PM_{10}$ | --% | ___% | ___% |
| INORGANIC | --% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: Fermentation season is 223 days per year. In accordance with Santa Barbara APCD BACT listing both the wet scrubber and chilled tube-in-shell condenser control systems are considered achieved in practice.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Monitoring reports submitted for 2018 and 2019 fermentation seasons. Compliance with 67% control efficiency is determined by annual reporting specified in permit condition and weekly reports of daily amount of ethanol captured and controlled from an analysis of the slurry samples.

B. DATE(S) OF SOURCE TEST: 2018 and 2019

C. COLLECTION EFFICIENCY METHOD: CCWS uses an Alcolyzer Wine M/ME analyzer manufactured by Anton Paar (https://www.anton-paar.com/us-en/products/details/alcolyzer-wine-mme-wine-analysis-system/) for their daily ethanol measurements. This instrument uses near infrared spectroscopy (NIR) to determine the alcohol content, and achieves an accuracy of +/- 0.1 %v/v and a repeatability of +/- 0.01 %v/v. On an annual basis, CCWS sends a sample from each capture system to an independent 3rd party lab certified by the Alcohol Tax and Trade Bureau for analysis and compares the results to the Alcolyzer instrument.

D. COLLECTION EFFICIENCY PARAMETERS: Sample of slurry or condensate every 24 hours when venting actively fermenting tanks.

| |
|---|
| E. SOURCE TEST/PERFORMANCE DATA: Since the ATC permit was issued for the CCWS project that established BACT for wine fermentation tanks, have completed two crush seasons (2018 and 2019) with the control technology in place. In 2018 achieved 74.6% control (6,117 lbs ETOH captured), and in 2019 achieved 69.9% control (3,837 lbs ETOH captured), which exceeded the 67% control required by the permit. |
| F. TEST OPERATING PARAMETERS AND CONDITIONS: Release of ethanol from closed top fermentation tanks via piping manifold drives exhaust toward control systems. In wet scrubber ethanol is captured in a slurry tank. In chilled condenser ethanol and water vapors are condensed and collected |
| G. TEST METHODS (SPECIFY AGENCY): |
| H. MONITORING AND TESTING REQUIREMENTS |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: Click here to enter text. | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE:Click here to enter text. |
| D. RECLAIM FAC? YES ☐ NO ☒ | E. TITLE V FAC: YES ☐ NO ☒ | F. SOURCE TEST ID(S): Click here to enter text. |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Part D- South Coast AQMD BACT Determination

Source Type: **Minor**

Application No.: **507874**

Equipment Category: **Glass Screen Printing**

Equipment Subcategory: **Flat Glass UV Ink**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: | B. MODEL: |
| C. DESCRIPTION: Flat Glass UV ink Screen Printing Carousel with 8 stations. | |
| D. FUNCTION: Head West, Inc. manufactures art mirrors and frames. Plain sheets of glass with mirror backing coating as loaded on an automated screen printing carousel using Rule 1134 compliant UV inks exclusively. | |
| E. SIZE/DIMENSIONS/CAPACITY: Carousel with 12 screen printing stations. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: N/A | |
| G. BURNER INFORMATION: N/A | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| Enter additional burner types, as needed, add extra rows | Rated heat input of single burner, in btu/hr | Number of burners |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: Electricity | I. OTHER FUEL: Supplementary or standby fuels |
| J. OPERATING SCHEDULE: Hours 24 HRS//DAY 7 DAYS/WEEK 52 WKS/YR | |
| K. EQUIPMENT COST: Enter sum of all Cost Factors in Table 6 of SCAQMD BACT Guidelines | |
| L. EQUIPMENT INFORMATION COMMENTS: Per Rule 219(h)(1)((A) and (C) screen printing carousel using exclusively UV inks is exempt from permit. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Head West, Inc. | B. FAC ID: 163196 |
| C. ADDRESS: 15650 S. Avalon Blvd.<br>CITY: Compton STATE: CA ZIP: 90220 | D. NAICS CODE: 327215 |
| E. CONTACT PERSON: Louis Fideler | F. TITLE: Owner |
| G. PHONE NO.: 310-532-5420 X104 | H. EMAIL: LFideler@headwestinc.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: OTHER |
| C. SCAQMD ENGINEER: Ravi Bhatia | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: Click here to enter a date.<br>P/O NO.: N/A PO ISSUANCE DATE: N/A | |
| E. START-UP DATE: 1/1/2010 | |
| F. OPERATIONAL TIME: 10+ years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections ($\%O_2$, $\%CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | USE OF RULE 1145 COMPLIANT UV INKS AS ALTERNATE BACT COMPLIANCE | | | | | |
| Averaging Time | | | | | | |
| Correction | | | | | | |

B. OTHER BACT REQUIREMENTS: Use of Rule 1145 compliant low VOC UV inks as alternative BACT compliance. Concise description of the BACT requirements for each regulated contaminant from the equipment, other than the requirements list in Section 4(A).

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS: Facility is exclusively using Rule 1145 compliant low VOC UV inks for their flat glass screen printing operations. Although not applicable to all glass coatings, this case specific operation is a well-established achieved in practice example.

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: : Low VOC UV Inks | B. MODEL: |

C. DESCRIPTION Rule 1145 compliant UV inks with low VOC content which qualify as Super Compliant Materials (≤ 50 g VOC/l) per Rule 109 and in compliance with Rule 1130.1.

D. SIZE/DIMENSIONS/CAPACITY: An appropriate size parameter such as rated heat input, usable volume, rated filter efficiency, and/or one more characteristic dimensions.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. PC ISSUANCE DATE: Click here to enter a date.
PO NO.: PO ISSUANCE DATE: Click here to enter a date.

F. REQUIRED CONTROL EFFICIENCIES: Tier 4 Final standards

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

**G. CONTROL TECHNOLOGY COMMENTS:** Exclusively using Rule 1145 compliant low VOC UV inks for their flat glass screen printing operations. Although not applicable to all glass coatings, this case specific operation is a well-established achieved in practice example.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Recordkeeping of material safety data sheets and use of Rule 1145 compliant low VOC UV inks.

B. DATE(S) OF SOURCE TEST: N/A

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: Enter source test results for each criteria contaminant or precursor (mass emissions, concentrations or efficiencies) if they differ from the requirements previously listed. As previously requested in Section 4, identify any corrections or averaging times

| |
|---|
| F. TEST OPERATING PARAMETERS AND CONDITIONS: List any important operating conditions maintained during the source test or normal operations. Examples include, but may not be limited to, pressure differentials across control devices, feed rates, firing rates, temperatures, flow rates, or other parameters used to evaluate the level of operation of the equipment during the test or operations that may affect emissions from the equipment. |
| G. TEST METHODS (SPECIFY AGENCY): Identify the primary source test methods used and identify the agency (e.g., CARB Method 425). |
| H. MONITORING AND TESTING REQUIREMENTS: Include any monitoring or testing requirements and their frequency that will be enforced to maintain emission levels reported for the BACT Determination. |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Achieved in Practice operation using Rule 1145 compliant UV inks VOC content of 0 lb/gal and 3.3 lb/gal (Violet Glass 37), EPA Method 24 VOC values for the cured products are less than 1.0%. These UV inks qualify as Super Compliant Materials (≤ 50 g VOC/l) per Rule 109 and in compliance with Rule 1130.1. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: 000268 | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE: 10 |
| D. RECLAIM FAC? YES ☐ NO ☒ | E. TITLE V FAC: YES ☐ NO ☒ | F. SOURCE TEST ID(S): |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Part D- South Coast AQMD BACT Determination

Source Type: **Minor**

Application No.: **450588/450591**

Equipment Category: **Spray Booth, Enclosed**

Equipment Subcategory: **Wood Cabinets, UV Coatings**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Cattinair | B. MODEL: Rotoclean 68 |
| C. DESCRIPTION: Computerized multi spray nozzle machine in enclosed ventilated spray booth using exclusively Rule 1136 compliant UV coatings. Spray-painted wood cabinet parts are continuously moved via conveyor to electric UV curing oven. | |
| D. FUNCTION: Excel Cabinets manufactures wood cabinets for tract homes and apartment builders. | |
| E. SIZE/DIMENSIONS/CAPACITY: Spray Machine, Enclosed Spray Booth 9'-0" W x 8'-10" L x 5'-0" H, with 16 spray nozzles, three 36" x 96" exhaust filters and one 1 H.P. exhaust fan. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 55 KW | |
| G. BURNER INFORMATION: | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| N/A | N/A | N/A |
| | | |

| | |
|---|---|
| H. PRIMARY FUEL: ELECTRIC Primary Fuel burned in combustion chamber | I. OTHER FUEL: ELECTRIC |
| J. OPERATING SCHEDULE: Hours 16 hrs//day 6 days/week 52 wks/yr | |
| K. EQUIPMENT COST: Enter sum of all Cost Factors in Table 6 of SCAQMD BACT Guidelines | |
| L. EQUIPMENT INFORMATION COMMENTS: UV Curing Oven, Cattinair, 6'-0" W x 12'-0" L x 5'-0" H, with two UV lamps, 55 KW, ½ H.P. exhaust fan, 1 ½ H.P. recirculating fan. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Excel Cabinets, Inc. | B. FAC ID: 121125 |
| C. ADDRESS: 225 Jason Court<br>CITY: Corona STATE: CA ZIP: 91729 | D. NAICS CODE: 337127 |
| E. CONTACT PERSON: Holly Baca | F. TITLE: Safety & Risk Manager |
| G. PHONE NO.: 951-279-4545 x235 | H. EMAIL: hollybaca@excelcabinetsinc.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Emmanual Quizon | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 12/21/05<br>P/O NO.: F79880 PO ISSUANCE DATE: 12/21/2005 | |
| E. START-UP DATE: 12/21/2005 | |
| F. OPERATIONAL TIME: 15 years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections ($\%O_2$, $\%CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | USE OF RULE 1136 COMPLIANT UV COATINGS AS ALTERNATE BACT COMPLIANCE | | | | | |
| Averaging Time | | | | | | |
| Correction | | | | | | |

B. OTHER BACT REQUIREMENTS: Use of Rule 1136 compliant low VOC UV coatings as alternative BACT compliance.

C. BASIS OF THE BACT/LAER DETERMINATION: Other (add comment)

D. EMISSION INFORMATION COMMENTS: Facility is exclusively using low VOC UV coatings for their wood cabinet coating operations. Although not applicable to all wood coatings, this case specific operation is a well-established achieved in practice example.

## 5. CONTROL TECHNOLOGY

| A. MANUFACTURER: Low VOC UV Coatings | B. MODEL: |
|---|---|

C. DESCRIPTION: Rule 1136 compliant UV coatings VOC content of 0.137 lb/gal and 0.161 lb/gal. These UV coatings qualify as Super Compliant Materials (≤ 50 g VOC/l) per Rule 109 and in compliance with Rule 1136.

D. SIZE/DIMENSIONS/CAPACITY: N/A

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO.: N/A PC ISSUANCE DATE: N/A

PO NO.: N/A PO ISSUANCE DATE: N/A

F. REQUIRED CONTROL EFFICIENCIES: Tier 4 Final standards

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS : Use of low VOC UV coatings as alternative BACT compliance.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Recordkeeping of material safety data sheets and use of Rule 1136 compliant low VOC UV coatings.

B. DATE(S) OF SOURCE TEST: N/A

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: N/A

F. TEST OPERATING PARAMETERS AND CONDITIONS: N/A

G. TEST METHODS (SPECIFY AGENCY): N/A

| |
|---|
| H. MONITORING AND TESTING REQUIREMENTS: N/A |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Achieved in practice operation using Rule 1136 compliant UV coatings VOC content of 0.137 lb/gal and 0.161 lb/gal. These UV coatings qualify as Super Compliant Materials (≤ 50 g VOC/l) per Rule 109 and in compliance with Rule 1136. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: 044000 | B. CCAT: Click here to enter text. | C. APPLICATION TYPE CODE: 10 |
| D. RECLAIM FAC? YES ☐ NO ☒ | E. TITLE V FAC: YES ☐ NO ☒ | F. SOURCE TEST ID(S): |
| G. SCAQMD SOURCE SPECIFIC RULES: 1136 | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

# Part D- South Coast AQMD BACT Determination

Source Type: **Minor**

Application No.: **600923**

Equipment Category: **Thermal Oxidizer**

Equipment Subcategory: **Regenerative**

Date: **February 5, 2021**

## 1. EQUIPMENT INFORMATION

| | |
|---|---|
| A. MANUFACTURER: Adwest | B. MODEL: Retox 40.0 |
| C. DESCRIPTION: Fender Musical Instruments is a manufacturer of electric and acoustic guitars. | |
| D. FUNCTION: Two (2) Regenerative Thermal Oxidizers are used to vent all aspects of the electric and acoustic guitars spray/hand coating operations which are performed in permanent total enclosures. | |
| E. SIZE/DIMENSIONS/CAPACITY: 6,000,000 Btu/hr natural injection rate, Combustion Chamber 38'-6" L x 14'-0" W x 5'-1" H, and two Ceramic Beds each 18'-0" L x 14'-0" W x 4'-0" H. | |
| **COMBUSTION SOURCES** | |
| F. MAXIMUM HEAT INPUT: 16,000,000 Btu/hr each RTO | |
| G. BURNER INFORMATION | |

| TYPE | INDIVIDUAL HEAT INPUT | NUMBER |
|---|---|---|
| Maxon Kinedizer LE | Rated heat input of single burner, in btu/hr | 1 |
| Enter additional burner types, as needed, add extra rows | | |

| | |
|---|---|
| H. PRIMARY FUEL: Natural gas | I. OTHER FUEL: Supplementary or standby fuels |
| J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52 | |
| K. EQUIPMENT COST: | |
| L. EQUIPMENT INFORMATION COMMENTS: RTO system venting 11 spray rooms, 3 spray booths and 5 conveyorized spray booths. | |

## 2. COMPANY INFORMATION

| | |
|---|---|
| A. COMPANY: Fender Musical Instruments | B. FAC ID: 112956 |
| C. ADDRESS: 311 Cessna Circle<br>CITY: Corona STATE: CA ZIP: 92880 | D. NAICS CODE: 324110 |
| E. CONTACT PERSON: Karyn Meissner | F. TITLE: Health & Safety Engineer |
| G. PHONE NO.: (951) 898-4039 | H. EMAIL: kmeissner@fender.com |

## 3. PERMIT INFORMATION

| | |
|---|---|
| A. AGENCY: South Coast AQMD | B. APPLICATION TYPE: NEW CONSTRUCTION |
| C. SCAQMD ENGINEER: Rene Loof | |
| D. PERMIT INFORMATION: PC ISSUANCE DATE: 7/27/18<br>P/O NO.: G59106 PO ISSUANCE DATE: 10/4/2019 | |
| E. START-UP DATE: 10/24/2018 | |
| F. OPERATIONAL TIME: 2+ years | |

## 4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES: List all criteria contaminant or precursor emission limits, including facility limits, on the permit(s) that affects the equipment. Include units, averaging times and corrections (%$O_2$, %$CO_2$, dry, etc). For VOC, values must include if the concentration is reported as methane, hexane or any other compound. VOC mass emissions should include the molecular weight-to-carbon ratio, if applicable.

| | VOC | NOx | SOx | CO | PM OR $PM_{10}$ | INORGANIC |
|---|---|---|---|---|---|---|
| BACT Limit | | 30 PPMV | | 400 PPMV | | |
| Averaging Time | | | | | | |
| Correction | | @ 3% $O_2$ | | @ 3% $O_2$ | | |

B. OTHER BACT REQUIREMENTS: Burner emissions only.

C. BASIS OF THE BACT/LAER DETERMINATION: Achieved in Practice/New Technology

D. EMISSION INFORMATION COMMENTS:

## 5. CONTROL TECHNOLOGY

| | |
|---|---|
| A. MANUFACTURER: Adwest | B. MODEL: Retox 40.0 |

C. DESCRIPTION: Regenerative Thermal Oxidizer with 16 MM Btu/hr Maxon Kinedizer LE, Low-NOx burner.

D. SIZE/DIMENSIONS/CAPACITY: : 6,000,000 Btu/hr natural injection rate, Combustion Chamber 38'-6" L x 14'-0" W x 5'-1" H, and two Ceramic Beds each 18'-0" L x 14'-0" W x 4'-0" H.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 600923 PC ISSUANCE DATE: 7/27/18
PO NO.: G59106 PO ISSUANCE DATE: 10/4/2019

F. REQUIRED CONTROL EFFICIENCIES: . Overall collection and destruction efficiency ≥ 95%.

| CONTAMINANT | OVERALL CONTROL EFFICIENCY | CONTROL DEVICE EFFICIENCY | COLLECTION EFFICIENCY |
|---|---|---|---|
| VOC | ___% | ___% | ___% |
| NOx | ___% | ___% | ___% |
| SOx | ___% | ___% | ___% |
| CO | ___% | ___% | ___% |
| PM | ___% | ___% | ___% |
| $PM_{10}$ | ___% | ___% | ___% |
| INORGANIC | ___% | ___% | ___% |

G. CONTROL TECHNOLOGY COMMENTS: The combustion chamber temperature shall be maintained at a minimum of 1,500 degrees Fahrenheit whenever the equipment it serves is in operation. The operator shall maintain this equipment to achieve a minimum destruction efficiency of 95 percent and a minimum overall control efficiency of 95 percent for VOC when the basic equipment it serves is in operation. The burners are capable of 16 MM Btu/hr but will be permanently operated at a maximum of 11 MM Btu/hr.

## 6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: December 17, 2018

C. COLLECTION EFFICIENCY METHOD: ---

D. COLLECTION EFFICIENCY PARAMETERS: ---

E. SOURCE TEST/PERFORMANCE DATA: 27.7 ppm NOx @3% O2; 30 ppm CO @3% O2

| |
|---|
| F. TEST OPERATING PARAMETERS AND CONDITIONS: RTO was operated at normal operating conditions. |
| G. TEST METHODS (SPECIFY AGENCY): SCAQMD Method 100.1 |
| H. MONITORING AND TESTING REQUIREMENTS: |
| I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance. |

## 7. ADDITIONAL SCAQMD REFERENCE DATA

| | | |
|---|---|---|
| A. BCAT: | B. CCAT: 6E | C. APPLICATION TYPE CODE: 50 |
| D. RECLAIM FAC? YES ☐ NO ☒ | E. TITLE V FAC: YES ☐ NO ☒ | F. SOURCE TEST ID(S): PR18201 |
| G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text. | | |
| H. HEALTH RISK FOR PERMIT UNIT | | |

| | | | |
|---|---|---|---|
| H1. MICR: Click here to enter text. | H2. MICR DATE: Click here to enter a date. | H3. CANCER BURDEN: Click here to enter text. | H4. CB DATE: Click here to enter a date. |
| H5: HIA: Click here to enter text. | H6. HIA DATE: Click here to enter a date. | H7. HIC: Click here to enter text. | H8. HIC DATE: Click here to enter a date. |

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# PART E – POLICY AND PROCEDURES FOR FACILITIES SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION FOR GREENHOUSE GASES

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# Chapter 1 - GHG BACT

This chapter explains the requirements of greenhouse gases (GHG) BACT regulations according to EPA, describes the Top-Down Process, shows how to calculate GHG emissions and explains the Prevention of Significant Deterioration (PSD) Applicability for GHGs for new sources as well as modified sources. The guidance in this chapter is applicable to the EPA requirements in place as of the date of these guidelines, and takes into consideration the U.S. Supreme Court decision in *Utility Air Regulatory Group v. Environmental Protection Agency, 134 S. Ct. 2427 (2014)*[1].

## BACKGROUND

EPA has found that GHG, made of up of six combined compounds, constitute air pollution that endanger public health and welfare. EPA's adopted requirements for GHG under 40 CFR 52.21 in May 2010, which were revised in October 2015, to establish a way to permit GHG emissions under PSD and Title V. Through this rule, permitting focused on the major industrial sources, which emit nearly 70 percent of the greenhouse gas pollution from stationary sources. At this time, smaller businesses and sources are not be subject to these requirements.

The requirements of this rule apply only to GHG as defined by EPA as a total group of six GHG which are: carbon dioxide ($CO_2$), nitrous oxide ($N_2O$), methane ($CH_4$), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride ($SF_6$). All other attainment air contaminants, as defined in South Coast AQMD~~SCAQMD~~ Rule 1702 subdivision (a), shall be regulated for the purpose of PSD.

## PERMITTING GUIDANCE FOR GHG

EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" provides the basic information that permit writers and applicants need to address GHG emissions in permits[2]. Although this guidance was issued prior to the revision of 40 CFR 52.21 in 2015, there are parts still applicable to the current requirements. The applicable parts of the guidance document are summarized in these Guidelines. The guidance:

- applies long-standing PSD and Title V permitting requirements and processes to GHG;
- reiterates that BACT determinations will continue to be a state, and project specific decision;
- does not prescribe GHG BACT for any source type;
- emphasizes the importance of BACT options that improve energy efficiency;

[1] The UARG v. EPA decision limited the scope originally envisioned by the Tailoring Rule, and now only "anyway sources" are subject to GHG BACT. On October 3, 2016, EPA proposed revising 40 CFR 52.21 to establish a Significant Emissions Rate for GHGs at the same threshold of 75,000 ton per year $CO_2e$ as Step 1 of the Tailoring Rule for "anyway" sources.

[2] https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases

- points out that Carbon Capture and Sequestration (CCS) is a promising technology in the early stage of demonstration and commercialization (it should be identified as an available control measure in the first step of BACT, it is currently an expensive technology and unlikely to be selected as BACT in most cases);
- notes that biomass could be considered BACT after taking into account environmental, energy, and economic considerations and state and federal policies that promote biomass for energy-independence and environmental reasons. In its memorandum[3] dated November 19, 2014, EPA states that it is still assessing and monitoring biogenic feedstocks and will provide further guidance. Further updates can be found at EPA's webpage "CO2 Emissions Associated with Biomass Use at Stationary Sources."
- provides flow charts and examples that illustrate the key points of the traditional five-step process for determining BACT for GHG; and
- identifies technical resources related to GHG emissions and controls.

## FEDERAL PSD APPLICABILITY FOR GHG

Beginning January 2, 2011, GHG BACT applies when a new or modified facility is subject to PSD requirements for GHG. The first step for PSD applicability determination for new or modified sources is listed in the Tables 7 and 8 below that address the requirements in 40 CFR 52.21. A second step for PSD applicability is contemporaneous netting. For detailed guidance on this topic, EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" (March 2011) should be referenced, but should be used in accordance with EPA's clarifying documents regarding the U.S. Supreme Court decision in *Utility Air Regulatory Group v. Environmental Protection Agency*[4] and the current requirements under 40 CFR 52.21.

In determining PSD applicability, a differentiation between GHG $CO_2e$ and mass basis must be made. GHG mass basis is simply the sum of all six GHG compound mass emissions. However, to obtain GHG $CO_2e$, the mass emissions of each individual GHG compound must be multiplied by its 100-year Global Warming Potential (GWP). The individual GHG $CO_2e$ are then summed to obtain the total $CO_2e$ for the source. Current GWP factors should be obtained from EPA's website when performing these calculations.

**Table 7**

**GHG PSD Applicability for New Sources**

| **PSD applies to GHG if:** |
|---|
| 1. The source is otherwise subject to PSD for another regulated NSR pollutant, **AND** |
| 2. The source has a GHG PTE ≥ 75,000 tons per year (TPY) $CO_2e$; |

[3] EPA Memo: "Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources, (2014 November 9)

[4] EPA Memo: Next Steps and Preliminary Views on the Application of Clean Air Act Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision, (2014, July 24)

**Table 8**

**GHG PSD Applicability for Modified Sources**

| PSD applies to GHG if: |
|---|
| 1. The modification is otherwise subject to PSD for another regulated NSR pollutant, **AND**<br>2. The modification results in a GHG emissions increase and net emissions increase:<br>a. ≥ 75,000 TPY $CO_2e$, **AND**<br>b. > zero TPY mass basis |

### Contemporaneous Netting

Contemporaneous netting is the process of considering all of the creditable emission increases and decreases that have occurred during the period beginning five years before the proposed construction of the modification through the date that the emission increase from the modification occurs. When calculating the net emissions increase in Table 8 above for PSD applicability, it must include all emission increases and decreases during this period.

## SOUTH COAST AQMD~~SCAQMD~~ PSD APPLICABILITY FOR GHG

South Coast AQMD~~SCAQMD~~ adopted Rule 1714 in 2010 to implement the PSD GHG requirements set forth by 40 CFR 52.21. South Coast AQMD~~SCAQMD~~ Rule 1714 incorporates the provisions of 40 CFR 52.21 by reference, excluding the sections listed under South Coast AQMD~~SCAQMD~~ Rule 1714 (c)(1). South Coast AQMD~~SCAQMD~~ PSD applicability should be determined following the applicable sections of the Code of Federal Regulation identified in the rule.

## TOP-DOWN BACT PROCESS

EPA recommends that permitting authorities continue to use the EPA's five-step "Top-Down" BACT process to determine BACT for GHG (U.S. EPA, 2011)[5]. While this section summarizes the steps in the process, further details for each of the steps can be referenced in EPA's guidance document.

### BACT Step 1 – Identify All Available Control Options

The first step in the top-down BACT process is to identify all "available" control options. Available control options are those air pollution control technologies or techniques (including lower-emitting processes and practices) that have the potential for practical application to the emissions unit and the regulated pollutant under evaluation.

[5] U.S. EPA (2011). PSD and Title V Permitting Guidance for Greenhouse Gases

Permit applicants and permitting authorities should identify all "available" GHG control options that have the potential for practical application to the source under consideration.

The application of BACT to GHG does not affect the discretion of a permitting authority to exclude options that would fundamentally redefine a proposed source. GHG control technologies are likely to vary based on the type of facility, processes involved, and GHG being addressed. EPA has emphasized the importance of energy efficiency improvements.

For the purposes of a BACT analysis for GHG, EPA classifies CCS as an add-on pollution control technology that is "available" for large $CO_2$-emitting facilities including fossil fuel-fired power plants and industrial facilities with high-purity $CO_2$ streams (*e.g.,* hydrogen production, ammonia production, natural gas processing, ethanol production, ethylene oxide production, cement production, and iron and steel manufacturing).

## BACT Step 2 – Eliminate Technically Infeasible Options

Under the second step of the top-down BACT analysis, a potentially applicable control technique listed in Step 1 may be eliminated from further consideration if it is not technically feasible for the specific source under review. EPA generally considers a technology to be technically feasible if it has been successfully operated on the same type of source under review or is available and applicable to the source under review.

Assuming CCS has been included in Step 1 of the top-down BACT process for such sources, it now must be evaluated for technical feasibility in Step 2. CCS is composed of three main components: $CO_2$ capture and/or compression, transport, and storage. CCS may be eliminated from a BACT analysis in Step 2 if it can be shown that there are significant differences pertinent to the successful operation for any of these three main components from what has already been applied to a differing source type. For example, the temperature, pressure, pollutant concentration, or volume of the gas stream to be controlled, may differ so significantly from previous applications that it is uncertain the control device will work in the situation currently undergoing review. CCS may be eliminated from a BACT analysis in Step 2 if the three components working together are deemed technically infeasible for the proposed source, taking into account the integration of the CCS components with the base facility and site-specific considerations (*e.g.,* space for $CO_2$ capture equipment at an existing facility, right-of-ways to build a pipeline or access to an existing pipeline, access to suitable geologic reservoirs for sequestration, or other storage options).

## BACT Step 3 – Ranking of Controls

After the list of all available controls is winnowed down to a list of the technically feasible control technologies in Step 2, Step 3 of the top-down BACT process calls for the remaining control technologies to be listed in order of overall control effectiveness for the regulated NSR pollutant under review. The most effective control alternative (*i.e.,* the option that achieves the lowest emissions level) should be listed at the top and the remaining technologies ranked in descending order of control effectiveness. The ranking of control options in Step 3 determines where to start the top-down BACT selection process in Step 4.

The options considered in a BACT analysis for GHG emissions will likely include, but not necessarily be limited to, control options that result in energy efficiency measures to achieve the lowest possible emission level. Where plant-wide measures to reduce emissions are being considered as GHG control techniques, the concept of overall control effectiveness will need to be refined to ensure the suite of measures with the lowest net emissions from the facility is the top-ranked measure. Ranking control options based on their net output-based emissions ensures that the thermal efficiency of the control option, as well as the power demand of that control measure, is fully considered when comparing options in Step 3 of the BACT analysis. Finally, to best reflect the impact on the environment, the ranking of control options should be based on the total $CO_2e$ rather than total mass or, mass for the individual GHG.

## BACT Step 4 – Economic, Energy, and Environmental Impacts

Under Step 4 of the top-down BACT analysis, permitting authorities must consider the economic, energy, and environmental impacts arising from each option remaining under consideration. Accordingly, after all available and technically feasible control options have been ranked in terms of control effectiveness (BACT Step 3), the permitting authority should consider any specific energy, environmental, and economic impacts identified with those technologies to either confirm that the top control alternative is appropriate or determine it to be inappropriate.

There are compelling public health and welfare reasons for BACT to require all GHG reductions that are achievable, considering economic impacts and the other listed statutory factors. As a key step in the process of making GHG a regulated pollutant, EPA has considered scientific literature on impacts of GHG emissions and has made a final determination that emissions of six GHG endanger both the public health and the public welfare of current and future generations. Potential impacts that may be considered in this step based on the EPA's January 2010 Endangerment Finding[6] are detailed in EPA's guidance document.

When conducting a BACT analysis for GHG, the environmental impact analysis should continue to concentrate on impacts other than the direct impacts due to emissions of the regulated pollutant in question. Where GHG control strategies affect emissions of other regulated pollutants, applicants and permitting authorities should consider the potential trade-offs of selecting particular GHG control strategies.

## BACT Step 5 – Selecting BACT

In Step 5 of the BACT determination process, the most effective control option not eliminated in Step 4 should be selected as BACT for the pollutant and emissions unit under review and included in the permit. For energy-producing sources, one way to incorporate the energy efficiency of a process unit into the BACT analysis is to compare control effectiveness in BACT Step 3 based on output-based emissions of each of the control options. Establishing an output-based BACT emissions limit, or a combination of output- and input-based limits, wherever feasible and appropriate to ensure that BACT is complied with at all levels of operation should be considered.

[6] https://www3.epa.gov/climatechange/endangerment/

## GHG CONTROL MEASURES WHITE PAPERS

EPA has a series of technical "white papers" that summarize readily available information on control techniques and measures to reduce GHG emissions from specific industrial sectors. These papers provide basic technical information which may be useful in a BACT analysis, but they do not define BACT for each sector. The industrial sectors covered include:

- Electric Generating Units (PDF) (48pp, 805k)
  EPA Contact: Christian Fellner (919-541-4003 or fellner.christian@epa.gov)
- Large Industrial/Commercial/Institutional Boilers (PDF) (39pp, 337k)
  EPA Contact: Jim Eddinger (919-541-5426 or eddinger.jim@epa.gov)
- Pulp and Paper (PDF) (62pp, 421k)
  EPA Contact: Bill Schrock (919-541-5032 or schrock.bill@epa.gov)
- Cement (PDF) (48pp, 220k)
  EPA Contact: Keith Barnett (919-541-5605 or barnett.keith@epa.gov)
- Iron and Steel Industry (PDF) (78pp, 620k)
  EPA Contact: Donna Lee Jones (919-541-5251 or jones.donnalee@epa.gov)
- Refineries (PDF) (42pp, 707k)
  EPA Contact: Brenda Shine (919-541-3608 or shine.brenda@epa.gov)
- Nitric Acid Plants (PDF) (31pp, 544k)
  EPA Contact: Nathan Topham (919-541-0483 or topham.nathan@epa.gov)
- Landfills (PDF) (28pp, 250k)
  EPA Contact: Hillary Ward (919-541-3154 or ward.hillary@epa.gov)

# ATTACHMENT H

**Santa Barbara APCD BACT Determination for Wine Fermentation Tanks: Closed-Top ≤30,000 gallons (June 5, 2018)**

Central Coast Wine Services, 2717 Aviation Way, Suite 101, Santa Maria, CA

**Chiller Condenser Info**
Manufacturer: EcoPAS Chiller Condenser System
Model: PAS-100

| | | | |
|---|---|---|---|
| Operation Schedule: | 24 | hr/day | 223 days/yr |
| Capture & Control Efficiency: | 67 | % | |
| Life | 15 | years | |
| Interest rate: | 4 | % | |

**Capital Cost**

| | | |
|---|---|---|
| Equipment | $ | 282,321 |
| Direct Installation | $ | 229,152 |
| Indirect Installation | $ | 53,218 |
| Total Capital | $ | 564,691 |

**Operating Cost**

| | | |
|---|---|---|
| Direct & Indirect | $ | 35,902 |
| Total Average Annual | $ | 35,902 |

| | | |
|---|---|---|
| PVF | | 11.118 |
| Present Value of Capital Costs | $ | 564,691 |
| Present Value of Annual Costs (15 years @ 4%) | $ | 399,172 |
| **Total 15-Year Capital Cost** | $ | 963,863 |

| | | | |
|---|---|---|---|
| **Emissions reduction (tons/year)** | | **7.5** | |
| Emissions reduction (tons/Life) | | 113 | |
| Cost per ton of ROG reduction | $ | 8,568 | |
| MSBACT maximum cost effectiveness ROG ($/ton) | **$** | **30,231** | **AVERAGE 2nd Qtr 2018** |
| | **COST EFFECTIVE** | | |
| | *$* | *90,694* | **INCREMENTAL 2nd Qtr 2018** |

Notes:
- Calculations were based on cost info provided by control equipment suppliers EcoPASI /NoMoVo and SBCAPCD
- Emissions were based on SBCAPCD Winery Calculation spreadsheet found online at https://www.ourair.org/wineries/
- Maximum allowed cost effectiveness was based on 2nd quarter 2018 Marshall & Swift inde›
- Incremental cost effectiveness looks at the difference in cost and emissions between the proposed MSBACT and current BACT
- In accordance with H&SC 40440(c) the proposed MSBACT must be less than the District's established Incremental cost-effectiveness value

**Santa Barbara APCD BACT Determination for Wine Fermentation Tanks: Closed-Top≤30,000 gallons (June 5, 2018)**

Central Coast Wine Services, 2717 Aviation Way, Suite 101, Santa Maria, CA

**Water Scrubber Info**

Manufacturer: NoMoVo water scrubber
Model: NMV4-1836

| | | | |
|---|---|---|---|
| Operation Schedule: | 24 | hr/day | 223 days/yr |
| Capture & Control Efficiency: | 67 | % | |
| Life | 15 | years | |
| Interest rate: | 4 | % | |

**Capital Cost**

| | | |
|---|---|---|
| Equipment | $ | 295,851 |
| Direct Installation | $ | 137,409 |
| Indirect Installation | $ | 66,003 |
| Total Capital | $ | 499,263 |

**Operating Cost**

| | | |
|---|---|---|
| Direct & Indirect | $ | 39,540 |
| Total Average Annual | $ | 39,540 |

| | | |
|---|---|---|
| PVF | | 11.118 |
| Present Value of Capital Costs | $ | 499,263 |
| Present Value of Annual Costs (15 years @ 4%) | $ | 439,621 |
| **Total 15-Year Capital Cost** | $ | 938,884 |

| | | | |
|---|---|---|---|
| **Emissions reduction (tons/year)** | | **7.5** | |
| Emissions reduction (tons/Life) | | 113 | |
| Cost per ton of ROG reduction | $ | 8,346 | |
| MSBACT maximum cost effectiveness ROG ($/ton) | **$** | **30,231** | **AVERAGE 2nd Qtr 2018** |
| | | **COST EFFECTIVE** | |
| | *$* | *90,694* | **INCREMENTAL 2nd Qtr 2018** |

Notes:

- Calculations were based on cost info provided by control equipment suppliers EcoPASI /NoMoVo and SBCAPCD
- Emissions were based on SBCAPCD Winery Calculation spreadsheet found online at https://www.ourair.org/wineries/
- Maximum allowed cost effectiveness was based on 2nd quarter 2018 Marshall & Swift index
- Incremental cost effectiveness looks at the difference in cost and emissions between the proposed MSBACT and current BACT
- In accordance with H&SC 40440(c) the proposed MSBACT must be less than the District's established Incremental cost-effectiveness value

**Cost Effectiveness Calculations for Low NOx burner upgrade on Regenerative Thermal Oxidizer (RTO) - Fender Musical Instrumen**

Based on info provided by Fender Musical Instruments on January 2020

**Emission reduction:**

NOx reduction from 60 ppm (0.070 lbs/MMBtu) to 30 ppm (0.035 lbs/MMBtu) = 0.035 lbs/MMBtu reduction
CO reduction from 2000 ppm allowed under Rule 407 to permit limit of 400 ppm per source test of 12/17/18

**Low NOx burner Info**
Manufacturer: Adwest
Model: Retox 40.0
Rating/Fuel: 11,000,000 Btu/hr

| | | | |
|---|---|---|---|
| Operation Schedule: | 24 hr/day | 6 days/week | 52 weeks/year |
| RTO Average Capacity: | 80 % | | |
| Life | 10 years | | |
| Interest rate: | 4 % | | |

**Capital Cost**

| | | |
|---|---|---|
| Equipment & Installation | $ | 67,947 |
| Total Capital | $ | 67,947 |

**Operating Cost**

| | | |
|---|---|---|
| Direct & Indirect | $ | 7,000 |
| Total Average Annual | $ | 7,000 |

| | | |
|---|---|---|
| PVF | | 8.11 |
| Present Value of Capital Costs | $ | 67,947 |
| Present Value of Annual Costs (10 years @ 4%) | $ | 56,776 |
| **Total 10-Year Capital Cost** | $ | 124,723 |

| | | |
|---|---|---|
| **NOx emissions reductions (lbs/day)** | | **7** |
| **NOx emissions reduction (tons/10-year life)** | | **11.5** |
| **CO emissions reductions (lbs/day)** | | **5760** |
| **CO emissions reduction (tons/10-year life)** | | **10512** |

| | | |
|---|---|---|
| **Cost per ton of NOx reduction** | $ | 10,816 |
| **Cost per ton of CO reduction** | $ | 12 |

| | | | | |
|---|---|---|---|---|
| MSBACT maximum cost effectiveness NOx ($/ton) | **$** | **28,585** | **AVERAGE 2nd Qtr 2018** | COST EFFECTIVE |
| | **$** | **85,606** | **INCREMENTAL 2nd Qtr 2018** | COST EFFECTIVE |
| MSBACT maximum cost effectiveness CO ($/ton) | **$** | **599** | **AVERAGE 2nd Qtr 2018** | COST EFFECTIVE |
| | **$** | **1,721** | **INCREMENTAL 2nd Qtr 2018** | COST EFFECTIVE |

Notes:
- Equipment cost based on data provided by Fender Musical Instruments
- RTO burner is essentially maintenance free (except for the cost of natural gas) since it does not need much tuning.
  However the RTO has many filters and pre-filters along with motors and fan replacement from time to time
- Maximum allowed cost effectiveness was based on 2nd quarter 2018 Marshall & Swift index
- Incremental cost effectiveness looks at the difference in cost and emissions between the proposed MSBACT and current BACT
- In accordance with H&SC 40440(c) the proposed MSBACT must be less than the District's established Incremental cost-effectiveness valu

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**ATTACHMENT I**

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

**SUBJECT:** **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

**PROJECT TITLE:** **PROPOSED AMENDMENTS TO THE BEST AVAILABLE CONTROL TECHNOLOGY (BACT) GUIDELINES**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal which, upon posting, may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2021. The electronic filing and posting of the Notice of Exemption is being implemented in accordance with Governor Newsom's Executive Orders N-54-20 and N-80-20 issued on April 22, 2020 and September 23, 2020, respectively, for the State of Emergency in California as a result of the threat of COVID-19.

**NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)**

| | | | |
|---|---|---|---|
| **To:** | Governor's Office of Planning and Research - State Clearinghouse<br>1400 Tenth St, Suite 222<br>Sacramento, CA 95814-5502 | **From:** | South Coast Air Quality Management District<br>21865 Copley Drive<br>Diamond Bar, CA 91765 |

**Project Title:**
Proposed Amendments to the Best Available Control Technology (BACT) Guidelines

**Project Location:**
The proposed project is located within the South Coast Air Quality Management District's (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

**Description of Nature, Purpose, and Beneficiaries of Project**:
Amendments to the BACT Guidelines are proposed that would update the Overview, Parts A, B, C, D, and E to maintain consistency with recent changes to South Coast AQMD rules and state requirements, as follows: 1) revise the Overview to add the complete names of Class I – Group III substances (ozone-depleting compound) to Table 2 and update the names of two South Coast AQMD divisions; 2) revise Part A – Policy and Procedures for Major Polluting Facilities, to list volatile organic compound as a principle precursor contributing to the formation of secondary particulate matter less than 2.5 microns and update the listing information in Chapter 2 based on the Lowest Achievable Emission Rate (LAER)/BACT determination forms; 3) revise Part B, Section I – South Coast AQMD LAER/BACT Determinations, to include seven new listings (e.g., Regenerative Thermal Oxidizer; Recuperative Thermal Oxidizer; Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading; Process Heater – Non-Refinery (Thermal Fluid Heater); Internal Combustion (I.C.) Engine – Stationary - 147 and 385 brake horsepower - Non-Emergency- Electrical Generation with Non-Selective Catalytic Reduction; Duct Burner – Refinery Fuel Gas; Aluminum Heat Treating Oven 5.47 million British Thermal Units per hour and a Billet Temperature less than 970 degrees Fahrenheit) and to update one listing (e.g., Simple Cycle Gas Turbines - Natural Gas); 4) update Part C – Policy and Procedures for Non-Major Polluting Facilities, to make the Maximum Cost-Effectiveness Values in Table 5 consistent with the third quarter 2020 Marshall and Swift equipment index in accordance with BACT Guidelines policy; 5) revise Part D – Determinations for Non-Major Polluting Facilities, to reflect equipment and processes which have been achieved in practice and to maintain consistency with recent changes to South Coast AQMD rules and state requirements by adding two new listings (e.g., Wine Fermentation and Regenerative Thermal Oxidizers) and updating 13 existing listings (e.g., Coffee Roasting; Fermentation, Beer and Wine; Fish Reduction; Flare; Gas Turbine; Glass Screen Printing – Flat Glass; I.C. Engines; Open Process Tanks: Chemical Milling (Etching) and Plating; Polyester Resin Operations; Powder Coating Booth; Printing (Graphic Arts); Spray Booth; Thermal Oxidizer (Afterburner, Regenerative Thermal Oxidizer, and Thermal Recuperative Oxidizer), and Catalytic Oxidizer – Natural Gas Fired); 6) update all references to "District" and "SCAQMD" with "South Coast AQMD" for consistency with South Coast AQMD's new branding guidelines.

| **Public Agency Approving Project:** | **Agency Carrying Out Project:** |
|---|---|
| South Coast Air Quality Management District | South Coast Air Quality Management District |

**Exempt Status:**
CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption
CEQA Guidelines Section 15308 – Actions By Regulatory Agencies For Protection Of The Environment

**Reasons why project is exempt:**
South Coast AQMD, as Lead Agency, has reviewed the proposed project pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. Since the proposed project is comprised of updates that reflect current practices of LAER/BACT determinations in the BACT Guidelines and the most current achieved-in-practice air pollution control equipment and/or processes, and makes administrative amendments, it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment. Therefore, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. The proposed project is also categorically exempt from CEQA pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment, because the proposed project is designed to further protect or enhance the environment. Further, there is no substantial evidence indicating that any of the exceptions to the categorical exemption pursuant to CEQA Guidelines Section 15300.2 apply to the proposed project.

**Date When Project Will Be Considered for Approval (subject to change):**
South Coast AQMD Governing Board Public Hearing: February 5, 2021

| **CEQA Contact Person:** | **Phone Number:** | **Email:** | **Fax:** |
|---|---|---|---|
| Margaret (Maggie) Isied | (909) 396-2543 | Misied@aqmd.gov | (909) 396-3982 |
| **BACT Contact Person:** | **Phone Number:** | **Email:** | **Fax:** |
| Al Baez | (909) 396-2516 | Abaez@aqmd.gov | (909) 396-3982 |

**Date Received for Filing:** _____ **Signature:** *(Signed Upon Board Approval)*

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development, and Area Sources

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# ATTACHMENT J

# Comments and Responses to Proposed Amendments of BACT Guidelines

Public meetings were held on February 25, July 22, and October 27, 2020 with the BACT Scientific Review Committee to present and discuss the proposed amendments to the BACT Guidelines. The following written comments, questions, and staff responses are from letters and e-mails received during the 30-day comment period starting July 22, 2020.

A. Comment Letter A – Gary Rubenstein, Foulweather Consulting / BACT SRC member

B. Comment Letter B – Wayne Miller, Associate Director CE-CERT / BACT SRC member

C. Comment Letter C – Joy Brooks, Senior Manager - SCE / BACT SRC member

D. Comment Letter D – Daniel McGivney, Environmental Affairs Program Manager SoCalGas Company / BACT SRC member

# Comment Letter A (Mr. Rubenstein)

July 20, 2020

To: Al Baez, SCAQMD
Bahareh Farahani, SCAQMD

From: Gary Rubenstein

Subject: Comments on Materials for July 22 BACT SRC Meeting

Following are my comments on the materials prepared for the July 22 BACT SRC meeting. As I indicated to you a couple of weeks ago, I have a conflict this Wednesday that prevents me from participating in the virtual meeting.

Part B Guidelines Proposed Determinations

- A/N 526607, Duct burner: It is unclear what is being established as BACT in this listing. The burner is described in section 1.G as a "Low-NOx Burner", and in Section 5.C as an "Ultra-low NOx burner", but there are no NOx limits shown in Section 4. Section 6.A indicates that compliance is demonstrated by "CEMS Data", but is not possible using a CEMS to distinguish emissions generated by a duct burner from emissions from the upstream source (in this case, a gas turbine). If this BACT determination merely addresses fuel sulfur content (as suggested in Part 4.B, I question whether such a determination is appropriate given the variable sulfur content and quantity of refinery fuel gas available at different facilities. If the BACT determination is based on the use of sulfur-removal techniques or blending with pipeline-quality natural gas, those bases should be stated so that future reviewers can evaluate the comparability of this listing with other facilities that might be subject to BACT for SOx emissions.

A1 A2 A3

# Response to Comment Letter A (Mr. Rubenstein)

**Response A1:**

Since this BACT determination is for SOx emissions not NOx, staff removed "low-NOx burner" in Section 5.C of the BACT determination form.

In addition, Section 4.B describes the BACT requirements for Total Reduced Sulfur (TRS) concentration of refinery fuel gas and Section 4.D defines that the sulfur limit is to limit the SOx emissions.

**Response A2:**

To address the received comments about Continuous Emission Monitoring System (CEMS) data in Section 6.A of the LAER Determination form, staff has replaced CEMS with Continuous Parameter Monitoring System (CPMS) to more accurately describe the sulfur monitoring system and added the following language:

> "*Maintaining the CPMS to continuously monitor the total reduced sulfur compounds calculated as H2S concentration in the fuel gases.*"

**Response A3:**

Staff concurs with this comment and has added the following clarification to Section 5.C of the LAER Determination form:

> "*The total reduced sulfur concentration limit must be measured in the refinery fuel gas before blending with natural gas for all but 72 hours per year. The total reduced sulfur concentration of the refinery fuel gas may be measured after blending with natural gas for a maximum of 72 hours per year.*"

# Comment Letter B (Dr. Miller - UCR)

**From:** Wayne Miller
**Sent:** Wednesday, July 22, 2020 9:54 PM
**To:** Al Baez <abaez@aqmd.gov>; Bahareh Farahani <bbrumand@aqmd.gov>
**Subject:** RE: Proposed Draft Updates to the BACT Guidelines and Minutes from 2/25/20 BACT SRC meeting

Al and Bahareh …you sure are prepared for the meetings ..thanks

B1 I was concerned about the terminal emissions as to ROG from a light HC (solvent terminal) vs a heavy HC (crude oil terminal). I know the BACT deals with emissions from the destruction unit …did not know if the working unit has a ROG limit…perhaps in the permit?

B2 The other question was about monitoring sulfur in the fuel to estimate sulfur in the exhaust. If NG +refinery gas, then there is mercaptan sulfur in the NG and may not be counted…but NG-sulfur likely to be a minor constituent so OK. It was not clear if the limits were for sulfur as sulfur ….or sulfur as H2S …or sulfur as SO2+H2SO4.

My other concern was the sulfur leaves the combustion zone as SO2 and H2SO4 with the later contributing to PM release in a non-attainment area .. maybe not a concern for BACT

B3 Last question was about chrome plating and demisting agents. As you know some plants use the effective PFAS family and now PFAS is considered a health hazard so being reduced in the environment. For example, levels in drinking water have to be below 10parts per trillion (yes trillion!) Are we looking at the release of PFAS as part of the BACT?

Respectfully

Wayne Miller

Adjunct Professor CEE &

Associate Director

# Response to Comment Letter B (Dr. Miller - UCR)

**Response B1:**

**Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading**
There is a condition in the permit which limit the VOC and the facility has to meet the VOC limit regardless of the product loaded. An hourly throughput limit is tagged R1303(b)(2) offsets.

**Response B2:**

**Duct Burner – Refinery Fuel Gas**
The owner or operator of an effected fuel gas combustion device shall comply with either stack gas SO2 concentration limits or fuel gas H2S concentration limits. Since the duct burner exhaust gas is diluted by the exhaust gas from the gas turbine, the fuel directed to the Duct Burner must comply with the fuel gas H2S limits. The limit is for Total Reduced Sulfur as H2S. In this BACT determination we are limiting the TRS as H2S in the fuel gas not the stack gas SO2. Total reduced sulfur (TRS) content of the refinery fuel mix drum is be measured with a fuel sulfur GC.

**Response B3:**

**Chrome plating and demisting agents**
From air quality perspective, the emissions testing of one of the fume suppressants, Macuplex STR NPFX, which contains highest amount of PFAS demonstrated that air exposure to PFAS is 0.000775 mg/amp-hr (very small) for approximately 4 gallons used per year. According to our Planning & Rule staff, at this time we are not proposing a ban on PFAS containing chemical fume suppressants. It is an ongoing discussion and one of the goals is to encourage the installation of pollution controls for smaller facilities in anticipation of ban from any agency.

# Comment Letter C (Ms. Brooks - SCE)

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL™ Company

August 21, 2020

Al Baez
Program Supervisor, Science and Technology Advancement
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765
Via email at: abaez@aqmd.gov; BACT_Team@aqmd.gov

**Subject:** **Proposed Updates to Best Control available Control Technology (BACT) Guidelines**

Dear Mr. Baez:

Southern California Edison (SCE) appreciates the opportunity to comment on the South Coast Air Quality Management District's (District) proposed updates to the BACT guidelines. The guidelines would establish new BACT limits on major and non-major source facilities and update Maximum Cost Effectiveness Criteria for non-major source facilities.

C1{ SCE understands the needs to maintain BACT consistency with the recent changes to the District's rules and maintain the current BACT list. However, SCE has significant concerns about the proposed limits for nitrogen oxides (NOx) and carbon monoxide (CO) on the natural gas-fired simple-cycle gas turbines. The District proposed to lower the NOx limit from 2.5 to 2.3 ppmvd (parts per million by volume, dry) and the CO limit from 6 to 4 ppmvd at 15% $O_2$. These limits were based on two natural gas-fired simple-cycle turbines operated by the City of Riverside Public Utilities Department. Because of the lack of available public information on these units, it is unclear if these gas turbines' designs and operating conditions are representative of a typical simple-cycle gas turbine.

C2{ Given that the BACT limits are being proposed based on very few units, SCE requests that the District release additional information on these units, such as detailed information on the units' design, operating conditions, historical data on emissions exceedances, and detailed source test results, which will allow SCE and other operators to perform a more complete analysis and provide more substantive comments and input. SCE will continue to review the available data, as well as any additional data the District can provide, and will provide additional technical comments before the upcoming working group meeting in October.

Thank you for your consideration. If you have any questions or concerns regarding this letter, please contact Kendra Jucksch, Senior Advisor, with any questions at 626-302-7384 or kendra.jucksch@sce.com.

Very truly yours,

Joy Brooks
Senior Manager, Air Quality
Southern California Edison

cc: Terry Maddox, SCE
Tammy Yamasaki, SCE
Kendra Jucksch, SCE

# Response to Comment Letter C (Ms. Brooks - SCE)

**Proposed LAER Determination for 49.8 MW Simple Cycle Gas Turbine**

Staff had a meeting with SCE on September 8, 2020 to address their concerns and questions. Here is a summary of the discussed topics:

**Response C1:**

This is a proposed LAER Determination applicable to major sources which has met all the criteria for achieved in practice LAER in accordance with Part A of the BACT Guidelines. The proposed determination is based on two 49.8 MW peaker units permitted at 2.3 PPM NOx and 4 ppm CO at a local utility. Both gas turbines have been in operation several years and showed compliance with permitted limits and verified through source tests and CEMS data. Both Simple Cycle Gas Turbines are operating as typical peaker units. For clarification, staff has added the following language to Section 1.D of the LAER Determination form:

> "*The equipment is at a "Peaker" plant to support California Independent System Operator (CAISO) during periods of high electricity demand.*"

In addition, in Feb. 2019 a LAER Determination was posted on Part B regarding a 100 MW Simple Cycle Gas Turbine which achieved 4 ppm CO.

**Response C2:**

Section 5 of the proposed LAER Determination form includes detailed information on the Gas Turbines and SCR control system. In addition, the most recent RATA test results were added to Section 6.

| RATA Test Date | Unit 3 | RATA Test Date | Unit 4 |
|---|---|---|---|
| **4/15/20** | NOx = 1.83 ppm<br>CO = 3.58 ppm | **4/16/20** | NOx = 2.13 ppm<br>CO = 2.71 ppm |
| **9/10/19** | NOx = 2.14 ppm<br>CO = 2.97 ppm | **10/3/19** | NOx = 2.23 ppm<br>CO = 2.28 ppm |
| **8/14/18** | NOx = 2.01 ppm<br>CO = 2.98 ppm | **2/2/18** | NOx = 2.26 ppm<br>CO = 2.95 ppm |

Staff reviewed the CEMS data for a period of one year (2019) for both units. The results show that the NOx and CO emissions from both units are in compliance with the permit limits. Additional detailed information on both units may be requested through the Public Records request process.

# Comment Letter D (Mr. McGivney - SoCal Gas)

**From:** McGivney, Daniel
**Sent:** Thursday, September 3, 2020 10:28 AM
**To:** Al Baez <abaez@aqmd.gov>
**Cc:** Arney, Gregg
**Subject:** Discuss Rich-Burn Engine Elec Generation BACT Determination for SoCalGas Tecogen Retrofitted Generators

D1 { Al, I hope you are doing well. I wanted to see if you and your team might be available to discuss the BACT determination for SoCalGas' Tecogen emission control system retrofit on rich-burn ICE-electric generation units? We are available on Wednesday, September 9 from 3-5 p.m. (or a bit later), or Thursday, September 10 between 8 and 10 a.m. We understand the 30-day comment period has ended, but we would really like to provide some technical background in regard the installation and some of the descriptions contained in the BACT determination. Please let me know. Thank you.

Daniel McGivney
Environmental Affairs Program Manager
Southern California Gas Company

# Response to Comment Letter D (Mr. McGivney - SoCal Gas)

**Proposed LAER Determination for I.C. Engine, Stationary, Non-Emergency, Electrical Generator**

**Response D1:**

Per the meeting and discussion held on 9/10/20 with representatives from Southern California Gas Company staff has agreed to include additional clarification language in the following sections of the proposed LAER Determination form:

Section 1. "Equipment Information"

Item D "Function"

"*SoCalGas' Aliso Canyon Storage Facility is an underground natural gas storage site. This is one of four prime engines generating electrical power to remote sites where various equipment is located, such as pumps and/or compressors and/or controls.*"

Item L "Equipment Information Comments"

"*Tecogen Ultra Emissions Kit" to "Tecogen Ultera Retrofit Emissions Kit."*

Section 5. "Control Technology"

Item C "Description"

*Revise to* "*Tecogen Ultera Emissions Retrofit Kit control system, comprised of Three-Way Catalyst (DCL) with Air/Fuel Ratio Controller (Continental Controls Air/Fuel Ratio Controller Model EGO2) and Oxidation Catalyst (Tecogen proprietary).*"

Item G "Control Technology Comments"

*Remove "Tecogen system will not override current NSCR and AFRC setup on engine, it will only be an "add-on" to the emission control system." The existing system was removed and replaced by the Tecogen Ultera emissions retrofit kit. Replacing with "This system is retrofitted with an electrical load bank, which must be operated in order to continuously meet permitted emissions limits. Catalyst life has been short due to system back pressure, condensation, and high exhaust temperatures."*

# PROPOSED UPDATES TO BACT GUIDELINES

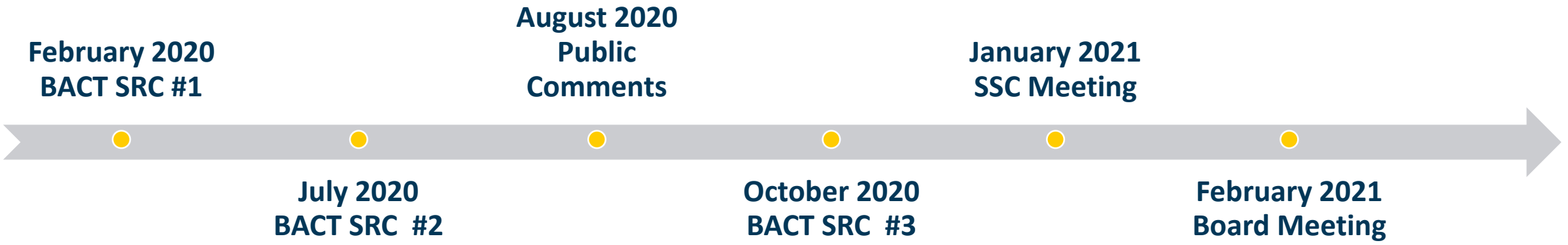
Board Meeting

February 5, 2021

# Proposed Amendments 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: Non-major Polluting Facilities
  - Update maximum cost effectiveness criteria
- Part D, Non-Major Polluting Facilities (BACT)
  - New & updated listings and clarifications/updates to existing listings

## BACT Guidelines Update Process



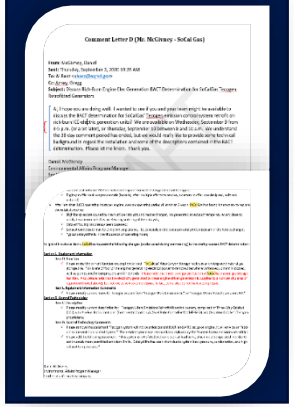
# Part B- LAER/BACT Determination
## Section I: New Proposed Listing

- **Regenerative Thermal Oxidizer (RTO), Natural Gas Fired**
  - Low NOx burner, 9.8 MMBTU/hr, venting prime and finish coating stations
  - 30 ppmv NOx and 100 ppmv CO limits (3% $O_2$), burner operation only
- **Recuperative Thermal Oxidizer, Natural Gas Fired**
  - Low NOx burner, 9.8 MMBTU/hr, venting adhesive coater ovens
  - 30 ppmv NOx and 250 ppmv CO limits (3% $O_2$), non-process emissions
- **Flare (Thermal Oxidizer) - Liquid Transfer and Handling Marine Loading**
  - Low NOx burner, venting terminal tank farm
  - 30 ppmv NOx and 10 ppmv CO limits (3% $O_2$), non-process emissions

| Comment | Response |
|---|---|
| Concerned about terminal VOC emissions | Permit condition limits VOC emissions regardless of the product loaded |

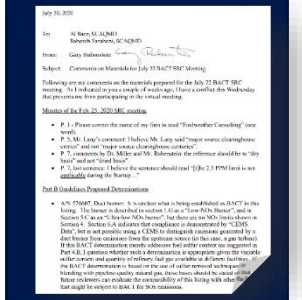
# Part B- LAER/BACT Determination
## Section I: New Proposed Listing

- **Process Heater – Non-Refinery, Thermal Fluid Heater, Natural Gas Fired**
  - Low NOx burner, 4.5 MMBTU/hr
  - 9 ppmv NOx and 100 ppmv CO limits (3% $O_2$)
- **I.C. Engine, Stationary, 147 & 385 BHP, Non-Emergency, Electrical Generation with NSCR, Natural Gas Fired**
  - Prime engines generating electrical power to remote sites
  - 0.07 lb/MW-hr (2.5 ppmv) NOx, 0.10 lb/MW-hr (10 ppmv) VOC and 0.20 lb/MW-hr (12 ppmv) CO limit (15% $O_2$)



| Comment | Response |
|---|---|
| Revise equipment information and control technology on LAER Determination Form | Modified and clarified equipment function and control technology |

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



- **Duct Burner – Refinery Fuel Gas**
  - The Heat Recovery Steam Generator (HRSG ) is designed with a duct burner for extra steam generation as part of a cogeneration unit
  - The cogen includes a Combustion Gas Turbine (CGT), HRSG and Back-Pressure Steam Turbine
  - Total Reduced Sulfur limit: 40 ppm, rolling 1-hr & 30 ppm, rolling 24-hr avg. period

| Comment | Response |
|---|---|
| Clarify what is being established as LAER and how compliance is shown | Determination is for SOx emissions and compliance showed by maintaining the CPMS to monitor the TRS calculated as $H_2S$ in fuel gas |

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

- **Aluminum Heat Treating Oven; 5.47 MM Btu/hr, Billet Temp. < 970°F**
  - Low NOx burner, 5.47 MMBTU/hr, oven treats aluminum billets prior to and during extrusion process
  - 25 ppmv NOx limit (3% $O_2$)

# Section I: Proposed Listing Update

- **Gas Turbine – Simple Cycle, Natural Gas**
  - Peaker Units: provide electricity during periods of high electricity demand
  - Update NOx limit from 2.5 to 2.3 ppmv and CO limit from 6 to 4 ppmv
  - $NH_3$ slip limit: 5 ppmv (15% $O_2$)

| Comment | Response |
|---|---|
| Additional information on test results | Added three most recent RATA results |

# Part D- BACT Determination
## New Proposed Listing

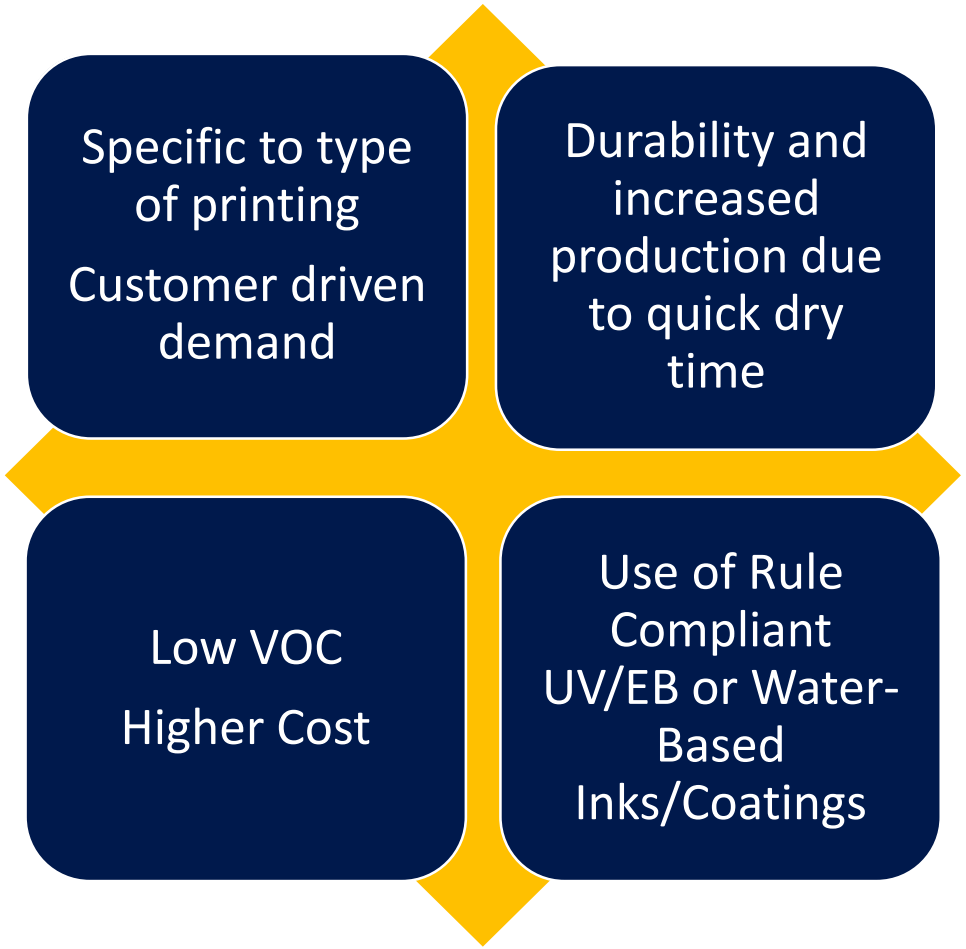
- **Fermentation, Wine Tanks Closed-Top ≤ 30,000 Gal.**
  - Water Scrubber or Chiller Condenser with 67% overall control eff. averaged over length of fermentation season to control VOC emissions
  - Cost-Effectiveness Evaluation

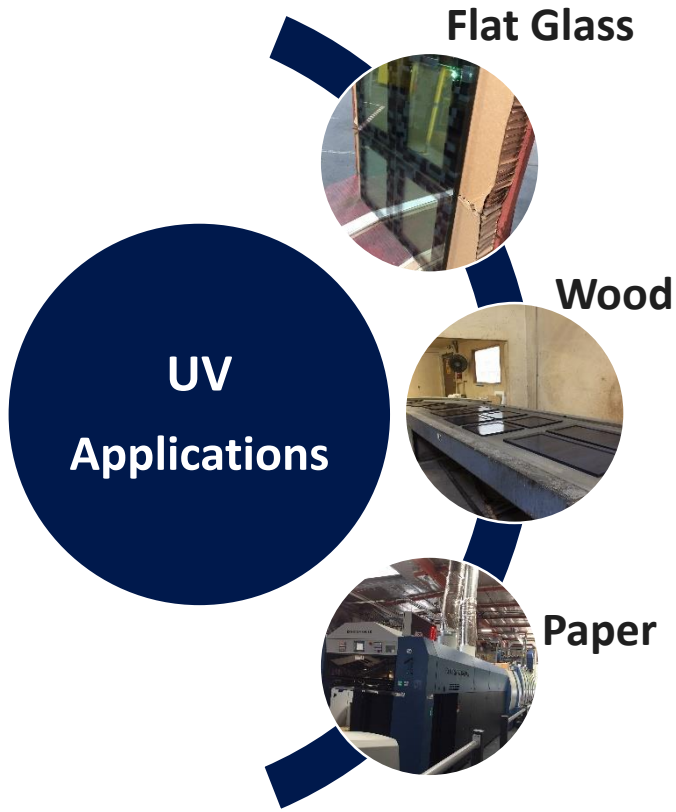
- **Regenerative Thermal Oxidizer, Natural Gas Fired**
  - Low NOx burner, 16 MMBTU/hr, venting all aspects of the electric and acoustic guitars spray/hand coating operations
  - 30 ppmv NOx and 400 ppmv CO limits (3% $O_2$), burner operation only
  - Cost-Effectiveness Evaluation

# Part D- BACT Determination

## Alternate BACT Option UV/EB Technology

- Stationary Source Committee (SSC) directed staff to look into the availability of UV/EB technology for categories listed in RadTech's comment letter in addition to cost data for potential BACT.
- Staff conducted site visits to facilities listed in the comment letter and other printing facilities using UV inks/coatings.



# Part D- BACT Determination
## New Proposed Listing

- **Glass Screen Printing – Flat Glass**
  - Compliance with Rule 1145 or use of Rule 1145 compliant UV/EB or Water-Based Coatings
  - Source Test/SDS showing VOC emission limits compliance

- **Spray Booth – Wood Cabinets (Encl. with automated spray nozzles)**
  - For Wood Cabinets < 1170 lbs VOC/month
  - Compliance with Rule 1136 or use of Rule 1136 compliant UV/EB or Water-Based Coatings
  - Source Test/SDS showing VOC emission limits compliance

# Part D- BACT Determination

## Updates for Consistency with Rules & 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

- **Gas Turbine:** Clarified add-on controls for ammonia slip limit
- **I.C. Engines:** Updated determination revision date
- **Open Process Tanks:** Merged "Chemical Milling Tanks" and "Chrome plating“ categories and clarified Rule 1469 compliance
- **Polyester Resin Operations:** Merged similar resin operations categories
- **Powder Coating Booth:** Corrected throughput limit to be consistent with internal policy and clarified PM control options
- **Printing (Graphic Arts):** Updated compliance with thermal oxidizer BACT requirements for “Flexographic and Lithographic or Offset, Heatset” categories
- **Spray Booth:** Updated description and rule applicability
- **Thermal Oxidizer:** Clarified title for types of oxidizers and added “Regenerative Thermal Oxidizer” subcategory

# California Environmental Quality Act (CEQA)

- Proposed update to the BACT Guidelines is not expected to require physical modifications that would cause a significant adverse effect on the environment
- Proposed update to the BACT Guidelines is exempt from CEQA

# Recommended Actions

- Determine that the proposed amendments to the BACT Guidelines are exempt from CEQA
- Approve Proposed Amendments to the BACT Guidelines