BOARD MEETING DATE: November 6, 2026 AGENDA NO. 33

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

SYNOPSIS: The South Coast AQMD publishes Best Available Control Technology (BACT) Guidelines to specify the requirements for commonly permitted equipment. Periodically, after consultation with stakeholders through the BACT Scientific Review Committee, staff proposes amendments to the BACT Guidelines to reflect technological advancements in emissions controls and to maintain consistency with recent changes to South Coast AQMD rules and regulations as well as state requirements. Staff is proposing to add new listings and/or amend existing listings in the following sections of the BACT Guidelines: Part B: Lowest Achievable Emission Rate Determinations for Major Polluting Facilities and Part D: BACT Determinations for Non-Major Polluting Facilities. Staff is also proposing administrative and routine updates to the following sections of the BACT Guidelines: Overview; Part A: Policy and Procedures for Major Polluting Facilities; Part C: Policy and Procedures for Non-Major Polluting Facilities; and Part E: Policy and Procedures for Facilities Subject to Prevention of Significant Deterioration for GHGs.

COMMITTEE: Stationary Source, October 16, 2026, Reviewed

RECOMMENDED ACTIONS:

1. Determine the proposed amendments to the BACT Guidelines are exempt from the requirements of the California Environmental Quality Act; and
2. Amend the BACT Guidelines.

Wayne Nastri
Executive Officer

JA:JW:DO:BF:BB

Background
South Coast AQMD's Regulation XIII – New Source Review requires facilities to implement BACT for new, relocated, and modified permitted sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia. Regulation XIII requires the Executive Officer to periodically publish updates to the BACT Guidelines to establish the procedures and the requirements for applying BACT to commonly permitted equipment.

The BACT Guidelines include an Overview section, which provides an introduction to the BACT Guidelines and a summary of how BACT and Lowest Achievable Emission Rate (LAER) are implemented in the South Coast AQMD. The BACT Guidelines also include a technical portion divided into three parts: Major Polluting Facilities (Parts A and B), Non-Major Polluting Facilities (Parts C and D), and facilities subject to Prevention of Significant Deterioration (PSD) for GHGs (Parts E and F). Part B consists of three sections: Section I contains listings of LAER/BACT determinations made by South Coast AQMD; Section II contains listings of LAER/BACT determinations for equipment in other air districts; and Section III contains listings of other/emerging technologies which have been in operation with an air quality permit but do not yet qualify as LAER.

A facility is a Major Polluting Facility if it emits or has the potential to emit a criteria air pollutant that equals or exceeds any of the emission thresholds set forth in Rule 1302 and Rule 1325, which generally correlates with facilities regulated under South Coast AQMD's Regulation XXX – Title V Permits. Major Polluting Facilities that are subject to new source review are required by the federal Clean Air Act (CAA) to have LAER. South Coast AQMD implements the federal CAA requirement for LAER using BACT determinations that are incorporated in the BACT Guidelines. At the state level, Health and Safety Code 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 new source review.

In accordance with Health and Safety Code Section 40440.11, in updating Part D of the BACT Guidelines with new or more stringent Non-Major Polluting Facility BACT, South Coast AQMD must follow a rigorous process including cost-effectiveness analysis, notification to the public, review by the Scientific Review Committee at public meetings, and approval by the Board.

GHG BACT applies to new or modified facilities subject to PSD requirements for GHG emissions. Requirements for determining applicability of new or modified sources are promulgated in Chapter 40 of the Code of Federal Regulations Section 52.21. In general, GHG BACT determinations are project-specific with a focus on options that improve energy efficiency.

Proposed Amendments to the BACT Guidelines
The proposed amendments are to update the Overview section, and Parts A, B, C, and D of the BACT Guidelines to reflect technological advancements in emissions controls and to maintain consistency with recent changes to South Coast AQMD rules and regulations as well as state requirements. Staff is also proposing administrative changes to the Overview section, Part A, Part C, and Part E, and a routine update of the Maximum Cost-Effectiveness values in Part C, consistent with the second quarter 2026 Marshall and Swift Equipment Cost Index. No amendments are proposed to Part F.

A summary of the proposed amendments to the BACT Guidelines are included in Attachment A.

Details of the proposed amendments to the BACT Guidelines covering the Overview section and Parts A, B, C, D, and E are included in Attachments B through G, and include four additional listings to Part B - LAER/BACT Determinations for Major Polluting Facilities, and two additional listings to Part D - BACT Guidelines for Non-Major Polluting Facilities.

Compliance with Health and Safety Code Section 40440.11
South Coast AQMD must comply with Health and Safety Code Section 40440.11 when: a) establishing the best available control technology that is more stringent than the lowest achievable emission rate pursuant to federal law for a proposed new or modified source; b) establishing the best available control technology for a source category or determining the best available control technology for a particular new or modified source when a particular control alternative for one pollutant will result in an increase in emissions of one or more other pollutants: and c) revising the BACT Guidelines for a source category to establish an emission limit that is more stringent than the existing BACT Guidelines for that source category.

The proposed new BACT determination for a Linear Generator, Non-Emergency Electrical Generator, which has been commercially available and in operation for more than one year, establishes a new source category in the BACT Guidelines for Non-Major Polluting Facilities. No control alternative has been identified for any of the pollutants emitted from this equipment that would result in an increase in emissions of another pollutant. In addition, the proposed determination establishes a new source category rather than establishing BACT that is more stringent than the lowest achievable emission rate for a particular source or revising existing BACT Guidelines to establish a more stringent emission limit. As such, the circumstances described in Health and Safety Code Section 40440.11 do not apply to the proposed new BACT determination, and cost-effectiveness evaluation of this new BACT determination is not applicable.

For consistency with the proposed new BACT determination and recent changes to South Coast AQMD rules and state requirements, updates to Part D are also proposed, which seek to establish a new source category for Linear Generator, Non-Emergency Electrical Generator, which is equipment that has been achieved in practice. The proposed update would recognize an achieved-in-practice technology for a new source category and would not result in more stringent requirements than those that would otherwise apply under Rule 1110.3 – Emissions from Linear Generators compliance. Therefore, a cost-effectiveness evaluation of this technology is not required and was not conducted. Accordingly, the specific duties prior to revision set forth in Health and Safety Code Section 40440.11 do not apply to this proposed listing.

Public Process

The BACT Scientific Review Committee was established as a standing committee by the Board to enhance the public participation process with technical review and comments conducted periodically by a focused committee, prior to updating the BACT Guidelines. The BACT Scientific Review Committee meetings include participants from the affected facilities, industry associations, equipment vendors, environmental/community groups, academia, and public agencies. The proposed amendments to the BACT Guidelines were presented to the BACT Scientific Review Committee on June 4, 2025, October 15, 2025, and May 28, 2026. Following the May 28, 2026 meeting, a 30-day comment period was provided to the public to review the proposed amendments and submit comments. As part of the process of developing the proposed new BACT determinations, staff met individually with affected stakeholders and industry groups. Comments provided by BACT Scientific Review Committee members regarding the proposed BACT Guidelines along with staff responses are included in Attachment H.

Key Issues

Through the BACT determination process, staff has worked with stakeholders to address and resolve issues. Staff is not aware of any remaining key issues regarding the proposed BACT Guidelines.

California Environmental Quality Act (CEQA)

Pursuant to the CEQA Guidelines Sections 15002(k) and 15061, the proposed project (Proposed Amendments to the BACT Guidelines) is exempt from CEQA pursuant to CEQA Guidelines Sections 15061(b)(3) and 15308. Further, there is no substantial evidence indicating that any of the exceptions set forth in CEQA Guidelines Section 15300.2 apply to the proposed project. A Notice of Exemption has been prepared pursuant to 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 filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Land Use and Climate Innovation.

Socioeconomic Impact Assessment
The proposed amendments seek to update the BACT Guidelines and 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. No socioeconomic impact assessment is required under Health and Safety Code Sections 40440.8 and 40728.5, because the proposed project is not a rule or regulation in the meaning of those statutes.

Benefits to South Coast AQMD
By ensuring that emission sources are using the cleanest technology available as required by the updates to the BACT Guidelines, fewer emissions from new permitted sources and reduced emissions from modified, and relocated permitted sources are expected relative to what would otherwise occur without LAER/BACT. In addition, the successful implementation of LAER/BACT for permitted stationary sources will contribute towards achieving state and federal air quality standards, which is consistent with the objectives of the Air Quality Management Plan.

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

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. Comments and Responses
I. Notice of Exemption from CEQA
J. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSED AMENDMENTS TO BACT GUIDELINES

The proposed amendments seek to update the Overview section and Parts A, B, C, and D of the BACT Guidelines to reflect the latest technological advancements in emission controls and to maintain consistency with recent changes to South Coast AQMD rules and regulations as well as state requirements. Other administrative changes to the Overview section, Part A, Part C, and Part E are also proposed. No amendments are proposed to Part F. The following summarizes the key proposed changes to the BACT Guidelines:

Overview Section

The Overview section provides an introduction to the BACT Guidelines and a summary of how BACT and LAER are implemented at South Coast AQMD.

Key proposed changes:

- Updating the Introduction to include a reference to Rule 1303(a)(2) in addition to the existing reference to Regulation XIII to provide a more complete reference to the applicable regulatory requirements.

- Removing outdated description of previous revisions to Part A and Part B.

- Updating the agency responsible for managing the CARB Technology Clearinghouse Database from the California Air Pollution Control Officers Association's (CAPCOA) Engineering Managers Committee to the California Air Resources Board Technology Assessment Section.

- Reorganizing paragraphs and performing minor edits to wording and formatting to create a clear and consistent flow of information.

- Updating BACT Guidelines access instructions to reflect the current web address and eliminate the hardcopy ordering option.

- Adding clarifying statement, "CO is subject to BACT based on a policy and programmatic determination that was made in 2007 in consideration of the air basin's re-designation to a maintenance area." and adding footnote 4 for CO Attainment Status memo dated August 9, 2007.

- Adding a statement regarding the BACT Scientific Review Committee (SRC) Charter and footnote 10 identifying the location of the BACT SRC Charter, as well as a link to the SRC member list on the South Coast AQMD website.

The proposed amended Overview section is 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.

Amendments include updating the Rule 1325 subparagraph in footnote 3 to be consistent with the most recent version of the rule. Amendments also include correcting a chapter number referring to the Overview section of the guideline under "Cost in LAER Determinations" as well as correcting word usage for consistency.

The proposed amended Part A is included in Attachment C.

Part B – LAER/BACT 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 made by other air districts; and Section III contains listings of other/emerging technologies which have been in operation with an air quality permit but do not yet qualify as LAER. The proposed new and updated Part B LAER determinations of Sections I and III are summarized below, and the proposed determinations are in Attachment D.

Section I – South Coast AQMD LAER/BACT Determinations

One updated listing and one new listing are proposed, as summarized in Table 1 and described below. All new listings were found to be achieved in practice, as defined in the BACT Guidelines.

Table 1 - Summary of Proposed Part B: Section I – LAER/BACT Determinations

Equipment Category	Current Limit	Proposed Limit
Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired	VOC: 25 ppmv[(1)] @ 15% O_2	VOC: 10 ppmv @ 15% O_2
Lithographic Printing, Non-Heatset, Sheet-fed	New Listing	UV-curable or Oil-based Inks; VOC content of Fountain Solution ≤ 8% by volume; VOC content of Blanket and Roller Washes ≤ 100 grams per liter; Compliance with South Coast AQMD Rules 1130 and 1171

[(1)] Parts per million by volume, dry basis

Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired (update)

This updated listing is solely for linear generators fired on natural gas and used for non-emergency applications to produce electricity. This technology creates linear motion that is directly converted into electricity. Each system contains two identical linear generator cores, operating in tandem. Due to the low operating temperature, NOx emissions are low. Each core is equipped with an oxidation catalyst for VOC and CO reduction. The achieved-in-practice cases are two linear generator systems rated at 240 kilowatts electric (kWe) each. Source test results confirm compliance with 2.5 parts per million by volume (ppmv) NOx, 12 ppmv CO, and 10 ppmv VOC limit corrected to 15 percent O_2. For this listing, the NOx and CO emission limits remain unchanged from the existing listing, while the VOC limit is reduced from 25 ppmv to 10 ppmv.

Lithographic Printing, Non-Heatset, Sheet-fed (new)

This is a new listing affecting facilities using a lithographic printing press for commercial printing of various paper products. The process uses a coating unit, infrared (IR) dryer rated at 175 kW, ultraviolet (UV) dryer rated at 170 kW, and an exhaust system. This listing requires the use of UV curable or Oil-based inks, VOC content of Fountain Solution ≤ 8% by volume, and VOC content of Blanket and Roller Washes ≤ 100 grams per liter. This equipment shall be operated in compliance with Rules 1130 and 1171.

Section III – Other Technologies

The intent of this section is to indicate that Section III of the BACT Guidelines represents other/emerging technologies that have been permitted and placed into operation but have not yet demonstrated sufficient performance to qualify as LAER. Two new listings are proposed, as summarized in Table 2 and described below. Staff will continue to collect relevant performance, reliability, maintenance, and other data to support these listings as future LAER/BACT determinations.

Table 2 - Summary of Proposed Part B: Section III – Other Technologies

Equipment Category	Current Limit	Proposed Limit
Boiler, Refinery Gas or Natural Gas or Process Gas Fired, 520.4 MMBtu/hr[(1)]	New Listing	NOx: 2.5 ppmv[(2)], 30-day average 3.0 ppmv, 24-hr average CO: 27 ppmv, 30-day average 35 ppmv, 24-hr average @ 3% O_2 Ammonia: 5 ppmv, 1-hr average
Digester Gas (Biogas) Conditioning and Upgrading System	New Listing	Total Sulfur as H_2S (Hydrogen sulfide): 2.0 ppmv

(1) Million British thermal units per hour

(2) Parts per million by volume, dry basis

Boiler, Refinery Gas Fired (new)

This new listing is based on two boilers, each boiler rated at 260.2 million British thermal units per hour (MMBtu/hr), fired on refinery fuel gas, natural gas, and process gas from a fume scrubber. They are equipped with low NOx burners and with approximately 10 percent of flue gas recirculated into the burners, resulting in reduced flame temperature and reduced NOx formation. For post-combustion NOx control, each boiler will be equipped with a selective catalytic reduction unit. Each boiler is operated independently to meet the steam demand of the facility. The permit to construct was issued in 2023. The emission limits in the permit to construct are as follows: 3.0 ppmv NOx and 35 ppmv CO, based on a 24-hour average; 2.5 ppmv NOx and 27 ppmv CO, based on 30-day average; and 5 ppmv ammonia, based on one-hour average. The NOx and CO limits are corrected to 3 percent O_2 on a dry basis.

Digester Gas (Biogas) Conditioning and Upgrading System (new)

The digester gas treatment unit has a capacity of 1,200 standard cubic feet per minute. This biogas conditioning and upgrading system transforms raw biogas into renewable natural gas and includes two hydrogen sulfide (H_2S) removal vessels, which are both operated to maximize treatment efficiency and ensure continuous removal capacity. The permit to construct includes a condition to limit the H_2S concentration to 2.0 ppmv at the outlet of the tail gas carbon adsorber.

No updates to the other portions of Sections I, II, and III are proposed.

Part C – Policy and Procedures for Non-Major Polluting Facilities

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.

The following changes are proposed to Part C:

- Correct word usage for consistency.

- Routine update of the Maximum Cost-Effectiveness Values in Table 5 consistent with the second-quarter 2026 Marshall and Swift Equipment Cost Index, in accordance with the BACT Guidelines policy.

- Update Figure 2, "The Ongoing BACT Update Process" to add the Stationary Source Committee into the flow chart to be consistent with the BACT SRC Charter.

The proposed amended Part C is included in Attachment E.

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 address equipment and processes for which the emission limits have been achieved in practice and for maintaining consistency with recent changes to South Coast AQMD rules and California state requirements. All proposed Part D amendments and updates will not result in more stringent requirements than would otherwise occur through current rule compliance, which constitutes Minor Source BACT (MSBACT) under Part C – Policy and Procedures for Non-Major Polluting Facilities. Therefore, an evaluation of the achieved-in-practice status and cost-effectiveness of the underlying technologies is not required and was not conducted. Accordingly, the specific duties prior to revision set forth in Health and Safety Code Section 40440.11 do not apply to this proposed listing.

The proposed amended Part D BACT determinations are summarized in Table 3 and described below, and the proposed amended Part D is included in Attachment F.

Table 3 – Summary of Proposed Part D BACT Determinations

Equipment Category	Current Limit	Proposed Limit
Food Oven		
Ribbon Burner > 500°F	NOx: 60 ppmv[(1)] @ 3% O_2 CO: Compliance with Rule 407 or 1153.1	NOx: 30 ppmv @ 3% O_2 CO: 800 ppmv @ 3% O_2 Compliance with Rule 1153.1
Ribbon Burner ≤ 500°F Other Direct Fired Burner	NOx: 30 ppmv @ 3% O_2 CO: Compliance with Rule 407 or 1153.1	NOx: 30 ppmv @ 3% O_2 CO: 800 ppmv @ 3% O_2 Compliance with Rule 1153.1
Infrared Burner	NOx: 30 ppmv @ 3% O_2 CO: Compliance with Rule 407 or 1153.1	NOx: 15 ppmv @ 3% O_2 CO: 800 ppmv @ 3% O_2 Compliance with Rule 1153.1
Indirect Fired Burner	Indirect Fired units may be subject to Rules 1146 and 1146.1 and BACT for Process Heater.	NOx: 30 ppmv @ 3% O_2 CO: 800 ppmv @ 3% O_2 Compliance with Rule 1153.1
Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired	New Listing/Category	VOC: 10 ppmv @ 15% O_2 NOx: 2.5 ppmv @ 15% O_2 CO: 12 ppmv @ 15% O_2

[(1)] Parts per million by volume, dry basis

Food Oven (update)

Update the "Food Oven" emission limits to be consistent with the current Rule 1153.1 Phase I limits. The following minor source BACT listings have outdated NOx and/or CO limits: ribbon burner, other direct-fired burner, and infrared burner. Staff proposes to replace the existing outdated BACT requirements for each of these minor source BACT listings with the following language: "Compliance with Rule 1153.1". In addition, staff proposes to update the NOx emission limits for ribbon burners operating above 500°F and infrared burners from 60 to 30 ppmv and from 30 to 15 ppmv, respectively, for indirect fire burner to add a NOx limit of 30 ppmv, and to add a CO emission limit of 800 ppmv for all subcategories of food ovens. The NOx and CO limits are corrected to 3 percent O_2 on a dry basis. This proposed amendment will ensure that these minor source BACT listings reflect the latest, lower NOx and CO emission limits which have been achieved in practice and are consistent with Rule 1153.1.

Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired (new)

This new listing is solely for linear generators fired on natural gas and used for non-emergency applications to produce electricity. This technology creates linear motion that is directly converted into electricity. Each system contains two linear

generator cores, operating in tandem. Due to the low operating temperature, fewer NOx emissions are expected. Each core is equipped with an oxidation catalyst to reduce emissions of VOC and CO. The achieved-in-practice cases are two linear generator systems rated at 240 kWe each. Source test results confirm compliance with the following emission limits: 2.5 ppmv NOx, 12 ppmv CO, and 10 ppmv VOC corrected to 15 percent O_2.

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

Part E describes the policy and procedures for facilities subject to Prevention of Significant Deterioration (PSD) for greenhouse gases and explains what BACT is, why it is required, when it is required, and how it is determined for the subject facilities.

The proposed changes to Part E consist of corrections of minor grammatical errors.

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; September 2, 2022; February 2, 2024; November 6, 2026)

Deputy Executive Officer
Engineering and Permitting
Jason Aspell

Authors:

Bahareh Farahani	Program Supervisor
Bettina Burleigh Sanchez	Senior Air Quality Engineer
Ashkan Garshasbi, Ph.D.	Air Quality Engineer II

Reviewed By:

Barbara Baird	Chief Deputy Counsel
Jillian Wong, Ph.D.	Assistant Deputy Executive Officer
David Ono	Senior Air Quality Engineering Manager
Brian Tomasovic	Assistant Chief Deputy Counsel
Bhaskar Chandan, P.E.	Senior Air Quality Engineering Manager (Retired)

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OVERVIEW

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, Rule 1303 (a)(2), requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the BACT requirements for commonly permitted equipment.

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 (1.0×10^{-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 South Coast AQMD to publish T-BACT guidelines, and T-BACT must be established during the permitting process.

BACKGROUND

~~Historically, t~~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 South Coast AQMD permitting staff and others as well as information on new and emerging technologies. Part B of the South Coast AQMD BACT Guidelines now follows the same outline as the permit listings in the California Air Resources Board State Technology Clearinghouse Database, which is managed under the direction of the California Air Resources Board Technology Assessment Section~~California Air Pollution Control Officers Association's (CAPCOA) Engineering Managers Committee~~. In addition, BACT determinations made by South Coast AQMD are submitted to the U.S. Environmental Protection Agency (U.S. EPA) 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 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 South Coast AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.~~

As a result of amendments to 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 ~~f~~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 U.S. EPA'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 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 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~~

BACT FOR MAJOR VS 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 U.S. EPA'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 South Coast AQMD Board approval, for consideration of cost.

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

PUBLIC PARTICIPATION

California Health & Safety Code Section 40440.11 specifies the criteria and process that must be followed by the South Coast AQMD to establish new BACT emission limits ~~and standards~~. This code ~~includes requirements~~ requires ~~that ensure cost-effectiveness evaluations are subject to~~ South Coast AQMD Governing Board review ~~and to~~ at a public hearing~~s~~ prior to revision of the BACT Guidelines and also requires cost-effectiveness evaluations for listings that are more stringent than the existing Guidelines. 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 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 South Coast AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.

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

South Coast Air Quality Management District
BACT Team
Engineering and Permitting
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 South Coast AQMD's website 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 South Coast AQMD. The map in Figure 1 shows the location of the three air basins in 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 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 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	Non-Palo Verde, Riverside County Portion of Mojave Desert Air Basin
VOC	10	10	100
NOx	10	10	100
SOx[3]	70	70	100
CO	50	100	100
PM_{10}	70	70	100
$PM_{2.5}$	70	---	---

Figure 1 – Map of 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 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 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 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.[4] ~~Therefore~~Although, CO is in attainment with state and federal ambient air quality standards, CO is subject to BACT based on a policy and programmatic determination that was made in 2007 in consideration of the –air basin's re-designation to a maintenance area.~~South Coast AQMD policy~~.

The 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 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**

[4] CO Attainment Status memo dated August 9th, 2007 (https://www.aqmd.gov/docs/default-source/bact/policy-and-guidance-documents/8-9-07-coattainmentstatus2.pdf)

units regardless ~~if~~ of whether 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 South Coast AQMD that shows the location of the three air basins in South Coast AQMD.

Table 2 – Class I Substances (ODCs)*

A. Group I: $CFCl_3$ Trichlorofluoromethane (CFC-11) CF_2Cl_2 Dichlorodifluoromethane (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

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[5] 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 polluting 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).[6]

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 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 South Coast AQMD's Engineering and Permitting division in June 2018, for the purpose of preventing circumvention of

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

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

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

Limited BACT Exemption

Rule 1304 (Exemptions) was amended in November 2021 to add subdivision (f) to include a limited BACT exemption for RECLAIM and former RECLAIM facilities. This limited BACT exemption is available to new or modified permit units located at a RECLAIM or former RECLAIM facility, for PM_{10} and SOx emission increases associated with the installation or modification of add-on air pollution control equipment for controlling NOx emissions to comply with NOx Best Available Retrofit Control Technology (BARCT) emission limits. The objective of the proposed narrow BACT exemption is to address the co-pollutant issue associated with the installation or modification of add-on air pollution controls and the replacement of equipment that is combined with an installation or modification of add-on air pollution control required to transition NOx RECLAIM facilities. This limited BACT exemption is available only to projects at qualified facilities that meet all the requirements listed under Rule 1304 subparagraphs (f)(1)(A) through (E)[7].

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.[8]

For modifications subject to Regulation XIII, there are two possible cases[9]:

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.

[7] See Rule 1304 (f).
[8] See Rule 2005(d) and Engineering Policy & Procedures dated 8/7/2019.
[9] See Rule 1306(d)(2).

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:

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

Chapter 4 - What is BACT?

This chapter explains the definitions of BACT found in 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 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, South Coast AQMD has interpreted this provision as a 1.0 lb/day increase in emissions from all sources subject to NSR. According to 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 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 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 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 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 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 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 South Coast AQMD staff are subject to public notification requirements. In addition to allowing the public to comment on these items, the South Coast AQMD has established a BACT Scientific Review Committee (BACT SRC) to review and comment on technical matters of the proposals.

The 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 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 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 South Coast AQMD BACT Guidelines. The BACT SRC Charter details the goals, objectives, composition, qualifications, and operational guidelines of the BACT SRC[10]. A 30-day notice period applies for the BACT SRC and interested persons to review and comment on South Coast AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed. The BACT SRC consist of up to 19 members, includeing 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, South Coast AQMD seeks out an appropriate replacement to join the committee. A list of current BACT SRC members can be accessed at

~~Scientific Review Committee (aqmd.gov)~~ http://www.aqmd.gov/home/permits/bact/scientific-review-committee.

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.

[10] See South Coast Air Quality Management District Best Available Control Technology Scientific Review Committee Charter: http://www.aqmd.gov/docs/default-source/bact-src/bact-src-charter/amended-bact-src-charter_02012019.pdf

- 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, South Coast AQMD, State, and Federal required permit issuance timelines are still in effect. South Coast AQMD BACT staff will ~~commit to sending~~send 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~~ determinations 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~~. 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 South Coast AQMD staff to research the comments. 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 South Coast AQMD Governing Board for approval.

MEETING WITH SOUTH COAST AQMD MANAGEMENT

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 Permitting. 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 Permitting. 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 South Coast AQMD officials - the DEO of Legislative, Public Affairs/Media Office; the DEO of Science and Technology Advancement; the DEO of Engineering and Permitting; the DEO of Planning, Rule Development and Implementation; 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 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 South Coast AQMD (once the permit is denied or issued)[11]. The Hearing Board is an independent, quasi-judicial body composed of five members, who can review a permitting decision by the Executive Officer. In this venue, legal counsel represents the 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 South Coast AQMD Governing Board to review a pending application pursuant to 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.

[11] 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.

ATTACHMENT C

PART A - POLICY AND PROCEDURES FOR MAJOR POLLUTING FACILITIES

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

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 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 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 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 U.S. EPA, 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:

- South Coast AQMD BACT Guidelines
- CAPCOA BACT Clearinghouse
- U.S. EPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- BACT/LAER requirements in New Source Review permits issued by South Coast AQMD or other agencies

However, staff will check with the permitting authority (other than 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 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 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, U.S. EPA 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 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); and
- Emission increases offset; and
- Certification of compliance with Clean Air Act; and

[3] South Coast AQMD Rule 1325(b)(~~12~~13), as amended on January 4, 2019

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

- Analysis conducted of benefits of the proposed project outweigh the environmental and social costs associated with that project.

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

Limited BACT Exemption

Rule 1304 - Exemptions was amended in November 2021 to add subdivision (f) to include a limited BACT exemption for RECLAIM and former RECLAIM facilities. This limited BACT exemption is available to new or modified permit unit located at a RECLAIM or former RECLAIM facilities, for PM_{10} and SOx emission increases associated with the installation or modification of add-on air pollution control equipment for controlling NOx emissions to comply with NOx Best Available Retrofit Control Technology (BARCT) emission limits. The objective of the proposed narrow BACT exemption is to address the co-pollutant issue associated with the installation or modification of add-on air pollution controls and the replacement of equipment that is combined with an installation or modification of add-on air pollution control required to transition NOx RECLAIM facilities. This limited BACT exemption is available only to projects at qualified facilities that meet all the requirements listed under Rule 1304 subparagraphs (f)(1)(A) through (E)[6].

Cost in LAER Determinations

U.S. EPA guidelines do not allow for routine consideration of the cost of control in LAER determinations. However, U.S. EPA 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. South Coast AQMD rules implement both state BACT and federal LAER requirements simultaneously, and furthermore specify that 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 South Coast AQMD management for consideration as described in Overview, Chapter ~~6~~5.

Special Permitting Considerations

Although the most stringent AIP LAER for a source category will most likely be the required LAER, South Coast AQMD staff may consider special technical circumstances that apply to the proposed equipment which may allow deviation

[6] See Rule 1304 (f).

from that LAER. The permit applicant should bring any pertinent facts to the attention of the South Coast AQMD permitting engineer for consideration.

Case-Specific Situations

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. 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

South Coast AQMD will accept the use of super compliant materials in lieu of an add-on control device controlling VOC emissions from coating operations. For example, if a permit applicant uses only surface coatings that meet the super compliant material definition in 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[7]. 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

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

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.

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 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", 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 – 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, South Coast AQMD staff will reevaluate the LAER requirements for the CEP upon renewal of the Title V permit.

LAER UPDATE PROCESS

South Coast AQMD will update Section I – South Coast AQMD LAER/BACT Determinations of Part B of the BACT Guidelines on an ongoing basis with actual LAER determinations for 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 South Coast AQMD LAER determinations for the same equipment category.

When South Coast AQMD permitting staff makes a LAER determination that is no more stringent than previous South Coast AQMD LAER determinations, the permitting team will issue the permit and forward information regarding this LAER determination to the BACT Team.[8] 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 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[9] 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 South Coast AQMD BACT Team will provide standing status reports to the South Coast AQMD Governing Board's Stationary Source Committee and to the Governing Board.

[8] To reduce the burden on 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.

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

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

CLEAN FUEL GUIDELINES

In January 1988, the 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 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 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 South Coast AQMD rules limiting NO_x and sulfur emissions.

AIR QUALITY-RELATED ENERGY POLICY

In September 2011, the 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 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 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 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 – South Coast AQMD LAER/BACT Determinations, includes information on LAER/BACT determinations contained in permits issued by 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 but are not reflected in a permit limit, and information on emerging technologies or emission limits which have not yet been 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:

- Equipment Information

  This provides information on the manufacturer, model, description, function, size/dimensions/capacity, combustion sources, and cost of the equipment. Cost data are generally obtained from the South Coast AQMD application forms, manufacturer or owner/operator, and are not verified. 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 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.

- 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[10]), 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 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 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.

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

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 South Coast AQMD website www.aqmd.gov/home/permits/bact. The CAPCOA Clearinghouse maintained by the California Air Resources Board and the U.S. EPA 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 South Coast AQMD BACT Guidelines. Finally, the 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 South Coast AQMD permitting engineer any special permitting considerations that may affect the LAER determination.

ATTACHMENT D

PART B - LAER/BACT DETERMINATIONS FOR MAJOR POLLUTING FACILITIES

Section I - South Coast AQMD LAER/BACT Determination

Source Type: **Major/LAER**

Application No.: **649020 & 649856**

Equipment Category: **Linear Generator**

Equipment Subcategory: **Non-Emergency Electrical Generator, Natural Gas Fired**

Date: **November 6, 2026**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Mainspring Energy	B. MODEL: MSE-230-NG
C. DESCRIPTION: The Mainspring Energy linear generator is a power generation technology that uses a thermochemical reaction to create linear motion that is directly converted into electricity. Each Mainspring Energy linear generator module consists of two identical cores (reaction zone and electrical generator). Each core includes an air-to-fuel ratio controller and is vented to an oxidation catalyst.	
D. FUNCTION: Mainspring linear generator uses a low-temperature reaction to produce electricity and is used as a stationary prime power source at this facility.	
E. SIZE/DIMENSIONS/CAPACITY: Each core is 120 kWe	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT:	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
N/A	N/A	N/A

H. PRIMARY FUEL: Natural gas*	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: N/A	
L. EQUIPMENT INFORMATION COMMENTS: *Per Rule 1110.3 - Emissions from Linear Generators, Natural Gas means a mixture of gaseous hydrocarbons, with at least 80 percent methane by volume, and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California public utilities commission.	

2. COMPANY INFORMATION

A. COMPANY: Mainspring Energy, Incorporated	B. FAC ID: 189493
C. ADDRESS: 1150 N Pepper Ave CITY: Colton STATE: CA ZIP: 92324	D. NAICS CODE: 445110
E. CONTACT PERSON: Corrie Zupo	F. TITLE: Manager of Air Compliance
G. PHONE NO.: (424) 241-8959	H. EMAIL: corrie.zupo@mainspringenergy.com

3. PERMIT INFORMATION

A. AGENCY: South Coast AQMD	B. APPLICATION TYPE: CHANGE OF CONDITIONS
C. SCAQMD ENGINEER: Kraig Morris	
D. PERMIT INFORMATION: PC ISSUANCE DATE: P/O NO.: G75824 & G75826 PO ISSUANCE DATE: 4/25/2024	
E. START-UP DATE: 2021	
F. OPERATIONAL TIME: > 1 year	

4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES:

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	10 PPMVD	2.5 PPMVD		12 PPMVD		
Averaging Time	15 Minutes	15 Minutes		15 Minutes		
Correction	15% O_2	15% O_2		15% O_2		

B. OTHER BACT REQUIREMENTS: N/A

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

D. EMISSION INFORMATION COMMENTS: N/A

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Johnson Matthey	B. MODEL: MC6T-6F-2

C. DESCRIPTION: Oxidation catalyst

D. SIZE/DIMENSIONS/CAPACITY: N/A

E. CONTROL EQUIPMENT PERMIT INFORMATION: N/A

APPLICATION NO.: N/A PC ISSUANCE DATE: N/A

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:

Condition 7) This equipment shall be equipped with an air-to-fuel ratio controller with an oxygen sensor.

Condition 8) This equipment shall not be operated unless its exhaust is vented to the oxidation catalyst which is in full operation, and which is in good operation condition at all times.

Condition 9) The owner or operator shall inspect the oxidation catalyst every six months of operation in accordance with the recommendation(s) of the oxidation catalyst manufacturer and determine if it needs to be cleaned or washed.

Condition 10) The operator shall wash the catalyst or replace the catalyst media at least after 12,000 hours of operation.

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: 2/21/2023

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA:

Parameter	Core 1			Core 2			Permit Limit
	Normal Load	Max. Load	Min. Load	Normal Load	Max. Load	Min. Load	
CO, PPM @ 15% O_2	2.51	2.49	<2.09*	2.24	<1.85*	<2.34*	**12**
NO_X, PPM @ 15% O_2	1.98	1.82	<1.05*	2.25	2.29	<1.17*	**2.5**
VOC, PPM @ 15% O_2	7.48	-	-	8.87	-	-	**10**

* Concentration is below 20% of analyzer range and reported at 20% range.

F. TEST OPERATING PARAMETERS AND CONDITIONS:

Condition 14.A) The test shall measure NOx, VOC, CO, CO2, oxygen content, moisture content, temperature, and exhaust flow rate at the exhaust of the equipment.

Condition 14.B) The test shall be conducted in accordance with the source testing requirements of Rule 1110.3.

G. TEST METHODS (SPECIFY AGENCY):

South Coast AQMD Method 100.1 for NOx, O_2, CO_2, and CO (3 runs, 24-36 mins each)
South Coast AQMD Method 2.3 for velocity (3 runs, 24 mins each)
South Coast AQMD Method 4.1 for moisture (3 runs, 24 mins each)
South Coast AQMD Method 25.3 for VOC (1 run (duplicate canisters), 30 mins)

H. MONITORING AND TESTING REQUIREMENTS:

Condition 13) The owner or operator shall conduct a source test once every five years from the date of the previous source test and not later than the last day of the calendar month that the test is due.

Condition 16) The owner or operator shall conduct diagnostic emissions checks by the use of a portable NOx, CO, and oxygen analyzer at least once every two years from the date of the previous emission check and not later than the last day of the calendar month that the test is due.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Each core is operated and tested independently.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 040005	B. CCAT: -	C. APPLICATION TYPE CODE: 66
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☐ NO ☒	F. SOURCE TEST ID(S): R24377
G. SCAQMD SOURCE SPECIFIC RULES: Rule 1110.3		
H. HEALTH RISK FOR PERMIT UNIT		

H1. MICR: -	H2. MICR DATE: -	H3. CANCER BURDEN: -	H4. CB DATE: -
H5: HIA: -	H6. HIA DATE: -	H7. HIC: -	H8. HIC DATE: -

Section I – South Coast AQMD LAER/BACT Determination

Source Type: **Major/LAER**

Application No.: **622653**

Equipment Category: **Lithographic or Offset Printing,**

Equipment Subcategory: **Non-Heatset (UV Dryer), Sheet-fed**

Date: **November 6, 2026**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: KBA	B. MODEL: 164
C. DESCRIPTION: Lithographic printing press system consisting of a sheet-fed lithographic printing press (coating unit, Infrared (IR) dryer;175-kW total, Ultraviolet (UV) dryer; 170-kW total, and exhaust system with one 6.7 horsepower (HP) fan.	
D. FUNCTION: The equipment is used for commercial printing of various paper products.	
E. SIZE/DIMENSIONS/CAPACITY: Six-color, 64-inch sheet-fed printing press	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT:	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
N/A	N/A	N/A

H. PRIMARY FUEL: N/A	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: N/A	
L. EQUIPMENT INFORMATION COMMENTS: -	

2. COMPANY INFORMATION

A. COMPANY: The Foster Printing Co., Inc.	B. FAC ID: 165897
C. ADDRESS: 700 E Alton Ave. CITY: Santa Ana STATE: CA ZIP: 92705	D. NAICS CODE: 323111
E. CONTACT PERSON: Dennis Blackburn	F. TITLE: President
G. PHONE NO.: (714) 731-2000	H. EMAIL: dennis@fosterprint.com

3. PERMIT INFORMATION

A. AGENCY: South Coast AQMD	B. APPLICATION TYPE: PO NO PC
C. SCAQMD ENGINEER: Walter Quintos	
D. PERMIT INFORMATION: P/C ISSUANCE DATE: - P/O NO.: G64772	P/O ISSUANCE DATE: 3/26/2021
E. START-UP DATE: 10/6/2020	
F. OPERATIONAL TIME: > 5 years	

4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES:

	VOC	NOx	SOx	CO	PM OR PM10	INORGANIC
BACT Limit	≤ 8% By Vol. * ≤ 100 G/L **					
Averaging Time						
Correction						

B. OTHER BACT REQUIREMENTS: Permit Condition # 5: This equipment shall be operated in compliance with Rule 1130 – Graphic Arts and 1171- Solvent Cleaning Operations.

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

D. EMISSION INFORMATION COMMENTS:

* VOC content of fountain solution

** VOC content of blanket and roller washes

Facility wide limit of 900 lb VOC per month.

5. CONTROL TECHNOLOGY

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

CONTAMINANT	OVERALL CONTROL EFFICIENCY	CONTROL DEVICE EFFICIENCY	COLLECTION EFFICIENCY
VOC	___%	___%	___%
NOx	___%	___%	___%
SOx	___%	___%	___%
CO	___%	___%	___%
PM	___%	___%	___%
PM10	___%	___%	___%
INORGANIC	___%	___%	___%

G. CONTROL TECHNOLOGY COMMENTS:

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY:
B. DATE(S) OF SOURCE TEST:
C. COLLECTION EFFICIENCY METHOD:
D. COLLECTION EFFICIENCY PARAMETERS:
E. SOURCE TEST/PERFORMANCE DATA:
F. TEST OPERATING PARAMETERS AND CONDITIONS:
G. TEST METHODS (SPECIFY AGENCY):
I. MONITORING AND TESTING REQUIREMENTS:
I. DEMONSTRATION OF COMPLIANCE COMMENTS: Compliance by inspection and recordkeeping per Rule 109 - Recordkeeping for Volatile Organic Compound Emissions.

7. ADDITIONAL SOUTH COAST AQMD REFERENCE DATA

A. BCAT: 000377	B. CCAT: -	C. APPLICATION TYPE CODE: 30
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☐ NO ☒	F. SOURCE TEST ID(S):
G. SOUTH COAST AQMD SOURCE SPECIFIC RULES: Rules 1130 and 1171		
H. HEALTH RISK FOR PERMIT UNIT		

H1. MICR: 0	H2. MICR DATE: 11/5/20	H3. CANCER BURDEN: 0	H4. CB DATE: 11/5/20
H5: HIA: 0.88	H6. HIA DATE: 11/5/20	H7. HIC: 0.12	H8. HIC DATE: 11/5/20

Section III – Other Technologies

(This is an emerging technology which has been in operation with an air quality permit, however does not yet qualify as LAER)

Source Type: **Major/LAER**

Application Nos.: **635309-13**

Equipment Category: **Boiler**

Equipment Subcategory: **Boiler, Refinery Gas Fired**

Date: **November 6, 2026**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Babcock and Wilcox	B. MODEL: EDFM180-165
C. DESCRIPTION: Two boilers fired on refinery fuel gas, natural gas, and process gas from fume scrubber. Boilers equipped with low NOx burners and with approximately 10% of flue gas recirculated into the burners, resulting in reduced flame temperature and reduced NOx formation. For post-combustion NOx control, each boiler will be equipped with a Selective Catalytic Reduction (SCR) Unit.	
D. FUNCTION: Each boiler is operated independently to meet the steam demand of the facilities, producing 385,000 lbs per hour of steam at a temperature of 700 °F and pressure of 600 psig (Maximum Continuous Rating (MCR)).	
E. SIZE/DIMENSIONS/CAPACITY: Each boiler produces 385,000 lbs/hr of steam at 700°F and 600 psig.	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 520.4 MMBtu/hr each boiler, 1040.8 MMBtu/hr total	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
John Zink (model no. ECOjet) Low NOx burner	260.2 MMBtu/hr	2 (per boiler)

H. PRIMARY FUEL: Refinery gas	I. OTHER FUEL: Natural gas and process gas
J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: N/A	
L. EQUIPMENT INFORMATION COMMENTS: The boilers will not be equipped with CO Catalysts for control of CO emissions, as use of such devices would result in additional particulate matter formation, due to formation of ammonium sulfate, from the oxidation of sulfur (SO_2 to SO_3) and subsequent reaction of ammonia.	

2. COMPANY INFORMATION

A. COMPANY: Tesoro Refining and Marketing CO, LLC	B. FAC ID: 800436
C. ADDRESS: 2101 E. Pacific Coast Highway CITY: Wilmington STATE: CA ZIP: 90744	D. NAICS CODE: 2911
E. CONTACT PERSON: Shawn Chanh Tieu	F. TITLE: Senior Env. Engineer
G. PHONE NO.: (310) 847 - 5274	H. EMAIL: CMTieu@Marathonpetroleum.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: 10/26/23 PO ISSUANCE DATE.: N/A	PC NO.: 635309 and 635310 PO NO: N/A
E. START-UP DATE: 11/16/2025	
F. OPERATIONAL TIME: > 6 months	

4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES:

	VOC	NOx		SOx	CO		PM OR PM_{10}	AMMONIA
BACT Limit		2.5 PPMV	3.0 PPMV		27 PPMV	35 PPMV		5 PPMV
Averaging Time		30 days	24 hours		30 days	24 hours		1 hour
Correction		3% O_2, dry			3% O_2, dry			3% O_2, dry

B. OTHER BACT REQUIREMENTS: N/A

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

D. EMISSION INFORMATION COMMENTS: Per permit conditions A99.22 through A99.25, the NOx and CO emission limits listed in Section 4.A shall not apply during boiler commissioning, startup, and shutdown periods.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Umicore	B. MODEL: DNX

C. DESCRIPTION: The SCR units use aqueous ammonia at a concentration of 30%, by weight. SCR catalyst is supplied by Umicore. The SCR catalyst has a honeycomb structure of Titanium-Vanadium-Tungsten (Ti-V-W) as the active material and aqueous ammonia as the reducing agent. Pressurized horizontal tank uses nitrogen as a blanket gas. Guaranteed NOx 3.0 ppmv @ 3% O_2 (24-hour average) and 2.5 ppmv @ 3% O_2 (30-day average). Guaranteed NH_3 Slip: 5 ppmv @ 3% O_2 (1-hour average).

D. SIZE/DIMENSIONS/CAPACITY: Catalyst volume and weight are 681.5 ft^3 and13,620 lbs, respectively.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO.: 635311 and 635312 PC ISSUANCE DATE: 11/3/23
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: The operator shall install and maintain CEMS to measure CO and NOx. Catalyst life is 6 years.

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: -

B. DATE(S) OF SOURCE TEST:

C. COLLECTION EFFICIENCY METHOD:

D. COLLECTION EFFICIENCY PARAMETERS:

E. SOURCE TEST/PERFORMANCE DATA:

F. TEST OPERATING PARAMETERS AND CONDITIONS:

G. TEST METHODS (SPECIFY AGENCY):

J. MONITORING AND TESTING REQUIREMENTS:

I. DEMONSTRATION OF COMPLIANCE COMMENTS:

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 011605	B. CCAT:	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: 1109.1			
H. HEALTH RISK FOR PERMIT UNIT			
H1. MICR:	H2. MICR DATE:	H3. CANCER BURDEN:	H4. CB DATE:
H5: HIA:	H6. HIA DATE:	H7. HIC:	H8. HIC DATE:

Section III – Other Technologies

(This is an emerging technology which has been in operation with an air quality permit, however does not yet qualify as LAER)

Source Type: **Minor**

Application No.: **656210**

Equipment Category: **Digester Gas (Biogas) Conditioning and Upgrading System**

Equipment Subcategory: **Digester Gas Treatment Unit**

Date: **November 6, 2026**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Anaergia	B. MODEL: BUG 1200
C. DESCRIPTION: Biogas conditioning and upgrading system including two hydrogen sulfide (H_2S) removal vessels, lead and lag configuration, each containing approximately 19,800 pounds of FerroSorp media. (Please note that this is an excerpt of the equipment description, the complete equipment description is shown on page 5.)	
D. FUNCTION: Biogas conditioning and upgrading system transforming raw biogas into renewable natural gas.	
E. SIZE/DIMENSIONS/CAPACITY: 1,200 SCFM	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: N/A	
G. BURNER INFORMATION:	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
N/A	N/A	N/A

H. PRIMARY FUEL: N/A	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: N/A	
L. EQUIPMENT INFORMATION COMMENTS: N/A	

2. COMPANY INFORMATION

A. COMPANY: Riverside Bioenergy Facility LLC	B. FAC ID: 205524
C. ADDRESS: 5950 Acorn St CITY: Riverside STATE: CA ZIP: 92504	D. NAICS CODE: 22132
E. CONTACT PERSON: Jeremy Metts	F. TITLE: Managing Director
G. PHONE NO.: 520-461-4027	H. EMAIL: jeremy.metts@anaergia.com

3. PERMIT INFORMATION

A. AGENCY: South Coast AQMD

B. APPLICATION TYPE: NEW CONSTRUCTION

C. SCAQMD ENGINEER: Tony Liu

D. PERMIT INFORMATION: P/C ISSUANCE DATE: 11/25/25

P/O NO.: N/A P/O ISSUANCE DATE: N/A

E. START-UP DATE: N/A

F. OPERATIONAL TIME: N/A

4. EMISSION INFORMATION

A. EMISSION LIMITS AND AVERAGING TIMES:

	VOC	NOx	SOx	CO	PM OR PM10	INORGANIC (H_2S)
Limit						2.0 PPMV*
Averaging Time						
Correction						

B. OTHER REQUIREMENTS: *Permit condition #14- The measured H_2S concentration shall not exceed 2.0 ppmv at the outlet of the tail gas carbon adsorber (Item 10.D). (See page 5 for Equipment Description Item 10.D, carbon adsorbers for tail gas treatment.)

C. BASIS OF THE DETERMINATION: Other (add comment)

Technology has been under construction with an active air quality permit.

D. EMISSION INFORMATION COMMENTS: Emission calculations indicate that uncontrolled emissions of VOC, NOx, SOx, CO, PM/PM10, and inorganic compounds are anticipated to be less than one pound per day. An emission limit of 2 ppmv for hydrogen sulfide at the source release point (carbon adsorbers for tail gas treatment) was imposed to mitigate odor nuisance potential. Emission limits and other permit conditions may be subject to change upon completion of the engineering evaluation for the conversion from Permit to Construct to Permit to Operate, which may include evaluation of monitoring and sampling and analysis results of the permit unit.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Anaergia

B. MODEL: BUG 1200

C. DESCRIPTION: In the proposed biogas conditioning and upgrading system, multiple control technologies are used to ensure gas quality. Hydrogen sulfide removal is achieved through vessels in a lead-lag configuration containing FerroSorp media, with both vessels operated to maximize treatment efficiency and allow for continuous removal capacity. VOC and siloxane removal vessels, containing activated carbon media, also operate in a lead-lag configuration, providing continuous purification and protecting downstream equipment. The VOC and siloxane removal vessels are also equipped with a particulate filter. An oil removal carbon adsorber, which is also equipped with a particulate filter, captures trace hydrocarbons and lubricants present in the gas stream, preventing fouling of upgrading equipment and ensuring reliable operation. Finally, a single vessel- tail gas treatment unit with an activated carbon media vessel (and an additional one as standby) manages residual emissions from the upgrading process, ensuring environmental compliance and minimizing atmospheric releases.

D. SIZE/DIMENSIONS/CAPACITY:

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO.: PC ISSUANCE DATE: N/A

PO NO.: PO ISSUANCE DATE: N/A

F. REQUIRED CONTROL EFFICIENCIES:

CONTAMINANT	OVERALL CONTROL EFFICIENCY	CONTROL DEVICE EFFICIENCY	COLLECTION EFFICIENCY
VOC	___%	___%	___%
NOx	___%	___%	___%
SOx	___%	___%	___%
CO	___%	___%	___%
PM	___%	___%	___%
PM10	___%	___%	___%
INORGANIC	___%	___%	___%

G. CONTROL TECHNOLOGY COMMENTS: N/A

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Monitoring and sampling and analysis results after the proposed equipment is constructed and in operation.
B. DATE(S) OF SOURCE TEST: TBD
C. COLLECTION EFFICIENCY METHOD: N/A
D. COLLECTION EFFICIENCY PARAMETERS: N/A
E. SOURCE TEST/PERFORMANCE DATA: TBD
F. TEST OPERATING PARAMETERS AND CONDITIONS: N/A
G. TEST METHODS (SPECIFY AGENCY): N/A
K. MONITORING AND TESTING REQUIREMENTS: Monthly measurements required for concentration of total sulfur at the outlet of the tail gas carbon adsorber (and other locations specified in the permit condition). Total non-methane organic compounds, speciated organic compounds, methane, CO2, sulfur compounds, and siloxanes sampling and analysis of tail gas within 60 days of the initial operation of the equipment.
I. DEMONSTRATION OF COMPLIANCE COMMENTS: N/A

7. ADDITIONAL SOUTH COAST AQMD REFERENCE DATA

A. BCAT: 354950	B. CCAT:	C. APPLICATION TYPE CODE: 10
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☐ NO ☒	F. SOURCE TEST ID(S): -
G. SOUTH COAST AQMD SOURCE SPECIFIC RULES: Rule 431.1 (Rule 431.1 is not applicable to the conditioning and upgrading system but would apply to any downstream equipment burning the product gas from the fuel.)		
H. HEALTH RISK FOR PERMIT UNIT		

H1. MICR: N/A	H2. MICR DATE: N/A	H3. CANCER BURDEN: N/A	H4. CB DATE: N/A
H5: HIA: 2.44×10^{-7}	H6. HIA DATE: 2/12/25	H7. HIC: 8.32×10^{-7}	H8. HIC DATE: 2/12/25

(1)(C) Equipment Description:

Digester Gas (Biogas) Conditioning and Upgrading System, Anaergia, Model No. BUG 1200, 1,200 SCFM Capacity, Consisting of:

1. Digester Gas Header
2. One (1) Moisture Separator
3. Two (2) Multi-stage Biogas Centrifugal Blowers, One as Standby
4. One (1) Recuperative Shell-and-tube Heat Exchanger
5. One (1) Air-cooled Heat Exchanger
6. One (1) Condenser Shell-and-tube Heat Exchanger, with Common Glycol Chiller, One (1) Moisture Separator
7. One (1) Glycol Chiller, Common to Item Nos. 6, 10.C.i, and 11.D (Referenced as Common Glycol Chiller)
8. Two (2) Hydrogen Sulfide (H2S) Removal Vessels, Lead and Lag Configuration, Each Containing Approximately 19,800 Pounds of FerroSorp Media
9. Two (2) Volatile Organic Compound (VOC) and Siloxane Removal Vessels, Lead and Lag Configuration, Each Containing Approximately 14,000 Pounds of Granular Activated Carbon Media, with a Particulate Filter
10. Biogas Upgrading System, Consisting of:
    - A. One (1) Air Cooler, Common to Item Nos. 10.B.iii, 10.B.iv, 11.B, and 11.C (Referenced as Common Air Cooler)
    - B. Feed Compressor Skid, Consisting of:
        - i. One (1) Two-stage Variable Frequency Drive Compressor, Rotary Screw Type, Oil-flooded and Water-cooled, with an Oil-gas Separator and Pressure Relief Valve
        - ii. One (1) Recuperative Shell-and-coil Heat Exchanger
        - iii. One (1) Compressor Oil Cooler, with Common Air Cooler
        - iv. One (1) Compressor Gas Aftercooler, with Common Air Cooler
    - C. High Pressure Conditioning Skid, Consisting of:
        - i. One (1) High Pressure Condenser Shell-and-tube Heat Exchanger with Common Glycol Chiller and Pressure Relief Valve
        - ii. One (1) Moisture Separator, with a Coalescing Filter
        - iii. One (1) Oil Removal Carbon Adsorber, Containing Approximately 150 Pounds of Granular Activated Carbon Media, with a Particulate Filter
        - iv. Membrane Separation Racks, Consisting of Up to Twenty-five (25) Hollow Fiber Membranes, 3-stage Arrangement, Recycling Permeate from Stage 2 Membrane and Retentate from Stage 3 Membrane to Biogas Upgrading System Compressor (Item 10.B.i), with Flow Meters, Transmitters, Pressure Relief Valves, Sampling Taps, and Biomethane and CO2 Recycle Valves to Digester Gas Header (Item 1) and Gas Analyzers
    - D. Two (2) Carbon Adsorbers, Tail Gas (Stage 2 Permeate) Treatment, One as Standby, Each Containing Approximately 1,650 Pounds of Granular Activated Carbon Media
    - E. Tail Gas Exhaust Stack, Vertical Discharge, 8” Dia. × 30’-0” H., without a Rain Cap
11. Product Gas (RNG) Compressor Skid, Consisting of:
    - A. One (1) Multi-stage Biogas Compressor, Reciprocating Type, Air- and Water-cooled.
    - B. One (1) Compressor Gas Aftercooler, with Common Air Cooler.
    - C. One (1) Compressor Gas Intercooler, with Common Air Cooler.
    - D. One (1) Compressor Gas Trim-cooler, with Common Glycol Chiller.

ATTACHMENT E

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

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 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[1].

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 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 South Coast

[1] South Coast AQMD Rule 1303(a)(3)

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 section is to explain the criteria 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[2] and approved by U.S. EPA 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 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. 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
- U.S. EPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- Permits to operate issued by 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

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

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 South Coast AQMD-approved performance test or tests, when possible, or other performance data.

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.

Limited BACT Exemption

Rule 1304 - Exemptions was amended in November 2021 to add subdivision (f) to include a limited BACT exemption for RECLAIM and former RECLAIM facilities. This limited BACT exemption is available to new or modified permit unit located at a RECLAIM or former RECLAIM facilities, for PM_{10} and SOx emission increases associated with the installation or modification of add-on air pollution control equipment for controlling NOx emissions to comply with NOx Best Available Retrofit Control Technology (BARCT) emission limits. The objective of the proposed narrow BACT exemption is to address the co-pollutant issue associated with the installation or modification of add-on air pollution controls and the replacement of equipment that is combined with an installation or modification of add-on air pollution control required to transition NOx RECLAIM facilities. This limited BACT exemption is available only to projects at qualified facilities that meet all the requirements listed under Rule 1304 subparagraphs (f)(1)(A) through (E)[3].

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

[3] See Rule 1304 (f).

followed by the 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 South Coast AQMD's established cost-effectiveness criteria;
- Putting BACT Guideline revisions on a regular meeting agenda of the 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 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 the 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[4] 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~~ 2nd Quarter ~~2023~~2026)

Pollutant	Average (Maximum $ per Ton)	Incremental (Maximum $ per Ton)
ROG	~~40,854~~ 46,113	~~122,563~~138,338
NOx	~~38,630~~43,602	~~115,687~~130,577
SOx	~~20,427~~23,056	~~61,282~~69,169
PM10	~~9,101~~10,273	~~27,101~~30,590
CO	~~809~~913	~~2,326~~2,625

The cost criteria are based on those adopted by the South Coast AQMD Governing Board in the 1995 BACT Guidelines, adjusted to ~~third~~ second quarter ~~2023~~ 2026 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.

Top-Down Cost Methodology

The 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:

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

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 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 U.S. EPA 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 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 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 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 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 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.

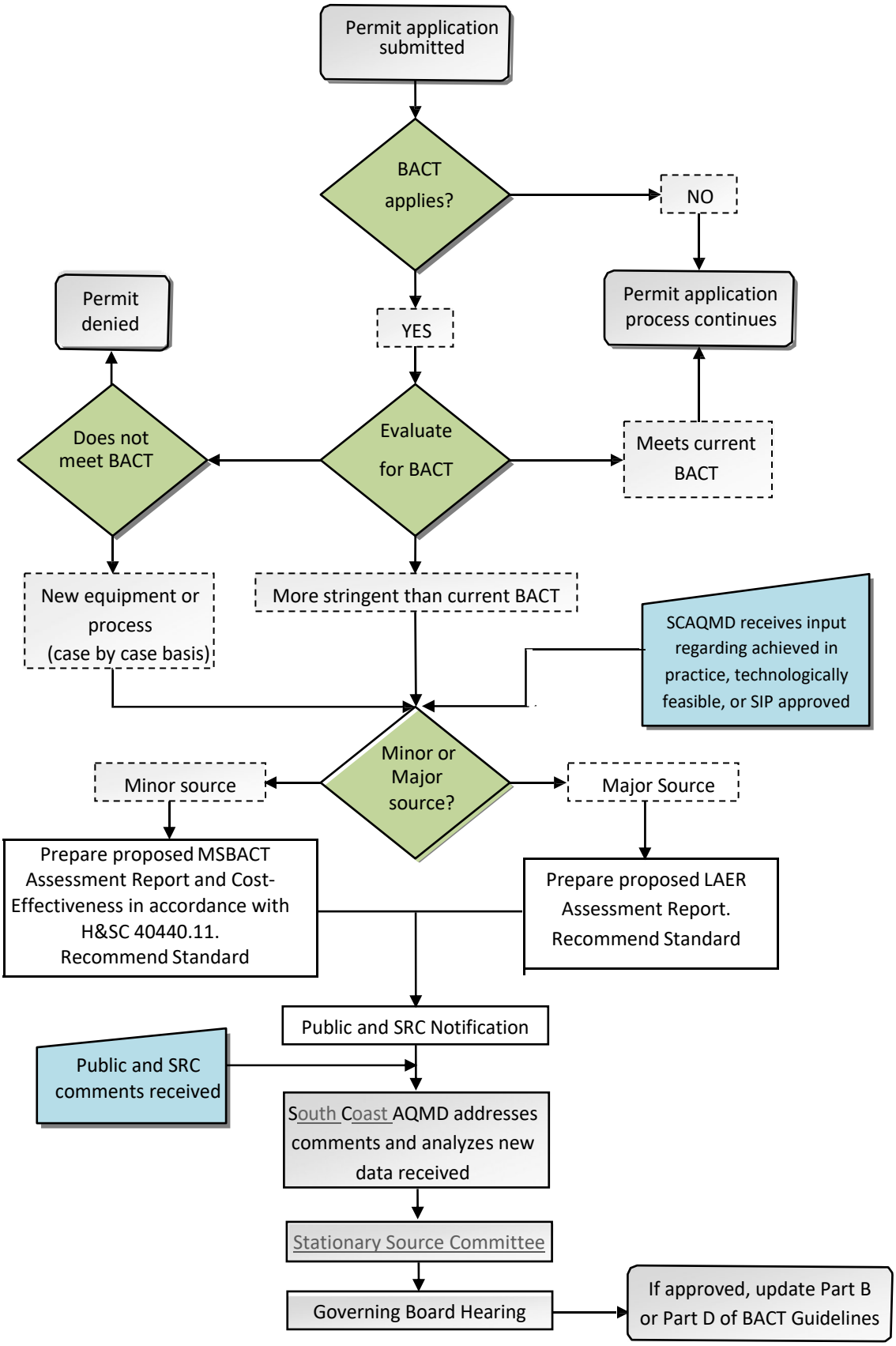
Policy 7 is to require any new/repowered in-Basin fossil-fueled generation power plant to incorporate BACT/LAER as required by District rules, considering energy efficiency for the application. These power plants will need to comply with any requirements adopted by the California Air Resources Board, 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 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 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~~Equipment or Process List. 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 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 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 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, 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 South Coast AQMD permitting engineer for consideration.

Case-Specific Situations

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. 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

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 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[5]. 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 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,

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

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 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 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", 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 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 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 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, South Coast AQMD staff will reevaluate the MSBACT requirements for the CEP upon annual renewal of the CEP by the equipment manufacturer.

ATTACHMENT F

PART D - BACT DETERMINATIONS FOR NON-MAJOR POLLUTING FACILITIES

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; September 2, 2022; February 2, 2024); November 6, 2026

Deputy Executive Officer
Engineering and Permitting
Jason Aspell

Authors:	Bahareh Farahani	Program Supervisor
	Bettina Burleigh Sanchez	Senior Air Quality Engineer
	Ashkan Garshasbi, Ph.D.	Air Quality Engineer
Reviewed By:	Barbara Baird	Chief Deputy Counsel
	Jillian Wong, Ph.D.	Assistant Deputy Executive Officer
	David Ono	Senior Air Quality Engineering Manager
	Brian Tomasovic	Assistant Chief Deputy Counsel
	Bhaskar Chandan, P.E. (Retired)	Senior Air Quality Engineering Manager

Part D - South Coast AQMD BACT Determination

Source Type: **Minor**

Application No.: **649020 & 649856**

Equipment Category: **Linear Generator**

Equipment Subcategory: **Non-Emergency Electrical Generator, Natural Gas Fired**

Date: **November 6, 2026**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Mainspring Energy	B. MODEL: MSE-230-NG
C. DESCRIPTION: The Mainspring Energy linear generator is a power generation technology that uses a thermochemical reaction to create linear motion that is directly converted into electricity. Each Mainspring Energy linear generator module consists of two identical cores (reaction zone and electrical generator). Each core includes an air-to-fuel ratio controller and is vented to an oxidation catalyst.	
D. FUNCTION: Mainspring linear generator uses a low-temperature reaction to produce electricity and is used as a stationary prime power source at this facility.	
E. SIZE/DIMENSIONS/CAPACITY: Each core is 120 kWe	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT:	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
N/A	N/A	N/A

H. PRIMARY FUEL: Natural gas*	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: N/A	
L. EQUIPMENT INFORMATION COMMENTS: *Per Rule 1110.3 - Emissions from Linear Generators, Natural Gas means a mixture of gaseous hydrocarbons, with at least 80 percent methane by volume, and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the California public utilities commission.	

2. COMPANY INFORMATION

A. COMPANY: Mainspring Energy, Incorporated	B. FAC ID: 189493
C. ADDRESS: 1150 N Pepper Ave CITY: Colton STATE: CA ZIP: 92324	D. NAICS CODE: 445110
E. CONTACT PERSON: Corrie Zupo	F. TITLE: Manager of Air Compliance
G. PHONE NO.: (424) 241-8959	H. EMAIL: corrie.zupo@mainspringenergy.com

3. PERMIT INFORMATION

A. AGENCY: South Coast AQMD	B. APPLICATION TYPE: CHANGE OF CONDITIONS
C. SCAQMD ENGINEER: Kraig Morris	
D. PERMIT INFORMATION: PC ISSUANCE DATE: P/O NO.: G75824 & G75826 PO ISSUANCE DATE: 4/25/2024	
E. START-UP DATE: 2021	
F. OPERATIONAL TIME: > 1 year	

4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES:

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	10 PPMVD	2.5 PPMVD		12 PPMVD		
Averaging Time	15 Minutes	15 Minutes		15 Minutes		
Correction	15% O_2	15% O_2		15% O_2		

B. OTHER BACT REQUIREMENTS: N/A

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

D. EMISSION INFORMATION COMMENTS: N/A

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Johnson Matthey	B. MODEL: MC6T-6F-2

C. DESCRIPTION: Oxidation catalyst

D. SIZE/DIMENSIONS/CAPACITY: N/A

E. CONTROL EQUIPMENT PERMIT INFORMATION: N/A

APPLICATION NO.: N/A PC ISSUANCE DATE: N/A

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:

Condition 7) This equipment shall be equipped with an air-to-fuel ratio controller with an oxygen sensor.

Condition 8) This equipment shall not be operated unless its exhaust is vented to the oxidation catalyst which is in full operation, and which is in good operation condition at all times.

Condition 9) The owner or operator shall inspect the oxidation catalyst every six months of operation in accordance with the recommendation(s) of the oxidation catalyst manufacturer and determine if it needs to be cleaned or washed.

Condition 10) The operator shall wash the catalyst or replace the catalyst media at least after 12,000 hours of operation.

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: 2/21/2023

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA:

Parameter	Core 1			Core 2			Permit Limit
	Normal Load	Max. Load	Min. Load	Normal Load	Max. Load	Min. Load	
CO, PPM @ 15% O_2	2.51	2.49	<2.09*	2.24	<1.85*	<2.34*	**12**
NO_X, PPM @ 15% O_2	1.98	1.82	<1.05*	2.25	2.29	<1.17*	**2.5**
VOC, PPM @ 15% O_2	7.48	-	-	8.87	-	-	**10**

*Concentration is below 20% of analyzer range and reported at 20% range.

F. TEST OPERATING PARAMETERS AND CONDITIONS:

Condition 14.A) The test shall measure NOx, VOC, CO, CO2, oxygen content, moisture content, temperature, and exhaust flow rate at the exhaust of the equipment.

Condition 14.B) The test shall be conducted in accordance with the source testing requirements of Rule 1110.3.

G. TEST METHODS (SPECIFY AGENCY):

South Coast AQMD Method 100.1 for NOx, O_2, CO_2, and CO (3 runs, 24-36 mins each)
South Coast AQMD Method 2.3 for velocity (3 runs, 24 mins each)
South Coast AQMD Method 4.1 for moisture (3 runs, 24 mins each)
South Coast AQMD Method 25.3 for VOC (1 run (duplicate canisters), 30 mins)

H. MONITORING AND TESTING REQUIREMENTS:

Condition 13) The owner or operator shall conduct a source test once every five years from the date of the previous source test and not later than the last day of the calendar month that the test is due.

Condition 16) The owner or operator shall conduct diagnostic emissions checks by the use of a portable NOx, CO, and oxygen analyzer at least once every two years from the date of the previous emission check and not later than the last day of the calendar month that the test is due.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Each core is operated and tested independently.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 040005	B. CCAT: -	C. APPLICATION TYPE CODE: 66
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☐ NO ☒	F. SOURCE TEST ID(S): R24377
G. SCAQMD SOURCE SPECIFIC RULES: Rule 1110.3		
H. HEALTH RISK FOR PERMIT UNIT		

H1. MICR: -	H2. MICR DATE: -	H3. CANCER BURDEN: -	H4. CB DATE: -
H5: HIA: -	H6. HIA DATE: -	H7. HIC: -	H8. HIC DATE: -

Equipment or Process List

Abrasive Blasting – Enclosed 1
Absorption Chiller 2
Air Stripper – Ground Water Treatment 3
Aluminum Melting Furnace 4
Crucible or Pot 4
Reverberatory, Non-Sweating < 5 MM BTU/HR 4
Reverberatory or Rotary, Sweating ≥ 5 MM BTU/HR 4
Ammonium Bisulfate and Thiosulfate Production 5
Asbestos Machining Equipment 6
Asphalt Batch Plant 7
Asphalt Roofing Line 8
Asphaltic Day Tanker 9
Auto Body Shredder 10
Ball Mill 11
Beryllium Machining Equipment 12
Boiler 13
Natural Gas Fired, ... 13
> 2 and < 20 MMBtu/HR 13
Propane Fired, ... 13
> 2 and < 20 MMBtu/HR 13
Natural Gas or Propane Fired, ... 13
≥ 20 and < 75 MMBtu/HR 13
Natural Gas or Propane Fired, ≥ 75 MM Btu/HR 13
Atmospheric Unit, ≥ 2 and ≤ 10 MMBtu/HR 14
Landfill Gas Fired, < 75 MMBTU/Hr 14
Digester Gas Fired, < 75 MMBTU/Hr 14
Brakeshoe Debonder 15
Brass Melting Furnace 16
Crucible, ... 16
≤ 300 Lbs/Hr Process Rate 16
Crucible, ... 16
> 300 Lbs/Hr Process Rate 16
Reverberatory or Rotary, Non-Sweating 16
Reverberatory or Rotary, Sweating 16

Tilting Induction, ≤ 300 Lbs/Hr Process Rate 16
Tilting Induction, > 300 Lbs/Hr Process Rate 17
Bulk Solid Material Handling – Other 18
Animal Feed Mfg. – Dry Material Handling 18
Clay, Ceramics and Refractories Handling (Except Mixing) 18
Coal, Coke and Sulfur Handling 18
Feed and Grain Handling 18
Paper and Fiber Handling 18
Pneumatic Conveying, Except Paper and Fiber 18
Railcar Dumper 18
Bulk Solid Material Ship Loading 19
Non-White Commodities 19
White Commodities 19
Bulk Solid Material Ship Unloading 20
Bulk Cement 20
Other Bulk Solid Materials 20
Bulk Solid Material Storage 21
Coal, Petroleum Coke, Sulfur 21
Other Non-White Commodities 21
White Commodities 21
Storage Tanks and Silos 21
Other Open Storage 21
Burnoff or Burnout Furnace (Excluding Wax Furnace) 22
Calciner 23
Petroleum Coke 23
Other 23
Carpet Beating and Shearing 24
Catalyst Manufacturing and Regeneration 25
Calcining 25
Reactor 25
Rotary or Spray Dryer 25
Regeneration, Hydrocarbon Removal 25
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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

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Equipment or Process: Absorption Chiller

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All		≤ 20 ppmv dry corrected to 3% O_2 (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)	

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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)					

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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: - Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or - 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

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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 NH_3 (1990)

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

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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)	

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Equipment or Process: Asphalt Batch Plant

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All		Natural Gas with Low NOx Burner ≤ 33 ppmvd @ 3% O_2 (10-20-2000)			Baghouse (1990)	

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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)	

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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)	

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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)	

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Equipment or Process: Ball Mill

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

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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)	

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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 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 MMBtu/HR		Compliance with 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 NH_3, corrected to 3% O_2 ≤ 1 ppmvd ozone, corrected to 3% O_2 (10-20-2000)
Natural Gas or Propane Fired, ≥ 75 MM Btu/HR		Compliance with 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 NH_3, corrected to 3% O_2 ≤ 1 ppmvd ozone, corrected to 3% O_2 (10-20-2000)

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

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	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOx[1]**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Oil Fired[3]		Compliance with 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 Rules 1146 and 1146.1 (12-02-2016)		Compliance with Rules 1146 and 1146.1 (12-02-2016)		
Landfill Gas Fired, < 75 MMBTU/Hr		Compliance with 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 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.

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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 ≥1400°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)	

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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)	

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Equipment or Process: Brass Melting Furnace

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Tilting Induction, > 300 Lbs/Hr Process Rate					Baghouse (7-11-97)	

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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 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

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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 - Water Spray; or - Adequate Material Moisture (1988)	
White Commodities					Enclosed Conveyor and Baghouse Venting Ship Holds and Transfer Points (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.

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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)	

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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 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.

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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 ≥1400°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)	

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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% O_2 (1988)	
Other		Compliance with Rule 1147 (2-1-2019)	Natural Gas (1988)		Natural Gas with Baghouse (1988)	

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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
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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		NOx 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 ≥ 1400 °F) (07-11-97)					
Catalyst Solids Handling					Baghouse (07-11-97)	

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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)	

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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: - Baghouse and Limestone Filter Coating; or - Baghouse and Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1400°F) (1989)	

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

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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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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
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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			Natural Gas (1988)		Natural Gas (1988)	
Roaster ≥ 110,000 BTU/Hr	Afterburner [1] (0.3 Sec Retention Time at 1200 °F) (1990)		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 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
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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 Rule 1133.2[b)] (12-5-2003)					Compliance with Rule 1133.2[b)] (12-5-2003)
Greenwaste composting	Compliance with Rule 1133.3 (2-1-2019)					Compliance with Rule 1133.3 (2-1-2019)

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

b) Not required for design capacity < 1,000 tons per year.

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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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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
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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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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
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2-2-2024 Rev. 0

Equipment or Process: Crumb Rubber/Asphalt Oil Blending

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All	Carbon Adsorber with 90% Control Efficiency (2-2-2024)					

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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 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.

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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. 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. (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 (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 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, 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, 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, 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; 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
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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: - Cyclone and Baghouse; or - Cyclone, Scrubber and Electrostatic Precipitator (1988)	

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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 Afterburner (> 0.3 Sec. Retention Time at ≥ 1400 °F) and Baghouse (1990)	

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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 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
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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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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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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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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: - Afterburner ((≥ 0.3 Second Retention Time at ≥ 1400 °F) or - Secondary Combustion Chamber (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988)	

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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 ≥ 1400°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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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)					

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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
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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 ≥ 1400°F) (07-11-97)					

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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)					

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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)					
Digestor, Evaporator and Acidulation Tank	Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990)				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)				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)					

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

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 (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				

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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) 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

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2-2-2018 Rev. 0
11-6-2026 Rev. 1

Equipment or Process: Food Oven

		Criteria Pollutants					
Subcategory[1] ~~Rating/~~ Rating/Size	**~~Size~~**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
Ribbon Burner	~~> 500°F~~		~~60~~ 30 ppmvd @ 3% O_2 ~~(2-2-2018)~~ Compliance with Rule 1153.1 (11-6-2026)	Natural Gas (2-2-2018)	800 ppmvd @ 3% O_2; (11-6-2026) Compliance with ~~applicable~~ Rule~~s 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 Compliance with Rule 1153.1 (2-2-2018)(11-6-2026)	Same as above	Same as above	Same as above	
Indirect Fired Burner			30 ppmvd @ 3% O_2 Compliance with Rule 1153.1 (11-6-2026)				
Infrared Burner			~~30~~ 15 ppmvd @ 3% O_2 Compliance with Rule 1153.1 (2-2-2018)(11-6-2026)				

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		Criteria Pollutants					
Subcategory[1] Rating/Size	**~~Rating/ Size~~**	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
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 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.~~

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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)			

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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 (2-1-2019)	
Non-Integrated Direct and In-Direct Oil Heater (Steam, Thermal Fluid Heater and burner exhaust gases)		60 ppm Compliance with Rule 1147 (2-1-2019)				

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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 Rule 1173 (12-5-2003)					
Compressors, Rotary Type	Enclosed Seal System Connected to Closed Vent System (04-10-98); and Compliance with Rule 1173					
Pressure Relief Valves	Connected to Closed Vent System or Equipped with Rupture Disc if Applicable (4-10-98); and Compliance with Rule 1173 (12-5-2003)					
Pumps – In Heavy Liquid Service	Single Mechanical (4-10-1998); and Compliance with 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 Rule 1173 (12-5-2003)					
Sampling Connections	Closed-Purge, Closed-Loop, or Closed-Vent System (4-10-98); and Compliance with Rule 1173 (12-5-2003)					
Valves, Fittings, Diaphragms, Hatches, Sight-Glasses, Open-Ended Pipes and Meters in VOC Service	Compliance with Rule 1173 (12-5-2003)					

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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, 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)					
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 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 2. Double or Tandem Seals and Vented to Closed Vent System; < 1000 ppmv by USEPA Method 21 with Approved South Coast AQMD I&M; <1000 ppmv by USEPA Method 21 with Approved 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 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

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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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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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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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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)

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Equipment or Process: Gas Turbine

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
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)	
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).

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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: - Excess Oxygen in Ports < 5% - Cullet in Raw Material Charged > 15% - Hot Spot Temperature < 2,700 °F (1988)	Process Modification: Sulfur Content of Batch Charged < 0.25% by Weight of Total Batch (1988)		Baghouse (10-20-2000)	

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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					

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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

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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

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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.

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10-20-2000 Rev. 0
6-6-2003 Rev. 1
7-14-2006 Rev. 2
12-02-2016 Rev. 3
2-2-2018 Rev. 4

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)

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		Criteria Pollutants					
Subcategory	**Rating/Size**	**VOC**	**NOx**	**NOx + NMHC[2]**	**SOx**	**CO**	**PM**
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 diesel engines to be

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Control Measure (ATCM) for Portable Diesel Engines (see www.arb.ca.gov/diesel/peatcm/peatcm.htm) requires in-use portable 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.

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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
9-2-2022 Rev. 7

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			Tier 3: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]
	100 ≤ HP < 175			Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)		Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.30 grams/kW-hr (0.22 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]

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		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			Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr): (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]
	≥750 HP			Tier 2: 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)		Tier 2: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 2: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)[7]
Compression-Ignition, Other[3, 4]	50 ≤ HP < 100			Tier 3: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)		Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]
Compression-Ignition, Other[3, 4] (continued)	100 ≤ HP < 175			Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (2-01-2019) Compliance with Rule 1470 (12-3-2004)[7]

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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**
	175≤ HP < 300			Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)		Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]
	300≤ HP < 750			Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (7-14-2006) Compliance with Rule 1470 (12-02-2016)		Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (7-14-2006) Compliance with Rule 1470 (12-02-2016)	Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (7-14-2006) Compliance with Rule 1470 (12-3-2004)[7]
Compression-Ignition, Other[3, 4] (continued)	≥750 HP			Tier 2: 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Tier 2: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-02-2016)	Tier 2: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008) Compliance with Rule 1470 (12-3-2004)[7]
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)

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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		Criteria Pollutants					
Subcategory	**Rating/Size**	**NMHC or VOC**	**NOx**	**NOx + NMHC[2]**	**SOx**	**CO**	**PM**
	≥ 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) 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, 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) 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.

7) BACT PM emission standard requirement for new Stationary Emergency Standby Diesel-Fueled CI Engines located at a sensitive receptor or 50 meters or less from a sensitive receptor. (9-2-2022)

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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 Rule 1110.2 (12-02-2016)	Compliance with Rule 1110.2 (12-02-2016)	See Clean Fuels Policy in Part C of the BACT Guidelines (12-02-2016)	Compliance with 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 Rule 1110.2 (2-2-2018)	Compliance with Rule 1110.2 (2-2-2018)	Compliance with Rule 431.1 (12-02-2016)	Compliance with 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
9-2-2022 Rev. 1

Equipment or Process: I.C. Engine, Stationary, Non-Emergency, Electrical Generators

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM10**	**Inorganic**
> 50 bhp	Compliance with Rule 1110.2 (2-2-2018)	Compliance with Rule 1110.2 (2-2-2018)	See Clean Fuels Policy in Part C of the BACT Guidelines (2-2-2018)	Compliance with 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)	With Add-On Controls: 10 ppmvd ammonia @ 15% O_2 (9-2-2022)
Landfill or Digester Gas Fired	Compliance with Rule 1110.2 (2-2-2018)	Compliance with Rule 1110.2 (2-2-2018)	Compliance with Rule 431.1 (2-2-2018)	Compliance with Rule 1110.2 (2-2-2018)		

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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: 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 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*

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 Rule 1150.1 - Control of Gaseous Emissions from Municipal Solid Waste Landfills (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: Latex Manufacturing - Reaction

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All	Catalytic Incinerator and Caustic 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
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)	

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

11-6-2026 Rev. 0

Equipment or Process: Linear Generator – Non-Emergency Electrical Generator

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Natural Gas Fired	VOC: 10 ppmv @ 15% O_2 (11-6-2026)	NOx: 2.5 ppmv @ 15% O_2 (11-6-2026)		CO: 12 ppmv @ 15% O_2 (11-6-2026)		

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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
12-02-2016 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 (Rule 462)	Compliance with 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 (Rule 462)	Bottom Loading with Vapor Collection System Vented to: - Incinerator; or - Compression/absorption with Tail Gas Vented to Incinerator; or - Refrigeration System; or - Carbon Adsorption system and Compliance with Rule 462 (10-20-2000)					Same as Above
Gasoline Transfer and Dispensing	Compliance with Rule 461 (12-02-2016)					

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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: 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
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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)				

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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: Non-Metallic Mineral Processing – Except Rock or Aggregate

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All					Baghouse for Enclosed Operations 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 ≥ 1400 °F) (10-20-2000)	
Handling Equipment					Baghouse (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
12-02-2016 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: - Vacuum Gas Gathering System; or - Positive Pressure Gas Gathering System; or - Incinerator or Firebox (1988) Compliance with Rules 1148 and 1148.1 (12-02-2016)					
Wellhead	All Wellheads Vented to: - Vacuum Gas Gathering System; or - Positive Pressure Gas Gathering System; or - Incinerator or Firebox (10-20-2000) Compliance with Rules 1148 and 1148.1 (12-02-2016)					

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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
9-2-2022 Rev. 2

Equipment or Process: Open Process Tanks: Chemical Milling (Etching) and Plating

Subcategory/ Rating/Size		Criteria Pollutants					
		VOC	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Chemical Milling	Aluminum and Magnesium [1]						
	Nickel Alloys, Stainless Steel and Titanium		Packed Chemical Scrubber (10-20-2000)			High Efficiency Mist Eliminator (10-20-2000)	
Plating	Decorative Chrome					Compliance with Rule 1469 (2-5-2021)	
	Hard Chrome					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*

10-20-2000 Rev. 0

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)[1]	

[1] 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 ≥1400°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 Rule 1103 and 40 CFR 63 Subpart GGG – National Emission Standards Pharmaceuticals Production. (7-9-2004)

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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
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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 ≥1400°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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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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10-20-2000 Rev. 0
2-5-2021 Rev. 1

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
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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
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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
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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					1. Baghouse (≥ 99% efficiency); or 2. Cartridge Filters (≥ 99% efficiency); (1988) or 3. HEPA Filters (≥ 99.97% efficiency) (2-5-2021)	

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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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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
9-2-2022 Rev. 5

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 Rules 1130 and 1171 (2-2-2018)					
Alternatively	For add-on control required by Rule 1130(c)(5) or other South Coast AQMD requirement: EPA M. 204 Permanent Total Enclosure (100% collection) vented to thermal oxidizer with 95% overall control efficiency; Combustion Chamber: Temp ≥ 1500°F[1], Retention Time > 0.3 seconds (2-2-2018)	Compliance with BACT requirements for Thermal Oxidizer		Compliance with BACT requirements for Thermal Oxidizer		
Letterpress	Compliance with Rules 1130 and 1171 (12-5-2003)					

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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**
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 Rules 1130 and 1171 (2-2-2018) Oven Vented to a thermal oxidizer (≥ 0.3 Sec. Retention Time at ≥ 1400 ^{0}F; 95% Overall Efficiency) (10-20-2000)	Compliance with BACT requirements for Thermal Oxidizer Compliance with BACT requirements for Other Dryers and Ovens (9-2-2022)		Compliance with BACT requirements for Thermal Oxidizer	Venting to a thermal oxidizer (≥ 0.3 sec. Retention Time at ≥ 1400 ^{0}F) (10-20-2000) (2-1-2019)	
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 Rules 1130 and 1171. (2-1-2019)					
Rotogravure or Gravure—Publication and Packaging	Compliance with Rules 1130 and 1171 (10-20-2000)					
Screen Printing and Drying	Compliance with 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 South Coast AQMD-approved source test.

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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 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 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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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 - Afterburner (VOC Only); or - Refrigerated Condenser; or - Scrubber with Approved Liquid Waste Disposal (VOC only) (1990)					

a) Also see “Resin Manufacturing” and “Surfactant Manufacturing”. (12-5-2003)

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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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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 Rule 1141: ≤0.12 Pounds VOC per 1000 Pounds Completed Resin Product from Vacuum Devolatilizer and Styrene Recovery Systems (12-5-2003)					
Liquid-Phase, High-Density Polyethylene Slurry Process	Compliance with Rule 1141: ≥98% Reduction from Reactors, Recycle Treaters, Thinning Tanks, Blending Tanks and Product Finishing Section (12-5-2003)					
Liquid-Phase Polypropylene Process	Compliance with Rule 1141: ≥98% Reduction from Organic Resin Reactors, Slurry Vacuum Filter System, Diluent Recovery Section and Product Finishing Section (12-5-2003)					
Other Resin Manufacturing	Compliance with Rule 1141: ≤0.5 Pounds VOC per 1000 Pounds Completed Resin Product, or ≥95% Reduction from Resin Reactors, Thinning Tanks and Blending Tanks (12-5-2003)					

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

Equipment or Process: Spray Booth

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Fully-enclosed, Down-Draft Type, < 667 Lbs/Month of VOC Emissions (2-5-2021)	Compliance with Applicable 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 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, Down-Draft Type, ≥ 22 Lbs/Day of VOC Emissions (2-5-2021)	- Compliance with Applicable Regulation XI Rules, and VOC Control System with ≥ 90% Collection Efficiency and ≥ 95% Destruction Efficiency, or - Use of Super Compliant Materials (<50 grams of VOC per liter of material): or - 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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	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
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 - Use of Super Compliant Materials (<50 grams of VOC per liter of material): or - 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)	
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.

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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)	

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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)			

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	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Underground, > 250 Gallons	≥ 95% Removal Efficiency for VOC (1990)					

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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 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.

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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)	

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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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.

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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)	

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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)					

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10-20-2000 Rev. 0

Equipment or Process: Vinegar Manufacturing

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All	Scrubber with South Coast AQMD- and Sanitation District-Approved Liquid Disposal (1988)					

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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 Rule 1176 (12-5-2003)					
Other Equipment	Compliance with Rule 1176 if Applicable by Rule[a)] (12-5-2003)					

a) Not required for sanitary sewer system.

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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)	

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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)	

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12-5-2003 Rev. 0

Equipment or Process: Woodworking

	Criteria Pollutants					
Subcategory	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Pneumatic Conveyance System					Compliance with 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.

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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)	

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ATTACHMENT G

PART E – POLICY AND PROCEDURES FOR FACILITIES SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION FOR GREENHOUSE GASES

Chapter 1 - GHG BACT

This chapter explains the requirements of greenhouse gases (GHG) BACT regulations according to U.S. EPA, describes the Top-Down Process, shows how to calculate GHG emissions and explains the Prevention of Significant Deterioration (PSD) ~~A~~applicability for GHGs for new sources as well as modified sources. The guidance in this chapter is applicable to the U.S. 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

U.S. EPA has found that GHG, made of up of six combined compounds, constitute air pollution that endangers public health and welfare. U.S. 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 U.S. 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 Rule 1702 subdivision (a), shall be regulated for the purpose of PSD.

PERMITTING GUIDANCE FOR GHG

U.S. 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;

[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 CO2e as Step 1 of the Tailoring Rule for "anyway" sources.

[2] *https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases*

- 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;
- 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, U.S. EPA states that it is still assessing and monitoring biogenic feedstocks and will provide further guidance. Further updates can be found at U.S. 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, U.S. EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" (March 2011) should be referenced, but should be used in accordance with U.S. 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 U.S. EPA's website when performing these calculations.

[3] EPA Memo: "Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources, (2014 November 19)

[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 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;

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** 2. The modification results in a GHG emissions increase and net emissions increase: a. ≥ 75,000 TPY CO_2e, **AND** 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 PSD APPLICABILITY FOR GHG

South Coast AQMD adopted Rule 1714 in 2010 to implement the PSD GHG requirements set forth by 40 CFR 52.21. South Coast AQMD Rule 1714 incorporates the provisions of 40 CFR 52.21 by reference, excluding the sections listed under South Coast AQMD Rule 1714 (c)(1). South Coast AQMD PSD applicability should be determined following the applicable sections of the Code of Federal Regulation identified in the rule.

TOP-DOWN BACT PROCESS

U.S. EPA recommends that permitting authorities continue to use the U.S. 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 U.S. 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.

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. U.S. EPA has emphasized the importance of energy efficiency improvements.

For the purposes of a BACT analysis for GHG, U.S. 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. U.S. 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

[5] U.S. EPA (2011). PSD and Title V Permitting Guidance for Greenhouse Gases

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, U.S. 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 U.S. EPA's

January 2010 Endangerment Finding[6] are detailed in U.S. 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

U.S. 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)
  U.S. EPA Contact: Christian Fellner (919-541-4003 or fellner.christian@epa.gov)
- Large Industrial/Commercial/Institutional Boilers (PDF) (39pp, 337k)
  U.S. EPA Contact: Jim Eddinger (919-541-5426 or eddinger.jim@epa.gov)
- Pulp and Paper (PDF) (62pp, 421k)
  U.S. EPA Contact: Bill Schrock (919-541-5032 or schrock.bill@epa.gov)
- Cement (PDF) (48pp, 220k)
  U.S. EPA Contact: Keith Barnett (919-541-5605 or barnett.keith@epa.gov)
- Iron and Steel Industry (PDF) (78pp, 620k)
  U.S. EPA Contact: Donna Lee Jones (919-541-5251 or jones.donnalee@epa.gov)
- Refineries (PDF) (42pp, 707k)
  U.S. EPA Contact: Brenda Shine (919-541-3608 or shine.brenda@epa.gov)
- Nitric Acid Plants (PDF) (31pp, 544k)
  U.S. EPA Contact: Nathan Topham (919-541-0483 or topham.nathan@epa.gov)
- Landfills (PDF) (28pp, 250k)
  U.S. EPA Contact: Hillary Ward (919-541-3154 or ward.hillary@epa.gov)

PART F - BACT DETERMINATIONS FOR FACILITIES SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION FOR GREENHOUSE GASES

(This section is currently under development)

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, South Coast 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 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
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile organic compound

INDEX OF EQUIPMENT CATEGORIES

A

Abrasive Blasting
Absorption Chiller
Air Start Unit
Air Stripper - Ground Water Treatment
Aluminum Melting Furnace - Crucible or Pot (All Charge)
Aluminum Melting Furnace - Crucible or Pot, Ingot and/or Clean Scrap Charge Only
Aluminum Melting Furnace - Reverberatory, Non-Sweating, Ingot or Contaminated Scrap Charge
Aluminum Melting Furnace - Reverberatory, Non-Sweating, Ingot or non-Contaminated Scrap Charge
Aluminum Melting Furnace - Reverberatory, Sweating, Ingot or Contaminated Scrap Charge
Aluminum Melting Furnace - Rotary, Sweating, Ingot or Contaminated Scrap Charge
Ammonium Bisulfate and Thiosulfate Production
Animal Feed Manufacturing - Dry Material Handling (see Bulk Solid Material Handling)
Asbestos Machining Equipment
Asphalt Batch Plant Asphalt Roofing Line
Asphalt Storage Tank (see Storage Tank – Liquid - Asphalt)
Asphalt Day Tanker
Auto Body Shredder

B

Ball Mill
Beryllium Machining Equipment Blender (see Mixer)
Boiler
Boiler - Refinery Gas Fired
Boiler, CO - Refinery
Boiler - Agricultural Waste (Biomass) Fired
Boiler - Landfill or Digester Gas fired
Boiler - Municipal Solid Waste (MSW) Fired
Boiler –Natural Gas Fired, > 20 MM Btu/hr
Boiler – Fire-Tube, Natural Gas Fired, < 20 MM Btu/hr
Boiler - Wood Fired
Brake Pad Grinder
Brakeshoe Debonder
Brass Melting Furnace - Crucible
Brass Melting Furnace - Cupola
Brass Melting Furnace – Reverberatory, Non-Sweating
Brass Melting Furnace – Reverberatory, Sweating
Brass Melting Furnace - Rotary, Non-Sweating
Brass Melting Furnace - Rotary, Sweating
Brass Melting Furnace - Tilting Induction
Bulk Cement - Ship Unloading

Bulk Solid Material Handling
Bulk Solid Material - Ship Loading - Non-White Commodities
Bulk Solid Material - Ship Loading - White Commodities
Bulk Solid Material Ship Unloading - Except Cement
Bulk Solid Material Storage – Non-White Commodities
Bulk Solid Material Storage - White Commodities
Burnoff or Burnout Furnace (Excluding Wax Burnoff)

C

Calcined Petroleum Coke Handling
Calcined Petroleum Coke Truck Loading and Unloading Calciner
Calciner - Petroleum Coke
Calciner - Portland Cement
Carpet Beating and Shearing
Carpet Oven (see Dryer or Oven)
Catalyst Manufacturing - Reactor
Catalyst Manufacturing - Rotary Dryer
Catalyst Manufacturing - Spray Dryer
Catalyst Regeneration - Fluidized Catalyst Cracking Unit Catalyst Regeneration - Hydrocarbon Removal
Catalyst Regeneration and Manufacturing Calcining Cement Handling (see Bulk Cement – Ship Unloading) Charbroiler, Chain-driven (Conveyorized)
Catalytic Oxidizer (see Thermal Oxidizer and Catalytic Oxidizer)
Chemical Milling Tank - Aluminum and Magnesium
Chemical Milling Tank - Nickel Alloys, Stainless Steel and Titanium Chip Dryer
Chrome Plating - Decorative Chrome ~~Chrome~~ Plating - Hard Chrome
Circuit Board Etcher - Batch Immersion Type, Subtractive Process Circuit Board Etcher - Conveyorized Spray Type, Subtractive Process Circuit Board Photoresist Developer
Clay, Ceramic, and Refractories Handling (Except Mixing) (see Bulk Solid Material Handling)
Cleaning Compound Blender CO2 Plant
Coal, Coke and Sulfur Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)
Coffee Roasting
Coffee Roasting – Handling Equipment
Commodities Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)
Composting
Compressors (see Fugitive Emission Sources)
Connectors - Gas/Vapor and Light Liquid (see Fugitive Emission Sources) Concrete Batch Plant - Central Mixed

Concrete Batch Plant - Transit-Mixed Concrete Blocks and Forms Manufacturing Cotton Gin
Crematory
Crumb Rubber/Asphalt Oil Blending – Carbon Adsorber

D

Degreaser - Batch-Loaded or Conveyorized Cold Cleaners
Degreaser - Conveyorized Vapor, Volatile Organic Compounds
Degreaser - Vapor Cleaning, Volatile Organic Compounds

Degreaser - Other
Detergent Manufacturing - Solids Handling
Detergent Manufacturing - Spray Dryer
Diaphragm (see Fugitive Emission Sources)
Diesel Engine (see I.C. Engine – Compression Ignition)
Drum Reclamation Furnace
Dry Cleaning - Perchloroethylene
Dry Cleaning - Petroleum Solvent
Dry Material Handling (see Bulk Solid Material Handling)
Dryer - Kiln
Dryer - Rotary, Spray and Flash Dryer – Tenter Frame, Fabric
Dryer - Tray, Agitated Pan, and Rotary Vacuum
Dryer or Oven - Direct and Indirect Fired
Duct Burner - Refinery Fuel Gas

E

Electric Furnace - ~~Pyrolizing~~Pyrolyzing, Carbonizing and Graphitizing
Electrical Wire Reclamation - Insulation Burn-off Furnace
Ethylene Oxide Sterilization - Quarantine Storage
Ethylene Oxide Sterilization/Aeration
Expanded Polystyrene Manufacturing, Using Blowing Agent (see Polymeric Cellular [Foam] Product Manufacturing)
Extrusion (see Plastic or Resin Extrusion)

F

Fatty Acid - Fat Hydrolyzing and Fractionation
Fatty Alcohol
Feed and Grain Handling (see Bulk Solid Material Handling)
Fermentation - Beer and Wine
Fertilizer Handling (see Bulk Solid Material Handling)
Fiber Impregnation
Fiberglass Fabrication (see Polyester Resin Operations)
Film Cleaning Machine (see Degreaser)
Fish Cooker - Edible
Fish Reduction - Cooker
Fish Reduction - Digester, Evaporator and Acidulation Tank
Fish Reduction - Dryer
Fish Reduction - Meal Handling
Fish Rendering - Presses, Centrifuges, Separators, Tank, etc.
Fittings (see Fugitive Emission Sources)
Flare - Digester Gas or Landfill Gas from Non-Hazardous Waste Landfill
Flare - Landfill Gas from Hazardous Waste Landfill
Flare - Refinery, Non-Emergency
Flexographic Printing (see Printing)
Flow Coater, Dip Tank and Roller Coater
Fluidized Catalytic Cracking Unit
Foundry Sand Mold - Cold Cure Process
Fryer - Deep Fat
Fuel Cell Electricity Generation, Digester Gas Fueled
Fugitive Emission Sources at Natural Gas Plants and Oil and Gas Production Fields
Fugitive Emission Sources at Organic Liquid Bulk Loading Facilities
Fugitive Emission Sources at Petroleum Refineries

Fugitive Emission Sources, Other facilities
Fumigation Chamber - Methyl Bromide
Fuming Sulfuric Acid Storage Tank (see Storage Tank – Fuming Sulfuric Acid)

G

Galvanizing Furnace - Batch Operations
Galvanizing Furnace - Continuous Sheet Metal Operations
Galvanizing Furnace - Continuous Wire Operations
Garnetting Equipment
Gas Turbine – Combined Cycle/Cogeneration Gas Turbine - Emergency
Gas Turbine - Landfill or Digester Gas Fired
Gas Turbine – Simple Cycle
Gas Turbine – Simple Cycle, Natural Gas
Glass Melting Furnace - Container Manufacturing
Glass Melting Furnace - Decorator Glass
Glass Melting Furnace - Flat Glass
Graphic Arts (see Printing)
Greenhouse Gas
Green Petroleum Coke Handling (see Bulk Solid Material Handling)
Green Petroleum Coke Truck Loading or Unloading (see Bulk Solid Material Handling)

H

Hatches (see Fugitive Emission Sources)
Hazardous Waste Incineration (see Incinerator – Hazardous Waste)
Heater (see Process Heater)
Heater – Other Process, Natural Draft Operation

I

I.C. Engine - Emergency, Compression Ignition
I.C. Engine - Emergency, Spark Ignition
I.C. Engine - Fire Pump
I.C. Engine - Portable, Compression Ignition
I.C. Engine - Portable, Spark Ignition
I.C. Engine - Stationary, Emergency
I.C. Engine - Stationary, Non-Emergency
I.C. Engine - Stationary, Non-Emergency, Electrical with SCR, NG Fired
I.C. Engine - Stationary, Non-Emergency with SCR, NG Fired
I.C. Engine - Landfill or Digester Gas Fired
Incinerator - Hazardous Waste
Incinerator - Infectious Waste
Incinerator - Non-Infectious, Non-Hazardous Waste
Ink Jet Printing
Iron Melting Furnace - Cupola
Iron Melting Furnace - Induction
Iron Melting Furnace - Reverberatory

J

Jet Engine Test Facility - Experimental Jet Engine, High Altitude Testing
Jet Engine Test Facility - Experimental Jet Engine, Sea Level (Low Altitude) Testing Jet Engine Test Facility - Jet engine Performance Testing

L

Laminator with Corona Transfer
Landfill Gas Gathering System
Latex Manufacturing - Reaction
Lead Melting Furnace - Cupola, Secondary Melting Operations
Lead Melting Furnace - Pot or Crucible, Non-Refining Operations
Lead Melting Furnace - Pot or Crucible, Refining Operations
Lead Melting Furnace - Reverberatory, Secondary Melting Operations
Lead Oxide Manufacturing - Reaction Pot Barton Process
Letterpress Printing (see Printing)
Liquid Transfer and Handling - Container Filling
Liquid Transfer and Handling - Marine, Loading
Liquid Transfer and Handling - Marine, Unloading
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class A (South Coast AQMD's Rule 462)
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class B (South Coast AQMD's Rule 462)
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class C (South Coast AQMD's Rule 462)
Linear Generator - Non-Emergency Electrical Generator, Natural Gas Fired
Lithographic Printing Heatset (see Printing)
Lithographic Printing - Non-Heatset (see Printing)

M

Meat Broiler and Barbecue Oven
Metal Forging Furnace
Metal Heating Furnace
Metallizing Spray Gun
Meters (see Fugitive Emission Sources)
Mixer or Blender - Wet
Mixer, Blender, or Mill - Dry

N

Natural Fertilizer Handling (see Bulk Solid Material Handling)
Natural Gas Plants (see Fugitive Emission Sources)
Nitric Acid Manufacturing
Non-Metallic Mineral Processing - Except Rock and Aggregate
Nut Roasting - Handling Equipment
Nut Roasting

O

Offset Printing (see Lithographic Printing)
Oil and Gas Production - Combined Tankage
Oil and Gas Production – Wellhead
Oil and Gas Production Fields (see Fugitive Emission Sources)
Oil/Water Separator (see Wastewater System)
Open Process Tanks: Chemical Milling (Etching) and Plating
Open Spraying - Spray Gun
Open-ended Valves or Lines (see Fugitive Emission Sources)
Organic Liquid Bulk Loading Facilities (see Fugitive Emission Sources)
Oven (see Dryer or Oven)

P

Paper and Fiber Handling (see Bulk Solid Material Handling)
Perlite Manufacturing System
Petroleum Coke Calciner (see Calciner – Petroleum Coke) Pharmaceutical Manufacturing
Pharmaceutical - Operations Involving Solvents
Phosphoric Acid - Thermal Process
Phthalic Anhydride
Pipe – Open Ended (see Fugitive Emission Sources)
Plasma Arc Metal Cutting Torch, Electrical Input Rating
Plastic or Resin Extrusion
Pneumatic Conveying - Except Paper and Fibers (see Bulk Solid Material Handling)
Polyester Resin Operations – Molding and Casting
Polyester Resin Operations – Fiberglass Fabrication, Hand and Spray Layup
Polyester Resin Operations – Fiberglass Fabrication, Panel Manufacturing
Polyester Resin Operations – Fiberglass Fabrication, Pultrusion
Polyethylene Manufacturing (see Resin Manufacturing)
Polymeric Cellular (Foam) Product Manufacturing
Polypropylene Manufacturing (see Resin Manufacturing)
Polystyrene Extrusion (see Plastic or Resin Extrusion)
Polystyrene Foam Product Manufacturing (see Polymeric Cellular [Foam] Product Manufacturing)
Polystyrene Foam Product Manufacturing, Using Blowing Agent (see Polymeric Cellular [Foam] Product Manufacturing)
Polystyrene Manufacturing (see Resin Manufacturing)
Polyurethane Tube Manufacturing
Powder Coating Booth
Precious Metal Reclamation - Incineration
Precious Metals Recovery - Chemical Recovery and Chemical Reactions Pressure Relief Valve (see Fugitive Emission Sources)
Printing (Graphic Arts) – Flexographic
Printing (Graphic Arts) – Letterpress
Printing (Graphic Arts) – Lithographic, Heatset
Printing (Graphic Arts) – Lithographic, Non-Heatset
Printing (Graphic Arts) – Rotogravure or Gravure – Publication and Packaging Printing (Graphic Arts) – Screen Printing and Drying
Process Drains (see Wastewater System)
Process Heater – Non-Refinery
Process Heater - Refinery
Process Valves (see Fugitive Emission Sources)

Pultrusion (see Polyester Resin Operations)
Pumps (see Fugitive Emission Sources)

R

Railcar Dumper (see Bulk Solid Material Handling)
Railcar Loading/Unloading, Liquid (see Liquid Transfer and Handling)
Reactor with Atmospheric Vent
Rendering - Crax Pressing, filtering and Centrifuging Operations
Rendering - Evaporators, Cookers and Dryers
Rendering - Grease and Blood Processing
Rendering - Metal Grinding and Handling System
Rendering - Tanks and Miscellaneous Equipment
Resin Manufacturing
Rock - Aggregate Processing
Rocket Engine Test Cell
Roller Coater – Paper and Film, with Regenerative Thermal Oxidizer
Rolling Mill
Rotary Dryer - Aggregate Facility, Natural Gas Fired
Rotogravure Printing - Publication and Packaging (see Printing)
Rubber Compounding - Banbury Type Mixer
Rubber Compounding – Roll Mill

S

Sampling Connections (see Fugitive Emission Sources)
Sand Handling System with Shakeout and/or Muller in System
Screen Printing and Drying (see Printing)
Sewage Treatment Plants
Sight Glass (see Fugitive Emission Sources)
Silo (see Bulk Solid Material Storage)
Smokehouse
Solder Leveling - Hot Oil or Hot Air
Solid Material Handling – (see Bulk Solid Material Handling)
Solid Material Storage – (see Bulk Solid Material Storage)
Solid Material Unloading - Railcar Dumper (see Bulk Solid Material Handling)
Solids Handling Catalyst (see Catalyst Manufacturing and Regeneration)
Solids Handling Pharmaceutical (see Pharmaceutical Manufacturing)
Solvent Reclamation
Spray Booth
Steam Generator - Oil field
Steel Melting Furnace - Basic Oxygen Process
Steel Melting Furnace - Electric Arc
Steel Melting Furnace - Induction
Steel Melting Furnace - Open Hearth
Storage Tank (see also Bulk Solid Material Storage)
Storage Tank - External Floating Roof, and VP <= 11 psia
Storage Tank - Fixed Roof
Storage Tank - Fuming Sulfuric Acid
Storage Tank - Grease or Tallow
Storage Tank - Internal Floating Roof
Storage Tank – Liquid
Storage Tank - Spent Sulfuric Acid Storage Tank - Underground
Sulfur Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)

Sulfur Pelletizing and Prilling
Sulfur Recovery Plant
Sulfur Recovery Unit and Tail Gas Treatment Unit followed by a Tail Gas Incinerator and Caustic Scrubber
Sulfuric Acid Storage (see Storage Tank – Liquid)
Surfactant Manufacturing

T

Tank Degassing
Tank - Grease or Tallow Processing
Tank Truck Loading/Unloading (see Liquid Transfer and Handling)
Tank Truck Loading/Unloading Racks
Thermal Oxidizer (see Thermal Oxidizer and Catalytic Oxidizer)
Tire Buffer
Tunnel Washer

V

Vegetable Oil Purification
Vinegar Manufacturing

W

Wastewater System
Wastewater System – Air Stripper
Wastewater System – Oil/Water Separator
Wastewater System - Sour Water Stripping
Wax Burnoff Furnace
Wet Material Handling (see Bulk Solid Material Handling)
Wood Processing Equipment
Woodworking

Z

Zinc Melting Furnace - Crucible or Pot
Zinc Melting Furnace - Reverberatory, Non-Sweating Operations
Zinc Melting Furnace - Reverberatory, Sweating Operations
Zinc Melting Furnace - Rotary, Sweating Operations

ATTACHMENT H

Comments and Responses to Proposed Amendments to BACT Guidelines

Public meetings were held on June 4, 2025, October 15, 2025, and May 28, 2026 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 letter and e-mail received during the 30-day comment period starting May 28, 2026.

A. Comment Letter A – Ms. Rita Loof, RadTech International / BACT SRC member

B. Comment Letter B – Dr. Wayne Miller, CE-CERT / BACT SRC member

June 30, 2026



Bahareh Farahani
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765 bfarahani@aqmd.gov

Re: Comments on Proposed New Listings for Best Available Control Technology and Request for Inlcusion of Electron Beam Lithographic Printing.

Dear Bahareh:

RadTech represents over 800 members involved in the Ultraviolet/Electron Beam/Light Emitting Diode (UV/EB/LED) industry. Our technology is considered pollution prevention and we appreciate the District's efforts to recognize it as an alternative to add-on control devices in the guidelines. We value the work of the district's Scientific Review Committee on the Best Available Control Technology Guidelines (BACT). We appreciate the opportunity to provide feedback regarding the proposed listing for Lithographic Printing, Non-Heatset, Sheet-fed. We support the proposal to include UV technology as a BACT compliant process.

Comment A1 ➡

During the October 2025 meeting, I asked for clarification regarding the types of curing mechanisms. The listing specifies a sheet-fed lithographic printing press, 170 kW rated ultraviolet (UV) dryer and 175 kW rated infrared dryer. As mentioned, energy curable materials can be cured with Electron Beam (EB) technology and Light Emitting Diode (LED) technology. For purposes of Volatile Organic Compound (VOC) content, the materials used in UV operations are the same as those cured with EB or LED equipment- essentially zero VOC. In the foreseeable future, a sheet-fed lithographic printing press using either EB or LED could potentially come into the South Coast Basin and therefore it is important for our industry to be certain that EB or LED processes would be equivalent for purposes of the BACT listing being proposed.

In conversations, staff indicated that the listings are intended to be technology neutral and thus, whether the curing happens via exposure to UV light, EB or LED; the process would be considered equivalent to the proposed listing for the Lithographic Printing, Non-Heatset, Sheetfed category. We urge the district to provide clarity on this matter to make it clear for

companies who are considering conversion to UV/EB/LED processes that their EB or LED process would be considered compliant with BACT requirements. Added regulatory flexibility should be provided to processes that benefit air quality.

Following up on the discussion regarding BACT listings for Electron Beam printing, on June 15, 2026, I emailed you a study conducted by the district some time ago which showcased an Electron Beam Web Lithographic printing press. While the study's main goal was to identify cleaning solvents, it does document that Electron Beam lithographic printing is achieved in practice. Some relevant excerpts follow:

Comment A2

"Huhtamaki is located in Los Angeles, California. The company is international and the business entity in Los Angeles makes consumer packaging, primarily for ice cream cartons. Huhtamaki has an eight stage web press with seven color stations and a clear coating station. A picture of the press is shown in Figure 2-2. Huhtamaki is one of the few companies in the U.S. that uses an electron beam curable ink and an electron beam curable coating for the clear coat."

"Huhtamaki applies a clear EB curable coating over ice cream carton packaging that is printed using a lithographic printing press."

Comment A3

A search of the BACT Guidelines did not identify a listing for Electron Beam Lithographic printing. We request inclusion of EB technology in the guidelines. Additionally, I am attaching various permits for lithographic printing issued by the district for your consideration. I am unsure whether the district differentiates between wide web and sheetfed printing, for purposes of BACT determinations, so I am providing additional information for the web printing applications. Please see attached permits #554664; #603633 and # 476356.

We appreciate the opportunity to engage in further dialogue regarding our comments and look forward to ongoing collaboration with the BACT SRC.

Sincerely,

Rita Loof

Rita M. Loof
Director, Environmental Affairs

Response to Comment A1:

Staff acknowledge and appreciate the support for UV/EB/LED technologies and confirm that EB curable ink and coating have been recognized in previous BACT determinations in Part D (Flexographic and Screen Printing) of the BACT Guidelines for non-major polluting facilities. However, the proposed listing for Lithographic Printing, Non-Heatset, Sheet-fed, presented at the May 28, 2026, SRC meeting, is a LAER (Lowest Achievable Emission Rate) determination, which is equipment-specific and cannot be generalized to other curing technologies. While the current listing is specific to UV curing, staff will consider EB and LED curing technologies in future determinations as more information and case-specific data become available. It is important to note that if a technology is listed in Part D for non-major sources, then this technology is applicable to major sources as well.

Response to Comment A2:

Thank you for sharing the study and the relevant excerpts. Staff acknowledge that the facility mentioned in the comment letter has been in operation for over 15 years. Staff were able to locate one permit for a web-fed printing system equipped with multiple lithographic color stations, an Electron Beam Curing Unit and a flexographic color station, based on the facility name cited in the study provided by the commenter. The permit includes a condition specifying the VOC content of flexographic inks and coatings used in the equipment shall not exceed 1.5 lb VOC/gal, less water and exempt compounds and compliance with Rule 1130. Staff is currently evaluating the applicability of the existing BACT requirement to Electron Beam printing and curing for the lithographic printing category; however, a separate Electron Beam printing listing under the Major Source BACT Guidelines is not proposed as part of this round of BACT Guidelines updates.

Response to Comment A3:

Rule 1130 - Graphic Arts defines “web-fed” as an automatic system that supplies substrate from a continuous roll or from an extrusion process but does not specify a "wide-web" category. In addition, because the proposed listing for sheetfed lithographic printing would not apply to web-fed, the Permitting Team would evaluate applications and BACT determination on a case-by-case basis for web-fed, including any related web-fed subcategory. Thank you for sharing the permits with us. We will review the information provided and evaluate whether there is sufficient information to consider including a web-fed subcategory in the BACT Guidelines in a future update in consultation with the BACT SRC.

Comment B1

From: J Miller <wayne.miller@ucr.edu>
Sent: Wednesday, June 3, 2026 11:56 AM
To: Bahareh Farahani <bfarahani@aqmd.gov>
Subject: [EXTERNAL] Re: BACT Scientific Review Committee Meeting Package - May 28, 2026

Is AQMD mainly using 25.3 for VOC?

Response to Comment B1

The district uses Method 25.1 and Method 25.3. Method 25.3 (stm-025-3.pdf) is typically used when VOC is low, like at the outlet of a control device. Method 25.1 (stm-025-1.pdf) is used when VOC is high, like at the inlet to a control device.

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 filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor's Office of Land Use and Climate Innovation for posting on their CEQAnet Web Portal which may be accessed via the following weblink: https://ceqanet.lci.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-2026.

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

To:	County Clerks for the Counties of Los Angeles, Orange, Riverside and San Bernardino; and Governor's Office of Land Use and Climate Innovation – State Clearinghouse	**From:**	South Coast Air Quality Management District 21865 Copley Drive 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 to the following sections to maintain consistency with recent changes to South Coast AQMD rules and state requirements and to include equipment and processes which have been achieved in practice.

Overview Section

The introduction has been updated to provide a more complete reference to the applicable regulatory requirements, and to update the agency responsible for managing the California Air Resources Board (CARB) Technology Clearinghouse Database from the California Air Pollution Control Officers Association's Engineering Managers Committee to the CARB Technology Assessment Section. This section has also been reorganized and includes other administrative changes to improve clarity and consistency.

Part A – Policy and Procedures for Major Polluting Facilities

The references in Footnote 3 to Rule 1325 paragraphs (b)(12) and (b)(13) have been updated for consistency with the most recent version of the rule. Other administrative changes have been made for clarity and consistency.

Part B – Lowest Achievable Emission Rate (LAER) /BACT Determinations for Major Polluting Facilities

Section I – South Coast AQMD LAER/BACT Determinations has been revised to update one existing listing and add one new listing, as follows: a) Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired (update), and b) Lithographic Printing, Non-Heatset, Sheet-fed (new). Section III – Other LAER/BACT Determinations has been revised to add two new listings of other/emerging technologies that have been permitted and placed into operation but have not yet demonstrated sufficient performance to qualify as LAER, as follows: a) Boiler, Refinery Gas Fired, and b) Digester Gas (Biogas) Conditioning and Upgrading System.

Part C – Policy and Procedures for Non-Major Polluting Facilities

The Maximum Cost-Effectiveness Values in Table 5 have been updated for consistency with the second-quarter 2026 Marshall and Swift Equipment Cost Index in accordance with the BACT Guidelines policy. Figure 2 - The Ongoing BACT Update Process has been updated to include the Stationary Source Committee within the flow chart for consistency with the BACT Scientific Review Committee SRC Charter. Other updates to terminology have been made for consistency.

Part D – BACT Determinations for Non-Major Polluting Facilities

Emission limits for the Food Oven category have been updated for consistency with the current Phase I limits in Rule 1153.1, and a new listing of Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired has been added.

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

Administrative amendments have been made to correct minor grammatical errors.

The proposed project will benefit stakeholders by having the guidelines reflect the latest, feasible technology available and improved clarity and accuracy when implementing the applicable requirements.

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 (amendments to the BACT Guidelines) 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 new information and updates that reflect current practices of LAER/BACT determinations in the BACT Guidelines and the most current achieved-in-practice equipment and/or processes, and makes administrative amendments without requiring physical modifications, 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 amendments to the BACT Guidelines are designed to further protect or enhance the environment. Further, there is no substantial evidence indicating that any of the exceptions to the categorical exemption set forth in CEQA Guidelines Section 15300.2 – Exceptions, apply to the proposed project.

Date When Project Will Be Considered for Approval (subject to change):

South Coast AQMD Governing Board Public Hearing: November 6, 2026

CEQA Contact Person:	**Phone Number:**	**Email:**
Farzaneh Khalaj, Ph.D.	(909) 396-3022	fkhalaj@aqmd.gov
BACT Contact Person:	**Phone Number:**	**Email:**
Bahareh Farahani	(909) 396-2353	bfarahani@aqmd.gov

Date Received for Filing: _____ **Signature:** *(Signed and Dated Upon Board Approval)*

Kevin Ni
Program Supervisor, CEQA
Planning, Rule Development, and Implementation

ATTACHMENT J

Proposed Updates to BACT Guidelines

Board Meeting

November 6, 2026

Background – Best Available Control Technology (BACT)

- BACT is a major permitting requirement under Regulation XIII - New Source Review (NSR)
- BACT is the most stringent emission limitation or control technique required for an equipment class and category that has been determined to be:

Achieved in Practice, or

Contained in a State Implementation Plan (SIP), or

Technologically Feasible and Cost-Effective

BACT is Required for New, Modified or Relocated Emission Sources Subject to Permitting

Background - BACT Guidelines

BACT Guidelines are published for commonly permitted equipment

- Identifies the BACT determinations for a specific category or class of source
- Source is defined as an individual permit unit, e.g. engine, boiler, spray booth, etc.
- Technical feasibility considered for the class and category of source

BACT Guidelines are periodically updated to

- Incorporate new BACT determinations
- Reflect advancements in technology
- Ensure affected equipment use the cleanest technologies

Background - BACT Requirements and Guideline Updates

Major Polluting Facility

- Federal major source facilities – LAER*
- Subject to federal regulations
- Does not allow for routine consideration of cost
- Determined at time of permit to construct issuance

Approval

Board approval not required for LAER/BACT determinations for Major Polluting Facilities**

Non-Major (Minor) Polluting Facility

- Smaller emitting facilities
- Subject to Health and Safety Code §40440.11
- Considers cost effectiveness through analysis
- Determined at the time an application is deemed complete

Approval

Board approval required for BACT listings for Non-Major Polluting Facilities

* Federal LAER (Lowest Achievable Emission Rate) is the most stringent emission rate or control technology for a class or category of source required for Federal major sources

** LAER/BACT listings are typically examples of previously permitted federal major sources.

BACT Guidelines - Proposed New Determination Listings

Part B - Major Polluting Facilities
(Section I – South Coast AQMD LAER/BACT Determinations)

The following have been determined to be Achieved in Practice:

- Linear Generator, Non-Emergency
  Electrical Generator, Natural Gas Fired

  Lower VOC limit



- Lithographic Printing, Non-Heatset, Sheet-fed
  - Operation with UV-curable or Oil-based Inks
  - Compliance with South Coast AQMD Rules 1130 and 1171

BACT Guidelines - Proposed New Listings

Part B - Major Polluting Facilities
(Section III – Other Technologies)

Listings for Other Technologies are not yet Achieved in Practice, do not yet qualify as LAER, but are emerging and may be considered in the future

- Boiler, Refinery Gas or Natural Gas or Process Gas Fired, 520.4 MMBtu/hr*

  Lower emission rate for NOx, CO and Ammonia

- Digester Gas (Biogas) Conditioning and Upgrading System

  Establish limit for total sulfur



* Million British thermal units per hour

BACT Guidelines - Proposed New Listings

Part D – Non-Major Polluting Facilities

The following listings are proposed to be updated to reflect increased stringency from recent rule amendments

- Food Oven
  - Consistent with Rule 1153.1
- Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired
  - Consistent with Rule 1110.3



Summary of Proposed Updates

Policy & Procedures

- Administrative updates for consistency with updated rules and regulations
- Routine update of maximum incremental cost-effectiveness values
- Enhancing process to update BACT Guidelines to:
  - Improve transparency and provide more frequent updates reflecting new LAER listings
  - Maintain the role of the Scientific Review Committee and opportunities for public participation

LAER/BACT Listings and Updates

- **Major Polluting Facilities**
  One new and one updated LAER/ BACT determination listings
- **Other/Emerging Technologies listings**
  Two new listings
- **Non-Major Polluting Facilities**
  One new and four updated BACT listings

Stakeholder Comments and Ongoing Evaluations

RadTech International – June 30, 2026

Key Issue	Staff Response
Request to expand proposed listing for UV sheet-fed lithographic printing to include electron-beam and wide-web fed applications	Staff will continue to review additional permitted operations that utilize electron-beam and web-fed lithographic printing for achieved in practice considerations and candidates for future listing opportunities



RADTECH
THE ASSOCIATION FOR UV&EB TECHNOLOGY

June 30, 2026

Bahareh Farahani
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765
bfarahani@aqmd.gov

Re: Comments on Proposed New Listings for Best Available Control Technology and Request for Inlcusion of Electron Beam Lithographic Printing.

Dear Bahareh:

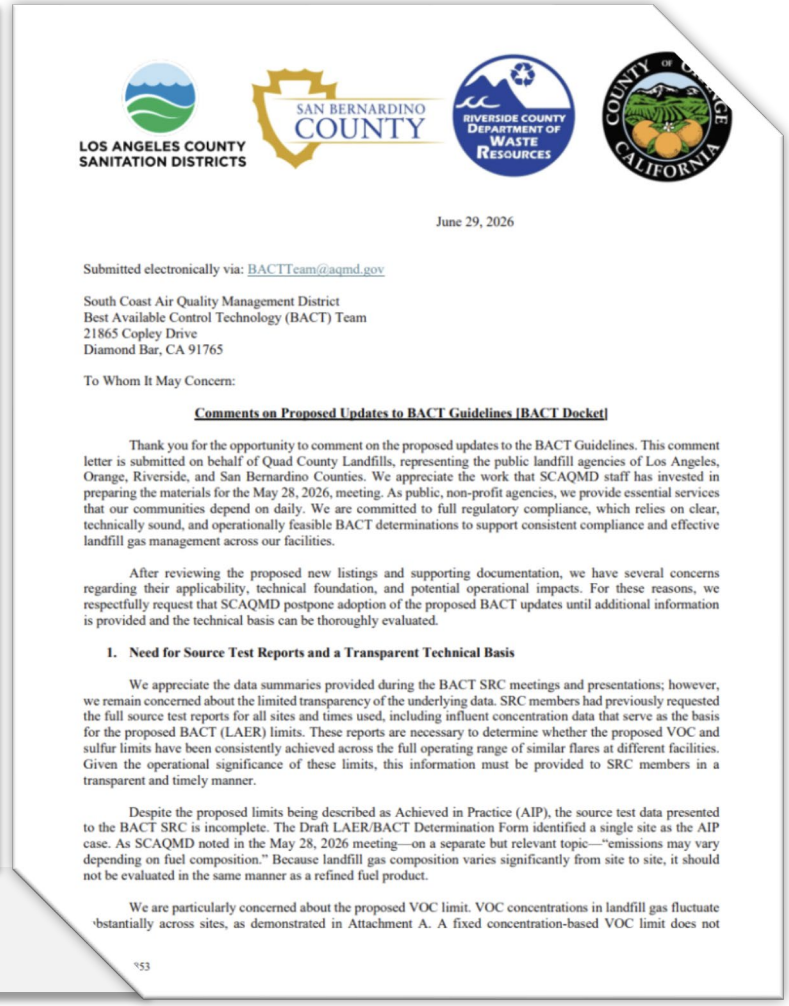
RadTech represents over 800 members involved in the Ultraviolet/Electron Beam/Light Emitting Diode (UV/EB/LED) industry. Our technology is considered pollution prevention and we appreciate the District's efforts to recognize it as an alternative to add-on control devices in the guidelines. We value the work of the district's Scientific Review Committee on the Best Available Control Technology Guidelines (BACT). We appreciate the opportunity to provide feedback regarding the proposed listing for Lithographic Printing, Non-Heatset, Sheet-fed. We support the proposal to include UV technology as a BACT compliant process.

During the October 2025 meeting, I asked for clarification regarding the types of curing mechanisms. The listing specifies a sheet-fed lithographic printing press, 170 kW rated ultraviolet (UV) dryer and 175 kW rated infrared dryer. As mentioned, energy curable materials can be cured with Electron Beam (EB) technology and Light Emitting Diode (LED) technology. For purposes of Volatile Organic Compound (VOC) content, the materials used in UV operations are the same as those cured with EB or LED equipment- essentially zero VOC. In the foreseeable future, a sheet-fed lithographic printing press using either EB or LED could ...entially come into the South Coast Basin and therefore it is important for our industry to be that EB or LED processes would be equivalent for purposes of the BACT listing being

Stakeholder Comments and Ongoing Evaluations (cont'd)

The following have been discussed with the BACT Scientific Review Committee but are not included in the proposed updates to the BACT Guidelines to allow staff additional time to evaluate:

- **Major Polluting Facilities (Part B, Section I – South Cost AQMD LAER/BACT Determination):**
  - ❑ Sulfur Control System (Prior to Landfill Gas Combustion)
  - ❑ Flare, Landfill Gas Fired (VOC and PM10 Control)
- **Non-Major Polluting Facilities (Part D – BACT Guidelines):**
  - ❑ Liquid Storage Tanks – Fixed Roof (Compliance with Rule 463 – Organic Liquid Storage)



LOS ANGELES COUNTY SANITATION DISTRICTS

SAN BERNARDINO COUNTY

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

June 29, 2026

Submitted electronically via: BACTTeam@aqmd.gov

South Coast Air Quality Management District
Best Available Control Technology (BACT) Team
21865 Copley Drive
Diamond Bar, CA 91765

To Whom It May Concern:

Comments on Proposed Updates to BACT Guidelines [BACT Docket]

Thank you for the opportunity to comment on the proposed updates to the BACT Guidelines. This comment letter is submitted on behalf of Quad County Landfills, representing the public landfill agencies of Los Angeles, Orange, Riverside, and San Bernardino Counties. We appreciate the work that SCAQMD staff has invested in preparing the materials for the May 28, 2026, meeting. As public, non-profit agencies, we provide essential services that our communities depend on daily. We are committed to full regulatory compliance, which relies on clear, technically sound, and operationally feasible BACT determinations to support consistent compliance and effective landfill gas management across our facilities.

After reviewing the proposed new listings and supporting documentation, we have several concerns regarding their applicability, technical foundation, and potential operational impacts. For these reasons, we respectfully request that SCAQMD postpone adoption of the proposed BACT updates until additional information is provided and the technical basis can be thoroughly evaluated.

1. **Need for Source Test Reports and a Transparent Technical Basis**

We appreciate the data summaries provided during the BACT SRC meetings and presentations; however, we remain concerned about the limited transparency of the underlying data. SRC members had previously requested the full source test reports for all sites and times used, including influent concentration data that serve as the basis for the proposed BACT (LAER) limits. These reports are necessary to determine whether the proposed VOC and sulfur limits have been consistently achieved across the full operating range of similar flares at different facilities. Given the operational significance of these limits, this information must be provided to SRC members in a transparent and timely manner.

Despite the proposed limits being described as Achieved in Practice (AIP), the source test data presented to the BACT SRC is incomplete. The Draft LAER/BACT Determination Form identified a single site as the AIP case. As SCAQMD noted in the May 28, 2026 meeting—on a separate but relevant topic—"emissions may vary depending on fuel composition." Because landfill gas composition varies significantly from site to site, it should not be evaluated in the same manner as a refined fuel product.

We are particularly concerned about the proposed VOC limit. VOC concentrations in landfill gas fluctuate ·bstantially across sites, as demonstrated in Attachment A. A fixed concentration-based VOC limit does not

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Recommended Actions

Determine that the proposed amendments to the BACT Guidelines are exempt from the requirements of CEQA

Approve proposed amendments to the BACT Guidelines