BOARD MEETING DATE: February 1, 2019 AGENDA NO. 28

PROPOSAL: Determine that Proposed Amendments to BACT Guidelines and Charter for BACT Scientific Review Committee Are Exempt from CEQA, and Amend BACT Guidelines and Charter for BACT Scientific Review Committee

SYNOPSIS: Periodically, staff proposes amendments to the BACT Guidelines to add new or update determinations and/or policy. These actions are to add new and amended listings to Part B: Lowest Achievable Emission Rate Determinations for Major Polluting Facilities, Part D: BACT Determinations for Non-Major Polluting Facilities and update Parts A and C Policy for Major and Non-Major Polluting Facilities. Additionally, these actions are to determine the proposed amendments to the BACT Guidelines and the Charter for BACT Scientific Review Committee are exempt from the California Environmental Quality Act, amend the BACT Guidelines to make them consistent with recent changes to SCAQMD rules and regulations as well as state requirements, and approve amendments to the charter for the BACT Scientific Review Committee.

COMMITTEE: Stationary Source, January 18, 2019; Recommended for Approval

RECOMMENDED ACTIONS:

1. Determine that the proposed amendments to the BACT Guidelines and the Charter for BACT Scientific Review Committee are exempt from the requirements of CEQA;
2. Approve proposed amendments to BACT Guidelines Overview and Parts A, B, C and D (Parts E and F are not being amended); and
3. Approve proposed amendments to Charter for the BACT Scientific Review Committee.

Wayne Nastri
Executive Officer

MMM:JCL:AK:AHB:TL

Background
Regulation XIII – New Source Review (NSR) requires permit applicants to use BACT for new sources, relocated sources and modifications to existing sources that may result in an emissions increase of any nonattainment air contaminant, any ozone depleting compound (ODC) or ammonia. Regulation XIII also requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the requirements for applying BACT to commonly permitted equipment.

The BACT Guidelines are separated into two parts: major polluting facilities and non-major polluting facilities. A facility is a major polluting facility if it emits, or has the potential to emit, a criteria air pollutant at a level that equals or exceeds the emissions thresholds in Regulation XXX - Title V Permits. Major polluting facilities that are subject to NSR are required by the federal Clean Air Act (CAA) to have the Lowest Achievable Emission Rate (LAER). The SCAQMD implements the federal CAA requirement for LAER through its BACT process. The Part B LAER determinations for major polluting facilities are only examples of past determinations that help in determining LAER for new permit applications. At the state level, California Health and Safety Code (H&SC) Section 40405 defines BACT in a similar manner to federal LAER and requires the application of BACT for all new and modified permitted sources subject to NSR. For non-major polluting facilities, minor source BACT (MSBACT) is as specified in Part D of the BACT Guidelines and determined in accordance with state law H&SC Section 40440.11 at the time an application is deemed complete. In updating Part D with new more stringent MSBACT, SCAQMD must follow a more rigorous process than for major polluting facilities, including a cost-effectiveness analysis, notification to the public, presentation at the BACT Scientific Review Committee (BACT SRC) meeting and Board approval.

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

Proposed Amendments to the BACT Guidelines
The proposed amendments are to update the Overview, Parts A, B, C and D of the BACT Guidelines, and maintain consistency with recent changes to SCAQMD rules and state requirements. Parts E and F of the guidelines are not being amended. The BACT SRC and other interested parties were provided with detailed descriptions of the proposed amended BACT Guidelines at three scheduled publicly noticed meetings. The proposed amendments to the BACT Guidelines were posted on SCAQMD's website and a 30-day public comment period was provided. Comments by BACT SRC members and the general public along with staff responses are included in Attachment J.

Overview

The Overview consists of five chapters which provide an introduction to the BACT Guidelines and a summary of how BACT and LAER is implemented in the SCAQMD. The proposed amendment to the Overview section includes referencing an Engineering and Permitting Division policy for the prevention of circumvention of BACT requirements for emissions increases greater than or equal to one pound per day. A summary of the proposed Overview amendment is included in Attachment A, with the complete proposed amended Overview section included in Attachment B.

Part A – Policy and Procedures for Major Polluting Facilities

Part A describes the policy and procedures for major polluting facilities and explains what LAER is, why it is required, when it is required and how it is determined for major polluting facilities. The proposed amendment to Part A is to reference SCAQMD's Air Quality-Related Energy policy established in September 2011. The policy requires new or repowered in-basin fossil-fueled power plants to incorporate LAER/BACT as required by District rules, considering energy efficiency for the application. A summary of the proposed Part A amendments is included in Attachment A, with the complete proposed amended Part A included in Attachment C.

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

Part B consists of three sections: Section I contains listings of LAER determinations made by SCAQMD; Section II contains listings of LAER determinations for equipment in other air districts; and Section III contains listings of emerging technologies which have been in operation with an air quality permit but do not yet qualify as LAER. The proposed Part B LAER determinations of Sections I and II are summarized below with the complete proposed determinations included in Attachment D. The other portions of Sections I, II and III are not included in this Board package because they are not being updated at this time.

Section I – SCAQMD LAER/BACT Determinations

Two new proposed listings include External Floating Roof Storage Tank-Dome Installation and Soil Vapor Extraction-Thermal Oxidation at 30 parts per million (ppm) NOx. Nine proposed updated listings include Gas Turbines combined cycle/simple cycle natural gas, landfill, digester and produced gas-fired, internal combustion (I.C.) engine portable and I.C. engine emergency fire pump.

The new "External Floating Roof Storage Tank" listing is based on several permitted floating roof storage tanks at a refinery ranging in capacity from 14,000 barrels to 615,000 barrels equipped with domes to minimize wind induced emissions. These tanks commenced operation and storage of crude oil, gas oil, mixed naphtha and wastewater in April 2016 and have been operating in compliance ever since.

The new “Soil Vapor Extraction” listing is for an in-situ soil vapor extraction remediation system using a thermal catalytic oxidizer achieving 30 ppm NOx burner-only emissions at a gasoline storage facility. The catalytic oxidizer rated at 4 MMBtu/hr began operation in late 2016 with source test showing compliance with the permitted emissions limit of 30 ppm NOx.

The “Gas Turbine” LAER category is being updated with several listings consisting of: 1) combined cycle, natural gas-fired, 56.1 megawatt (MW) with selective catalytic reduction (SCR) permitted at 2 ppm NOx, 2 ppm CO, 2 ppm VOC and 5 ppm ammonia slip; 2) simple cycle, natural gas-fired, 100.1 MW with SCR permitted at 2.5 ppm NOx, 4 ppm CO, 2 ppm VOC and 5 ppm ammonia slip; 3) simple cycle, landfill gas-fired, 4.9 MW permitted at 12.5 ppm NOx, 21.5 ppm CO and 10.5 ppm VOC; 4) combined cycle, digester gas-fired, 11.35 MW permitted at 18.8 ppm NOx, 60 ppm CO, 25 ppm VOC and 10 ppm ammonia slip; 5) simple cycle, produced gas-fired, 5.6 MW permitted at 5 ppm NOx, 6 ppm CO, 2 ppm VOC and 5 ppm ammonia slip. All gas turbines have been in operation for 1.5 years or longer and showed compliance with permitted limits and were verified through source test and continuous emissions monitoring systems (CEMS) data.

The “I.C. Engine, Portable Compression Ignition” LAER category is being updated with a listing of a 123.4 horsepower (HP) diesel fueled engine with oxidation catalyst and SCR. The engine powers a hydraulic pump for the refuse truck tipper platform at a landfill. This engine was permitted to achieve Tier 4 emissions standards with manufacturer certification. The engine commenced operation mid-2017 and has operated since that time.

The “I.C. Engine, Emergency Fire Pump Compression Ignition” LAER category is being updated with a listing of a 183 HP diesel-fueled engine. The engine is used to provide emergency water supply for fire suppression at a fuel storage tank facility. This engine was permitted to achieve Tier 3 emissions standards with manufacturer certification. The engine commenced operation mid-2010 and has operated since that time.

Section II – Other LAER/BACT Determinations

The “Gas Turbine” LAER category is being updated with a listing from a permit issued by the Virginia State Air Pollution Control Board consisting of three Gas Turbines, combined cycle, natural gas-fired, 299.6 MW each with SCR permitted at 2 ppm NOx one-hour average, 1.5 ppm CO one-hour average without duct burner. All gas turbines showed compliance with permitted limits and verified through source test and CEMS data. The gas turbine units commenced operation in late 2014 and continue operation to date.

Proposed Deletions of Outdated Part B, Sections I and II LAER Determinations

In an effort to maintain current and up-to-date listings of LAER determinations which reflect the latest permitted achieved in practice technologies, staff is proposing to remove outdated LAER determinations from Part B, sections I and II of the BACT Guidelines. The complete list of proposed LAER determinations to be deleted is included in Attachment D.

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 proposed amendments to Part C are to reference SCAQMD's Air Quality-Related Energy policy established in September 2011. The policy requires new or repowered in-basin fossil-fueled power plants to incorporate LAER/BACT as required by District rules, considering energy efficiency for the application. In addition, staff is proposing to update the Maximum Cost-Effectiveness Values on Table 5 consistent with the third quarter 2018 Marshall and Swift equipment index in accordance with the BACT Guidelines policy. A summary of the proposed Part C amendments is included in Attachment A, with the complete proposed amended Part C included in Attachment E.

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

Part D consists of BACT determinations for minor sources which are established in accordance with state law at the time an application is deemed complete. The proposed new and updated amendments to Part D are for equipment and processes which have been achieved in practice and to maintain consistency with recent changes to SCAQMD rules and state requirements. All proposed Part D amendments and updates, with the exception of the proposed new Thermal/Catalytic Oxidizer listing, will not result in more stringent requirements than would otherwise occur through SIP-approved rule compliance which constitutes MSBACT under Part C – Policy Guidance. Therefore, it was not required for staff to evaluate the achieved-in-practice status nor cost-effectiveness of these underlying technologies. The proposed amendments comply with the requirements of H&SC Section 40440.11. The proposed amended Part D BACT determinations are summarized below, with the complete proposed amended Part D included in Attachment F.

Boiler

--Current Language

Minor source BACT for Boiler, subcategory "Natural Gas or Propane Fired, ≥20 and < 75 MM Btu/hr" for NOx is "With Low NOx Burner: ≤9 ppmv dry corrected to 3% O_2; With Add-On Controls: ≤7 ppmv dry corrected to 3% O_2."

--Proposal
To be consistent with the current applicable requirements of Rule 1146, staff is proposing to remove language stated above and replace with "Compliance with SCAQMD Rule 1146".

Composting
--Current Language
Minor source BACT for Composting currently does not have a subcategory listing for Greenwaste Composting.

--Proposal
Staff is proposing to add a subcategory for Greenwaste Composting and language to this BACT determination for VOC and Inorganic Ammonia stating "Compliance with SCAQMD Rule 1133.3".

Fryer – Deep Fat
--Current Language
Minor source BACT listing for Fryer - Deep Fat, Rating/Size "<2 MM Btu/hr" and "≥2 MM Btu/hr" only includes an Integrated Afterburner/Oil Heater type Deep Fat Fryer.

--Proposal
Staff is proposing to clarify this listing by the addition of the following Rating/Size category: "Non-Integrated Direct and In-Direct Oil Heater". The addition of this category will now address BACT for all new, modified, and relocated Deep Fat Fryers. For the "Integrated Afterburner/Oil Heater" category all existing BACT requirements are being maintained. For the proposed "Non-Integrated Direct and In-Direct Oil Heater" category, to be consistent with current rule requirements, staff is proposing a NOx BACT requirement of "Compliance with Rule 1147".

I.C. Engine, Stationary, Emergency
--Current Language
Minor source BACT for I.C. Engine, Stationary, Emergency, subcategory "Compression-Ignition, Other, 100≤HP<175" for PM has an outdated limit of 0.22 grams/bhp-hr/0.30 grams/kW-hr.

--Proposal
Staff proposes to replace outdated PM limit with 0.15 grams/bhp-hr/0.20 grams/kW-hr to be consistent with CARB air borne toxic control (ATCM) regulation and Rule 1470.

Process Heater - Non-Refinery
--Current Language
Minor source BACT for Process Heater-Non-Refinery, subcategory "Natural Gas or Propane Fired, ≥20 MM Btu/hr" for NOx has an incorrect reference to Rule 1146.1.

--Proposal
Staff is proposing a correction by deleting the above-stated reference to Rule 1146.1.

Printing (Graphic Arts)
--Current Language
Minor source BACT for Printing (Graphic Arts), subcategory "Lithographic or Offset, Heatset" for PM10 originally included the requirement of "Venting to an afterburner (≥0.3 sec. Retention Time at ≥1400°F; 95% Overall Efficiency", which was inadvertently removed during the publishing and most recent update of the BACT Guidelines in February 2018. The subcategory "Lithographic or Offset, Non-Heatset" for VOC incorrectly references "Same As Above" for BACT requirement.

--Proposal
Staff is proposing a correction to the subcategory "Lithographic or Offset, Heatset" for PM10 by including the revised original language of "Venting to an afterburner (≥0.3 sec. Retention Time at ≥1400°F. Staff is also proposing a correction to the subcategory "Lithographic or Offset, Non-Heatset" for VOC by replacing the language "Same As Above" with "Low VOC Fountain Solution (≤8% by Vol. VOC); Low VOC (≤100 g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171".

Spray Booth
--Current Language
Minor source BACT for Spray Booth, subcategory "Automotive, Down-Draft Type, <660 lbs/Month of VOC Emissions) incorrectly lists the limit of 660 lbs/Month.

--Proposal
Staff proposes to replace the 660 lbs/Month limit with the correct limit of 667 lbs/Month to be consistent with past and currently permitted spray booths reflecting the New Source Review <4 tons/year limit not requiring offsets.

Compliance with Rule 1147- NOx Reductions from Miscellaneous Sources
--Current Language
The following minor source BACT listings have outdated NOx BACT requirements which are higher than applicable Rule 1147: Aluminum Melting Furnace; Brass Melting Furnace; Burnoff Furnace; Calciner; Coffee Roasting; Crematory; Dryer-Kiln; Dryer or Oven Tenter Frame/Carpet; Fish Reduction Cooker/Dryer; Fryer- Deep Fat, Non-Integrated; Lead Melting Furnace; Soil Vapor Extraction (Remediation) Thermal Oxidation and Zinc Melting Furnace.

--Proposal
Staff proposes to replace existing outdated NOx BACT requirement for each of the minor source BACT listings mentioned above with the following language "Compliance with Rule 1147". This proposed amendment will ensure that these minor source BACT listings will subject to the latest lower NOx emissions limits achieved in practice and consistent with Rule 1147.

Thermal/Catalytic Oxidizer- Natural Gas-Fired
--Current Language
Part D does not currently have a minor source BACT listing for Thermal/Catalytic Oxidizer that is used as a control technology.

Proposal
Staff is proposing to add a new minor source BACT listing with Equipment/Process category for "Thermal/Catalytic Oxidizer-Natural Gas-Fired" with subcategory of "All". Staff has identified over 30 achieved in practice deployments of thermal/catalytic oxidizers which have been permitted within the SCAQMD since 2014. All these applications include a permit condition limit of 30 ppm NOx at 3% O_2, for burner only, which has been verified through source tests. This listing would exclude thermal/catalytic oxidizers used in Tank Degassing, Soil Vapor Extraction and Vapor Incinerator operations as not many have been found achieved in practice in these categories. Since this proposed new minor source BACT listing will result in more stringent requirements, it is subject to H&SC 40440.11 and further discussed in the "Compliance with Health and Safety Code" section below.

Compliance with Health and Safety Code
In amending the BACT guidelines for non-major polluting facilities to be more stringent, SCAQMD must comply with H&SC Section 40440.11. Staff is proposing a new BACT determination in Part D for Thermal/Catalytic Oxidizer - Natural Gas-Fired. The following paragraphs identify the applicable requirements in H&SC Section 40440.11 and demonstrate compliance with each requirement:

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

The only commercially viable and proven and achieved in practice control alternative is an oxidizer with a low NOx burner that complies with 30 ppm NOx; therefore it is considered the best available control technology.

(c)(2) Determine that the proposed emission limitation has been met by production equipment, control equipment, or a process that is commercially available for sale, and has achieved the best available control technology in practice on a comparable commercial operation for at least one year, or a period longer than one year if a longer

period is reasonably necessary to demonstrate the operating and maintenance reliability, and costs, for an operating cycle of the production or control equipment, or process.

Natural gas-fired thermal/catalytic oxidizers equipped with burners that can meet 30 ppm NOx have been commercially available for many years. Staff has included in Attachment G proposed BACT determinations citing applications of an RTO and a CatOx controlling VOC process emissions and smoke and odor, respectively. These equipment have been in commercial operation for over one year, source tested and verified compliance with 30 ppm NOx @ 3% O_2.

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

A cost-effectiveness study was implemented to assess the incremental equipment and operating cost of the low NOx equipment vs current BACT. See calculations spreadsheet in Attachment G.

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

The incremental cost-effectiveness study included calculations of incremental cost per ton of NOx reduced. See calculations spreadsheet in Attachment G.

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

The proposed revisions to the BACT Guidelines were placed on the February 1, 2019 board meeting agenda.

Proposed Amendment to BACT Scientific Review Committee Charter

The current Charter for the BACT SRC details the BACT SRC's goals and objectives, the composition and selection of the BACT SRC membership, the desired qualifications of its membership and the operational guidelines for the BACT SRC. Staff is proposing clarification language under the Reporting section of the Charter regarding when staff provides a report to the Stationary Source Committee. Staff proposes that, once proposed amendments to the BACT Guidelines have been presented at a public BACT SRC meeting initiating a 30-day comment period followed by a final public BACT SRC meeting, a report will be presented by staff to the Stationary Source Committee on

proposed updates to the BACT Guidelines. The proposed amendment to the Charter is included in Attachment H.

Presentation to BACT Scientific Review Committee

The proposed amendments to the BACT Guidelines were presented to the BACT SRC at publicly noticed meetings on April 24, October 3 and December 11, 2018. A 30-day comment period was provided to the BACT SRC and general public to review and submit comments. Comments by BACT SRC members and the general public along with staff responses are included in Attachment J.

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA) and SCAQMD Rule 110, the SCAQMD, as lead agency for the proposed project, has reviewed the proposed project pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. Since the proposed project is comprised of updates that reflect current practices of LAER/BACT determinations in the BACT Guidelines and the most current achieved-in-practice air pollution control equipment and/or processes, and make administrative amendments to the Charter for the BACT Scientific Review Committee, SCAQMD staff has determined that 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 project is considered to be exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Activities Covered by General Rule. In addition, the proposed amendments are categorically exempt because they are considered actions to protect or enhance the environment pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment. Further, SCAQMD staff has determined that there is no substantial evidence indicating that any of the exceptions to the categorical exemptions apply to the proposed project pursuant to CEQA Guidelines Section 15300.2 – Exceptions. Therefore, the proposed project is exempt from CEQA. A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 - Notice of Exemption (included in Attachment I), and if the project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties.

Socioeconomic Analysis

The proposed amendments of the BACT Guidelines are to maintain consistency with recent changes to SCAQMD rules and state requirements. These proposed amendments represent achieved in practice emissions control equipment and/or processes, in addition to other amendments, which are administrative in nature and will therefore not result in

more stringent requirements than would otherwise occur and would not result in significant socioeconomic impacts.

Benefits to SCAQMD
Emissions reductions realized through new, modified and relocated permitted sources that apply the latest BACT will benefit air quality, achieve emissions reductions needed to attain air quality standards and help improve public health in the SCAQMD's jurisdiction. In addition, the successful implementation of BACT for permitted stationary sources will contribute towards achieving the air quality objectives of the AQMP.

Resource Impacts
Existing SCAQMD resources will be sufficient to implement the proposed changes to the BACT Guidelines.

Recommendation
This Board letter serves as the staff report for the proposed amendments to the BACT Guidelines. Staff recommends that the Board approve the proposed amendments to the Overview and Parts A, B, C and D; and determine that the proposed amendments to the BACT Guidelines are exempt from the requirements of CEQA. In addition, staff recommends that the Board approve the proposed amendments to the BACT SRC Charter.

The updated BACT Guidelines with the proposed amendments are scheduled to be made available at SCAQMD's website at http://www.aqmd.gov/home/permits/bact, pending Board approval.

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

ATTACHMENT A

SUMMARY OF PROPOSED AMENDMENTS TO BACT GUIDELINES

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

Overview

Chapter 3 – When is BACT Required?

- Referencing Engineering & Permitting Policy from June 2018 preventing circumvention of BACT requirement for emission increases ≥ 1 lb/day.

Part A

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

- Referencing SCAQMD Air Quality-Related Energy Policy established in September 2011 requiring new/repowered in-Basin fossil-fueled power plant to incorporate BACT (LAER) as required by District rules considering energy efficiency for the application.

Part B

New Section I Listings

⇒ External Floating Roof Storage Tank *{Dome installation}*
⇒ Soil Vapor Extraction *{Thermal Oxidation; 30ppm NOx}*

Updates to Section I

⇒ Gas Turbine (CC/SC) Natural Gas/Landfill/Digester/Produced Gas *{2ppm NOx CC/2.5ppm NOx SC/12.5ppm NOx LFG/18.8ppm NOx DG/ 5ppm NOx Produced Gas}*
⇒ I.C. Engine-Portable, 123.4 BHP, Compression Ignition *{Tier 4}*
⇒ I.C. Engine, Emergency Fire Pump, 183 BHP, Compression Ignition *{Tier 3}*

New Section II Listing, Other LAER/BACT Determinations

⇒ Gas Turbine (Combined Cycle), 1280 MW, natural gas (Virginia State APCB) *{1.5ppm CO 1 hr. avg. without Duct Burner}*

Proposed deletions of outdated Part B, Sections I & II LAER Determinations from the following categories*:

⇒ Aluminum Melting
⇒ Boiler
⇒ Oven
⇒ Heater
⇒ Lithographic Printer
⇒ I.C. Engine (Landfill and Digester Gas, Emergency, Non- Emergency and Portable)
⇒ Dryer, Tenter Frame
⇒ Gas Turbine (Simple/Combine Cycle)
⇒ Spray Booth

ATTACHMENT A

*A detailed listing is included in Attachment D

Part C

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

- Updating the Maximum Cost-Effectiveness Values on Table 5 consistent with the 3rd quarter 2018 Marshall and Swift equipment index.
- Referencing SCAQMD Air Quality-Related Energy Policy established in September 2011 requiring new/repowered in-Basin fossil-fueled power plant to incorporate BACT (LAER) as required by District rules considering energy efficiency for the application.

Part D

New MSBACT Listing

⇒ Thermal Oxidizer {30 ppm NOx - RTO/CatOx/Direct Fired Afterburner)

Updated MSBACT Listings

⇒ Composting Green Waste Operations *{Compliance with Rule 1133.3}*

⇒ Boiler ≥20MM Btu/hr and <75 *{Compliance with Rule 1146; 5ppm NOx}*

⇒ I.C. Engine, Stationary, Emergency, Compression-Ignition, Other 100≤HP<175 *{Correction of PM limit from 0.22 g/bhp-hr to 0.15 g/bhp-hr to be consistent with CARB ATCM regulation and Rule 1470}*

⇒ Process Heater – Non-Refinery *{Correction of Rule 1146.1 applicability}*

⇒ Printing (Graphic Arts) – Lithographic or Offset, Heatset *{Correction- include venting to afterburner in PM10 column and "Same As Above" for Non-Heatset should refer to Low VOC Fountain Solution not Venting to afterburner}*

⇒ Spray Booth *{Correction of 660 lbs/month VOC limit to 667 lbs/month to be consistent with permit condition for exemption from offsets}*

Compliance with Rule 1147

⇒ Aluminum Melting Furnace (60ppm NOx)
⇒ Brass Melting Furnace (60ppm NOx)
⇒ Burnoff Furnace (30ppm/60ppm NOx)
⇒ Calciner (30ppm/60ppm NOx)
⇒ Coffee Roasting (30ppm NOx)
⇒ Crematory (60ppm NOx)
⇒ Dryer-Kiln (30ppm/60ppm NOx)
⇒ Dryer or Oven- tenter frame/carpet (30/60ppm NOx)
⇒ Fish Reduction-cooker/dryer (30ppm NOx)
⇒ Fryer- Deep Fat Non-Integrated (60ppm NOx)
⇒ Lead Melting Furnace (60ppm NOx)
⇒ Soil Vapor Extraction (Remediation 60ppm NOx)
⇒ Zinc Melting Furnace (60ppm NOx)

ATTACHMENT B

OVERVIEW

Chapter 1 - Introduction

The South Coast Air Quality Management District (SCAQMD) Regulation XIII – New Source Review (NSR) and Regulation XX – RECLAIM, require applicants to use Best Available Control Technology (BACT) for new sources, relocated sources, and modifications to existing sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound (ODC), or ammonia. Regulation XIII requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the BACT requirements for commonly permitted equipment. SCAQMD 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 SCAQMD to publish T-BACT guidelines and T-BACT must be established during the permitting process.

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

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

The public participation process includes technical review and comments by a focused BACT Scientific Review Committee (BACT SRC) at periodic intervals, prior to the updates of the SCAQMD BACT Guidelines. The Board established a 30-day notice period for the BACT SRC and interested persons to review and comment on SCAQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.

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

The BACT Guidelines for major polluting facilities include:

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

The BACT Guidelines for non-major polluting facilities include:

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

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

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

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

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

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

LAER for BACT at major polluting facilities

MSBACT for BACT at non-major polluting facilities

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

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

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

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

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

Chapter 2 – Applicability Determination

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

MAJOR POLLUTING FACILITY EMISSION THRESHOLDS

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

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

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

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

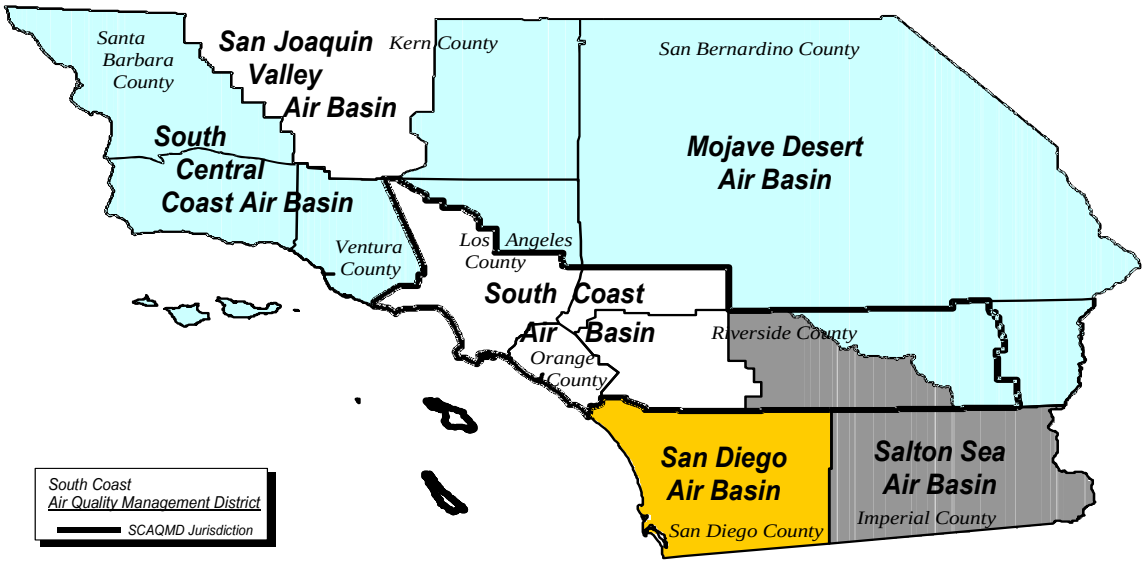
[1] The major source emission thresholds are higher for air basins that comply with the national ambient air quality standard and lower depending on how far an air basin is from compliance with the standard for a pollutant. The lowest thresholds apply to extreme non-attainment air basins, the only ones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

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

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

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

Figure 1: Map of SCAQMD



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

POTENTIAL TO EMIT

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

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

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

LIMITING POTENTIAL TO EMIT

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

Chapter 3 - When is BACT Required?

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

POLLUTANTS SUBJECT TO NSR, PSD AND BACT

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

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

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

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

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

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

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 (CFC-111) $C_2F_2Cl_4$ (CFC-112) C_3FCl_7 (CFC-211) $C_3F_2Cl_6$ (CFC-212) $C_3F_3Cl_5$ (CFC-213) $C_3F_4Cl_4$ (CFC-214) $C_3F_5Cl_3$ (CFC-215) $C_3F_6Cl_2$ (CFC-216) C_3F_7Cl (CFC-217) All isomers of the above chemicals D. Group IV: CCl_4 Carbon Tetrachloride E. Group V: $C_2H_3Cl_3$ 1,1,1 Trichloroethane (Methyl chloroform) All isomers of the above chemical except 1,1,2-trichloroethane F. Group VI: CH_3Br Bromomethane (Methyl Bromide) H. Group VIII: CH_2BrCl (Chlorobromomethane)	G. Group VII: $CHFBr_2$ CHF_2Br (HBFC-2201) CH_2FBr C_2HFBr_4 $C_2HF_2Br_3$ $C_2HF_3Br_2$ C_2HF_4Br $C_2H_2FBr_3$ $C_2H_2F_2Br_2$ $C_2H_2F_3Br$ $C_2H_2FBr_2$ $C_2H_3F_2Br$ C_2H_4FBr C_3HFBr_6 $C_3HF_2Br_5$ $C_3HF_3Br_4$ $C_3HF_4Br_3$ $C_3HF_5Br_2$ C_3HF_6Br $C_3H_2FBr_5$ $C_3H_2F_2Br_4$ $C_3H_2F_3Br_3$ $C_3H_2F_4Br_2$ $C_3H_2F_5Br$ $C_3H_3FBr_4$ $C_3H_3F_2Br_3$ $C_3H_3F_3Br_2$ $C_3H_3F_4Br$ $C_3H_4FBr_3$ $C_3H_4F_2Br_2$ $C_3H_4F_3Br$ $C_3H_5FBr_2$ $C_3H_5F_2Br$ C_3H_6FBr

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

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

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

PERMIT ACTIONS SUBJECT TO NSR, PSD AND BACT

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

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

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

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

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

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

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

In accordance with policy established by SCAQMD's Engineering and Permitting division in June 2018, for the purpose of preventing circumvention of triggering a BACT requirement, a period of 5 years prior to the date of application submittal shall be used to accumulate all previous permitting actions allowing emission increases for that specific permit unit to determine if emission increases exceed or equal 1.0 pound per

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

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

day for any nonattainment air contaminant, any ozone depleting compound, or ammonia.

CALCULATION PROCEDURES FOR EMISSION INCREASES

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

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

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

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

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

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

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

Chapter 4 - What is BACT?

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

NSR RULES (REGULATION XIII)

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

PSD RULES (REGULATION XVII)

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

DEFINITION OF BACT

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

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

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

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

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

REQUIREMENTS OF HEALTH & SAFETY CODE SECTION 40440.11

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

CLEAN FUEL GUIDELINES

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

Chapter 5 - Review of Staff BACT Determinations

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

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

BACT SCIENTIFIC REVIEW COMMITTEE (BACT SRC)

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

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

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

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

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

preliminary written comments received from the public and BACT SRC prior to the meeting. SCAQMD staff will respond in writing to preliminary comments about new BACT proposals within thirty days of the subject BACT SRC meeting. New issues raised during the BACT SRC meetings regarding newly proposed BACT listings will be addressed at the subsequent BACT SRC meeting to allow time for SCAQMD staff to research the comments. SCAQMD Engineering staff may also respond to specific issues raised at the following BACT SRC meeting.

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

MEETING WITH SCAQMD MANAGEMENT

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

THE BACT REVIEW COMMITTEE

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

THE SCAQMD HEARING BOARD

After the permit is issued or denied, the applicant can seek further independent review of an individual BACT determination through the SCAQMD Hearing Board. In order to access this venue, the permit applicant would need to submit a petition and fee to appeal the final BACT determination by SCAQMD (once the permit is denied or issued)[8]. 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 SCAQMD. Although not required, many petitioners choose to have legal counsel to represent their position.

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

THE SCAQMD GOVERNING BOARD

Any applicant may petition the SCAQMD Governing Board to review a pending application pursuant to SCAQMD 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.

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

SCAQMD 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 that is:

- found in a state implementation plan (SIP), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

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

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

LAER Based on a SIP

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

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

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

Achieved in Practice LAER

Regulatory Documents

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

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

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

New Technologies/Emission Levels

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

Commercial Availability

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

Reliability

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

Effectiveness

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

Technology Transfer

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

Federal $PM_{2.5}$ New Source Review and SCAQMD 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

$PM_{2.5}$: 10 tons per year

Ammonia: 40 tons per year[4]

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

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

Please refer to SCAQMD Rule 1325 for specific requirements.

[3] SCAQMD Rule 1325(b)(12), as amended on December 5, 2014

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

Cost in LAER Determinations

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

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

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

Special Permitting Considerations

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

Case-Specific Situations

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

Technical infeasibility of the control technology

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

Operating schedule and project length

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

Availability of fuel or electricity

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

Process requirements

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

Equivalency

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

Super Compliant Materials

SCAQMD will accept the use of super compliant materials in lieu of an add-on control device controlling volatile organic compound (VOC) emissions from coating operations. For example, if a permit applicant uses only surface coatings that meet the super compliant material definition in SCAQMD 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[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 may include, but not be limited to, a consideration of the feasibility of:

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

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

Monitoring and Testing

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

Capture Efficiency

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

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

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

Table 4

SCAQMD Regulation XI and XIV Rules with Capture Efficiency Requirements or Considerations

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

LAER APPLICATION CUT-OFF DATES

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

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

LAER UPDATE PROCESS

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

When SCAQMD permitting staff makes a LAER determination that is no more stringent than previous SCAQMD LAER determinations, the permitting team will issue the permit and forward information regarding this LAER determination to the BACT Team.[6]

[6] To reduce the burden on SCAQMD 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.

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

Whenever permitting staff makes a LAER determination that is more stringent than what SCAQMD 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[7] for issuing the permit, the permit will be issued in accordance with state law. The 30-day public review may also be done in parallel with other public reviews mandated by *Rule 212 - Standards for Approving Permits and Issuing Public Notice* or *Regulation XXX - Title V Permits* in applicable cases.

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

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

CLEAN FUEL GUIDELINES

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

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

AIR QUALITY-RELATED ENERGY POLICY

In September 2011, the SCAQMD Governing Board adopted the Air Quality-Related Energy Policy to help guide a unified approach to reducing air pollution while

[7] The requirements of the Permit Streamlining Act are also found in SCAQMD's Rule 210.

addressing other key environmental concerns including environmental justice, climate change and energy independence. The air quality-related energy policy outlines 10 policies and 10 action steps to help meet federal health-based standards for air quality in the South Coast Air Basin while also promoting the development of zero- and near-zero emission technologies.

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

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

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

GENERAL

Part B is divided into three sections. Section I – SCAQMD LAER/BACT Determinations, contains information on LAER/BACT determinations contained in permits issued by SCAQMD, 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:

- Basic Equipment[8]

This provides information on the type, model, style, manufacturer, function, and cost of the basic equipment. It also lists applicable SCAQMD Regulation XI rules. Cost data are generally obtained from the SCAQMD application forms, manufacturer or owner/operator, and are not verified.

- Basic Equipment Rating/Size

This identifies the size, dimensions, capacity, or rating of the basic equipment. It also provides additional information such as fuel type for combustion equipment, 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.

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

- Permit Information

This identifies the permitting agency and the name and telephone number of the agency's contact person. It also provides information on Permits to Construct/Operate. The SCAQMD 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. It provides technical, performance, and cost data on the control technology used to achieve the permit limit and the LAER/BACT requirements.

- Comment

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

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

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

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

If the requirement is an emission limit, the applicant may choose any control technology to achieve the emission limit. The SCAQMD 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.

HOW TO DETERMINE LAER

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

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

ATTACHMENT D - PART B

Section 1, SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **535483, 535485, 544857 & 544859**

Equipment Category: **Storage Tank**

Equipment Subcategory: **External Floating Roof**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Custom	B. MODEL: Custom
C. DESCRIPTION: Domed external floating roof, welded shell, Nos. 15, 2625, 2640 & 2643	
D. FUNCTION: Phillips 66 Company is a refinery which owns and operates external floating roof storage tanks for crude oil, gas oil, mixed naphtha and wastewater storage.	
E. SIZE/DIMENSIONS/CAPACITY: A/N 535483: 117' Dia. x 40' H., 79,000 BBL (3,318,000 Gal.) Mixed Naphtha A/N 535485: 165' Dia. x 48' H., 165,252 BBL (6,940,584 Gal.) Gas Oil A/N 544857: 260' Dia. x 65' H., 615,000 BBL (25,830,000 Gal.) Crude Oil A/N 544859: 44' Dia. x 51' H., 14,000 BBL (588,000 Gal.) Wastewater	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: N/A	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
N/A		Number of burners

H. PRIMARY FUEL: N/A	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
L. EQUIPMENT INFORMATION COMMENTS: Storage tanks are equipped with geodesic dome cover, double-deck floating roof, category A metallic shoe primary seal, category A rim-mounted secondary seal and guide pole gasketed sliding cover with wiper unslotted.	

2. COMPANY INFORMATION

A. COMPANY: Phillips 66 Company	B. FAC ID: 171109
C. ADDRESS: 1520 E. Sepulveda Blvd. CITY: Carson STATE: CA ZIP: 90745	D. NAICS CODE: 324110
E. CONTACT PERSON: Marshall Waller	F. TITLE: Env. Engineer
G. PHONE NO.: (310) 522-8039	H. EMAIL:

ATTACHMENT D - PART B

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Thomas Truppi	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 8/30/13 P/O NO.: G17750, G17751, G51127 & G51128 PO ISSUANCE DATE: 3/15/2018	
E. START-UP DATE: 4/4/2016	
F. OPERATIONAL TIME: 2+ years	

4. EMISSION INFORMATION

A. BACT EMISSION LIMITS AND AVERAGING TIMES:

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

B. OTHER BACT REQUIREMENTS:

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

D. EMISSION INFORMATION COMMENTS:

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Custom	B. MODEL: Custom
C. DESCRIPTION: Use of Geodesic Dome Cover, Floating Roof Pontoon (Double Deck), Primary Seal with Category A Metallic Shoe, Secondary Seal with Category A wiper type, and Guidepole with gasketed sliding cover with wiper unslotted.	
D. SIZE/DIMENSIONS/CAPACITY: N/A	
E. CONTROL EQUIPMENT PERMIT INFORMATION: APPLICATION NO. same PC ISSUANCE DATE: same PO NO.:same PO ISSUANCE DATE: same	
F. REQUIRED CONTROL EFFICIENCIES: .	

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

G. CONTROL TECHNOLOGY COMMENTS

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Maintenance, Inspection and Recordkeeping
B. DATE(S) OF SOURCE TEST: An appropriate size parameter such as rated product throughput, usable volume, and/or one more characteristic dimensions.
C. COLLECTION EFFICIENCY METHOD: N/A
D. COLLECTION EFFICIENCY PARAMETERS: N/A
E. SOURCE TEST/PERFORMANCE DATA:N/A

F. TEST OPERATING PARAMETERS AND CONDITIONS: N/A
G. TEST METHODS (SPECIFY AGENCY): N/A
H. MONITORING AND TESTING REQUIREMENTS: Monitoring monthly throughput permitted limit. This requirement is included for information only; it is not related to the dome cover BACT requirement.
I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 248919	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 60
D. RECLAIM FAC? YES ☒ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): N/A
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section 1, SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **573110**

Equipment Category: **Soil Vapor Extraction**

Equipment Subcategory: **Thermal/Catalytic Oxidizer**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Catalytic Combustion, Inc.	B. MODEL: Model 2 Flame-Ox
C. DESCRIPTION: In situ soil vapor extraction system for non-halogenated hydrocarbon vapors consisting of extraction wells, extraction blower (575 scfm), knockout tank, Flame Oxidizer and exhaust stack.	
D. FUNCTION: The SVE system will be used for the remediation of non-halogenated hydrocarbon contaminated soil.	
E. SIZE/DIMENSIONS/CAPACITY: Exhaust stack 22" I.D. x 25' H., without rain cap, 1400 scfm	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 4,000,000 Btu/hr, North American, Model 6514-8A burner	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Make and model of burner	Rated heat input of single burner, in btu/hr	Number of burners
Enter additional burner types, as needed, add extra rows		

H. PRIMARY FUEL: NATURAL GAS	I. OTHER FUEL: non-halogenated hydrocarbon vapors
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
L. EQUIPMENT INFORMATION COMMENTS:	

2. COMPANY INFORMATION

A. COMPANY: Tesoro Refining and Marketing Co., LLC	B. FAC ID: 174727
C. ADDRESS: 8601 S. Garfield Ave. CITY: South Gate STATE: CA ZIP: 90280	D. NAICS CODE: 324110
E. CONTACT PERSON: Darrel Fah	F. TITLE: Managing Director
G. PHONE NO.: (562) 495-6876	H. EMAIL: ---

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Gregory Brian Speaks	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 3/3/16 P/O NO.: G51297 PO ISSUANCE DATE: 3/28/2018	
E. START-UP DATE: 11/17/2016	
F. OPERATIONAL TIME: 1.5 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit		30 PPMV				
Averaging Time						
Correction		@ 3% O_2				

B. OTHER BACT REQUIREMENTS: The limit is for burner only emissions.

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

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Catalytic Combustion, Inc.(Thermal Oxidation)	B. MODEL: Model 2 Flame-Ox

C. DESCRIPTION: 3-in-1 Flame Oxidizer

D. SIZE/DIMENSIONS/CAPACITY: 4,000,000 Btu/hr, North American, Model 6514-8A burner.

E. CONTROL EQUIPMENT PERMIT INFORMATION:
APPLICATION NO. Click here to enter text. PC ISSUANCE DATE: Click here to enter a date.
PO NO.: PO ISSUANCE DATE: Click here to enter a date.

F. REQUIRED CONTROL EFFICIENCIES: See Emission Information in Section 4.

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

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

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: November 17, 2016

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: 27.3 PPMV NOx @3% O2; <186 PPMV CO @3% O2; <16 PPMV VOC @3% O2

F. TEST OPERATING PARAMETERS AND CONDITIONS: SVE system was operated at normal operating conditions for test.

G. TEST METHODS (SPECIFY AGENCY): SCAQMD Methods 100.1, 25.3 and 1.1-4.1.

H. MONITORING AND TESTING REQUIREMENTS: Include any monitoring or testing requirements and their frequency that will be enforced to maintain emission levels reported for the BACT Determination.

I. DEMONSTRATION OF COMPLIANCE COMMENTS:

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 028000	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 20
D. RECLAIM FAC? YES ☒ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): PR16244
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section I - SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **581392**

Equipment Category: **Gas Turbine**

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

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: General Electric	B. MODEL: LMS100PA
C. DESCRIPTION: Simple Cycle natural gas fired turbine with Intercooler and water injection.	
D. FUNCTION: The equipment is at a "Peaker" plant to support California Independent System Operator (CAISO) during periods of high electricity demand. It's one of five identical turbines at this location.	
E. SIZE/DIMENSIONS/CAPACITY: Net Power Output 100.1 MW	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 891.7 MMBTU/hr	
G. BURNER INFORMATION:	

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

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

2. COMPANY INFORMATION

A. COMPANY: Walnut Creek Energy, LLC	B. FAC ID: 146536
C. ADDRESS: 911 Bixby Drive CITY: City of Industry STATE: CA ZIP: 91745	D. NAICS CODE: 221112
E. CONTACT PERSON: Heather MacLeod	F. TITLE: Environmental Specialist
G. PHONE NO.: -	H. EMAIL: -

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Christian Aviles	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 9/28/12 P/O NO.: G53017 PO ISSUANCE DATE: 1/2/2018	
E. START-UP DATE: 12/21/2012	
F. OPERATIONAL TIME: 6 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	2 PPMV	2.5 PPMV		4 PPMV		5 PPMV NH_3
Averaging Time	1 HOUR	1 HOUR		1 HOUR		1 HOUR
Correction	15 % O_2	15 % O_2		15 % O_2		15 % O_2

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

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

D. EMISSION INFORMATION COMMENTS: Enter any additional comments regarding Emissions Information.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: SCR - Haldor-Topsoe, CO OxyCat - BASF	B. MODEL: SCR - DNX-629, CO OxyCat - Comet

C. DESCRIPTION: Ammonia Injection Grid with aqueous ammonia stored in a 16,000 gallon tank

D. SIZE/DIMENSIONS/CAPACITY: SCR – 1272 cu ft: Width 19 ft 6 in, Height 33 ft, Length 2 ft 6 in. CO Oxycat – 420 cu ft of total catalyst volume

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 581387 PC ISSUANCE DATE: 9/18/12
PO NO.: G53016 PO ISSUANCE DATE: 12/29/2017

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

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

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: CEMS DATA and SOURCE TEST

B. DATE(S) OF SOURCE TEST: January 22, 2013

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: NOx average over 3 loads was 2.24 ppm @ 15% O2. NH3 average over 3 loads was 1.53 ppm@15%O2. VOC results below detection limit.

F. TEST OPERATING PARAMETERS AND CONDITIONS: 50%, 75% and 100% loads.

G. TEST METHODS (SPECIFY AGENCY): SCAQMD 100.1 for NOx, CO. SCAQMD 25.3 for VOC. SCAQMD 5.1 and EPA 201A/202 for PM and PM2.5

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

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

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 013709	B. CCAT: 81	C. APPLICATION TYPE CODE: Click here to enter text.
D. RECLAIM FAC? YES ☒ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): PR12581A
G. SCAQMD SOURCE SPECIFIC RULES: Rule 2012, 409, 475, 1303(a)(1), 1703(a)(2)		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section I , SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **589228**

Equipment Category: **Gas Turbine**

Equipment Subcategory: **Simple Cycle, Active Landfill Gas**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Solar Turbines	B. MODEL: Mercury 50
C. DESCRIPTION: Unit #4, Simple Cycle Turbine with recuperation, fueled on treated 100% LFG from Sunshine Canyon Landfill	
D. FUNCTION: Sunshine Gas Producers utilizes this LFG fired turbine to generate electricity to sell back to electric company. The unit does not recover exhaust waste heat. This is one of five identical units at this location. There are no add-on controls.	
E. SIZE/DIMENSIONS/CAPACITY: Generator serving gas turbine is 4.9MW	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 61.0 MMBtu/hr (as listed on permit but may vary)	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Make and model of burner	Rated heat input of single burner, in btu/hr	Number of burners

H. PRIMARY FUEL: LANDFILL GAS	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
I. L. EQUIPMENT INFORMATION COMMENTS: The landfill gas must be within the manufacturer's recommended heat content range to achieve the low emissions. The gas turbines are equipped with a landfill gas clean-up system for removal of siloxanes, sulfur and moisture.	

2. COMPANY INFORMATION

A. COMPANY: Sunshine Gas Producers, LLC	B. FAC ID: 139938
C. ADDRESS: 14747 San Fernando Road CITY: Sylmar STATE: CA ZIP: 91342	D. NAICS CODE: 22111
E. CONTACT PERSON: Nicholas Diedrich	F. TITLE: Env. Engineer
G. PHONE NO.: (734) 302-5392	H. EMAIL: diedrichn@dteenergy.com

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Gaurang Rawal	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 4/9/15 P/O NO.: G47200 PO ISSUANCE DATE: 6/30/2017	
E. START-UP DATE: 7/21/2014	
F. OPERATIONAL TIME: 4 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	10.5 PPMV	12.5 PPMV		21.5 PPMV		
Averaging Time						
Correction	@ 15% O_2	@ 15% O_2		@ 15% O_2		

B. OTHER BACT REQUIREMENTS: The emission limits shall not apply during gas turbine start-up and shutdown periods.

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

4. EMISSION INFORMATION

D. EMISSION INFORMATION COMMENTS: Although the following mass emission limits may be specific to this project they were also included in the permit:

Criteria pollutants from gas turbine shall not exceed the following limits per day:
NOx: 72.40 lbs.
VOC: 21.90 lbs as methane
CO: 70.27 lbs.
SOx: 74.60 lbs.
PM10: 17.30 lbs.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: N/A	B. MODEL: N/A
C. DESCRIPTION: N/A	
D. SIZE/DIMENSIONS/CAPACITY: An appropriate size parameter such as rated heat input, usable volume, rated filter efficiency, and/or one more characteristic dimensions.	
E. CONTROL EQUIPMENT PERMIT INFORMATION: APPLICATION NO. Click here to enter text. PC ISSUANCE DATE: Click here to enter a date. PO NO.: Click here to enter text. PO ISSUANCE DATE: Click here to enter a date.	
F. REQUIRED CONTROL EFFICIENCIES:	

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

G. CONTROL TECHNOLOGY COMMENTS

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: November 30, 2015

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: 4.3 PPMV NOx @15% O_2; 11.3 PPMV CO @15% O_2 ; 3.6 PPMV VOC @15% O_2 as methane; 0.00826 gr/dscf @ 12% CO_2 PM10

F. TEST OPERATING PARAMETERS AND CONDITIONS: All test performed at highest achievable load.

G. TEST METHODS (SPECIFY AGENCY): SCAQMD Methods 100.1, 207.1 5.1, 25.3 and 307.91.

H. MONITORING AND TESTING REQUIREMENTS: Install, maintain and operate CEMS and source test once per year.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 053738	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 60
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): PR14466A
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section 1, SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **595485**

Equipment Category: **Gas Turbine**

Equipment Subcategory: **Combined Cycle, Digester Gas**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Solar Turbines	B. MODEL: Mars 100
C. DESCRIPTION: Combined Cycle (No. 2) with SCR, Oxidation catalyst and Steam Turbine, equipped with a digester gas clean-up system	
D. FUNCTION: The City of Los Angeles, Department of Public Works, Bureau of Sanitation owns and operates the Hyperion Treatment Plant (HTP) wastewater facility which produces digester gas. This gas turbine is fired on HTP digester gas and generates electrical power for the facility.	
E. SIZE/DIMENSIONS/CAPACITY: Generator serving turbine is 11.35MW with two (2) common shared steam turbine generators 7.8MW and 1MW. Three Duct Burners each 14MMBtu/hr.	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 137.5 MMBtu/hr (ISO conditions) Gas Turbine	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Make and model of burner	Rated heat input of single burner, in btu/hr	Number of burners

H. PRIMARY FUEL: DIGESTER GAS	I. OTHER FUEL: NATURAL GAS
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
L. EQUIPMENT INFORMATION COMMENTS: The gas turbine is equipped with a digester gas clean-up system for removal of siloxanes, sulfur and moisture.	

2. COMPANY INFORMATION

A. COMPANY: LA City, Sanitation Bureau (HTP)	B. FAC ID: 800214
C. ADDRESS: 12000 Vista Del Mar CITY: Playa Del Rey STATE: CA ZIP: 90293	D. NAICS CODE: 221112
E. CONTACT PERSON: Jim Marchese	F. TITLE: Asst. Div. Manager
G. PHONE NO.: (213) 847-5174	H. EMAIL: jim.marchese@lacity.org

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Ray Ronquillo	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 12/31/14 P/O NO.: G48571 PO ISSUANCE DATE: 10/4/2017	
E. START-UP DATE: 1/7/2017	
F. OPERATIONAL TIME: 1.5 years (Original Permit to Construct was issued on 12/31/14. Current applications Permit to Construct (A/N: 575376-8) were issued on 9/28/16.	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	25 PPMV	18.8 PPMV		60 PPMV		10 PPMV NH_3
Averaging Time	1 HOUR	1 HOUR		1 HOUR		1 HOUR
Correction	@ 15% O_2	@ 15% O_2		@ 15% O_2		@ 15% O_2

B. OTHER BACT REQUIREMENTS: The emission limits shall not apply during turbine commissioning, start-up, shutdown and Ammonia Injection Grid Tuning (AIGT) periods.

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

4. EMISSION INFORMATION

D. EMISSION INFORMATION COMMENTS: Although the following mass emission limits may be specific to this project they were also included in the permit:

Criteria pollutants from gas turbine/duct burners/HRSG train shall not exceed the following limits, except during start-up, shutdown and commissioning conditions:
NOx: 18.8ppm (12.60 lbs/hr) @ 15%O_2 24 hr. avg. and 25ppm (16.76 lbs/hr) @ 15%O_2 1 hr. avg. {For period not to exceed 18 consecutive months starting from completion of commissioning}
NOx: 18.8ppm (12.60 lbs/hr) @ 15%O_2 1 hr. avg. {After 18 month demonstration period}
VOC: 5.85 lbs/hr.
CO: 24.55 lbs/hr.
SOx: 1.28 lbs/hr
PM10: 4.05 lbs/hr.
Fuel Sulfur content: 40 ppm

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Cormetech (SCR) & Johnson Matthey (Oxidation Catalyst)	B. MODEL: Unit 2 (SCR) & SC09 (Oxidation Catalyst)

C. DESCRIPTION: Aqueous ammonia injection grid

D. SIZE/DIMENSIONS/CAPACITY: SCR catalyst with three modules of homogeneous honeycomb-type mixed metal catalyst each 11'-8"L x 6'-10"W x 3'-11"H / Oxidation Catalyst with 30 metal foil monoliths of platinum group metals, total layer 12'-3"L x 0'-4"W x 13'-4"H with total weight of 3060 lbs..

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 586746 PC ISSUANCE DATE: 12/31/14
PO NO.: R-G42940 PO ISSUANCE DATE: 10/4/2017

F. REQUIRED CONTROL EFFICIENCIES: NH_3 concentration at the outlet of the SCR shall not exceed 10ppm, 60 min. avg. @ 15% O_2 when SCR inlet temperature is above 525 degrees F except when NH_3 feed control system is being tuned.

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

G. CONTROL TECHNOLOGY COMMENTS Minimum gas turbine exhaust gas temperature at inlet to SCR, post commissioning, shall be 525 degrees F. During start-up and shutdown temperatures less than 525 degrees F shall not exceed 60 minutes. Original P/C issuance date is 12/31/14. Current applications (A/N: 586745-7) P/C issuance date 9/28/16.

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test

B. DATE(S) OF SOURCE TEST: May 9, 2017

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: 13.0PPMV (NG/DG) and 15.9PPM (DG) NOx @15% O_2; 8.9PPMV (NG/DG) and 15.8PPM (DG) ROG @15% O_2 ; <18.6 PPMV (NG/DG & DG) CO @15% O_2 ; 1.8PPMV (NG/DG) and 1.1PPM (DG) NH3 @15% O_2; 0.08 ppm Fuel Sulfur content as H_2S

F. TEST OPERATING PARAMETERS AND CONDITIONS: All test performed at greater than 90% load.

G. TEST METHODS (SPECIFY AGENCY): SCAQMD Methods 100.1, 207.1 5.1, 25.3 and 307.91.

H. MONITORING AND TESTING REQUIREMENTS: Ammonia slip test once per year.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 053058	B. CCAT: 81	C. APPLICATION TYPE CODE: 60
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): PR16384
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section I - SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **492565**

Equipment Category: **Gas Turbine**

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

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Solar Turbines	B. MODEL: Taurus 60-T7301S
C. DESCRIPTION: Simple Cycle with SCR and Oxidation catalyst	
D. FUNCTION: Signal Hill Petroleum operates a crude oil/gas/water separation and gas production facility in Long Beach. Produced gas mixed with natural gas is used to power a gas turbine to generate cost-effective reliable electrical power for the facility.	
E. SIZE/DIMENSIONS/CAPACITY: Generator serving gas turbine is 5.651 MW	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 76.20 MMBtu/hr (as listed on permit but may vary)	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Make and model of burner	Rated heat input of single burner, in btu/hr	Number of burners
Enter additional burner types, as needed, add extra rows		

H. PRIMARY FUEL: PRODUCED GAS	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
L. EQUIPMENT INFORMATION COMMENTS: The gas turbine is equipped with oxidation catalyst and SCR.	

2. COMPANY INFORMATION

A. COMPANY: Signal Hill Petroleum, Inc.	B. FAC ID: 101977
C. ADDRESS: 2901 Orange Ave. CITY: Long Beach STATE: CA ZIP: 90806	D. NAICS CODE: 211111
E. CONTACT PERSON: Jim Lee	F. TITLE: Regulatory Specialist
G. PHONE NO.: (562) 426-4695	H. EMAIL: jslee@shpi.net

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: C.S. Bhatt	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 10/21/03 P/O NO.: G2023 PO ISSUANCE DATE: 3/27/2009	
E. START-UP DATE: 12/31/2004	
F. OPERATIONAL TIME: 9 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	2 PPMV	5 PPMV		6 PPMV		5 PPMV NH_3
Averaging Time	1 HOUR	1 HOUR	150PPM	3 HOUR		1 HOUR
Correction	@ 15% O_2	@ 15% O_2	FUEL SAMPLE	@ 15% O_2		@ 15% O_2

B. OTHER BACT REQUIREMENTS: The emission limits shall not apply during gas turbine start-up and shutdown periods.

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

4. EMISSION INFORMATION

D. EMISSION INFORMATION COMMENTS: Although the following mass emission limits may be specific to this project they were also included in the permit:

Criteria pollutants from gas turbine shall not exceed the following limits per month:
VOC: 125 lbs.
CO: 660 lbs.
SOx: 87 lbs.
PM10: 298 lbs.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: BASF (SCR & OxiCat)	B. MODEL: NOxCat ZMX & Camet Catco

C. DESCRIPTION: High temperature zeolite SCR with ammonia injection

D. SIZE/DIMENSIONS/CAPACITY: SCR: 400 cu.ft., 16'W x 12'H x 34'L and OxiCat: 28 cu.ft. of catalyst volume.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 463796 PC ISSUANCE DATE: 10/21/03
PO NO.: F87575 PO ISSUANCE DATE: 2/9/2007

F. REQUIRED CONTROL EFFICIENCIES: .

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

G. CONTROL TECHNOLOGY COMMENTS 5ppm NH3, 5ppm NOx, 6ppm CO and 2ppm VOC.

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Source Test and CEMS data

B. DATE(S) OF SOURCE TEST: October 20, 2016, October 23, 2014.

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: 3.45PPM NOx @15% O_2; 00.0PPM CO @15% O_2 ; 0.020PPM NH3 @15% O_2; 0.0020 gr/dscf @ 12% CO_2 PM_{10} ; 0.08ppm SO_2 @ 15% O_2 at turbine exhaust

F. TEST OPERATING PARAMETERS AND CONDITIONS: All test performed at highest achievable load.

G. TEST METHODS (SPECIFY AGENCY): SCAQMD Methods 100.1, 207.1 5.1, 25.3 and 307.91.

H. MONITORING AND TESTING REQUIREMENTS: Install, maintain and operate CEMS and source test once per year.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 053738	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 60
D. RECLAIM FAC? YES ☐ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): PR14466A
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section 1, SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **504556**

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

Equipment Subcategory: **Emergency Fire Pump, Compression Ignition**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Clarke	B. MODEL: JU6H-UFAD58
C. DESCRIPTION: Emergency Fire Pump powered by a compression ignition turbocharged internal combustion engine.	
D. FUNCTION: Fire pump will be used to provide emergency water supply for fire suppression at this site which operates a gasoline, diesel, and jet fuel storage facility.	
E. SIZE/DIMENSIONS/CAPACITY: 183 BHP, four cycle, lean burn, 6 cylinders	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT:	
G. BURNER INFORMATION:	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Enter additional burner types, as needed, add extra rows	Rated heat input of single burner, in btu/hr	Number of burners

H. PRIMARY FUEL: DIESEL	I. OTHER FUEL: Supplementary or standby fuels
J. OPERATING SCHEDULE: Hours 24 HRS//DAY 7 DAYS/WEEK 52 WKS/YR	
K. EQUIPMENT COST: Enter sum of all Cost Factors in Table 6 of SCAQMD BACT Guidelines	
L. EQUIPMENT INFORMATION COMMENTS:	

2. COMPANY INFORMATION

A. COMPANY: SFPP. LP	B. FAC ID: 800278
C. ADDRESS: 20410 S. Wilmington Ave. CITY: Carson STATE: CA ZIP: 90810	D. NAICS CODE: 424710
E. CONTACT PERSON: Marty Vice	F. TITLE: Area Manager
G. PHONE NO.: 310-635-1011	H. EMAIL: VICEM@KINDERMORGAN.COM

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Linda Dejbakhsh	
D. PERMIT INFORMATION: PC ISSUANCE DATE: Click here to enter a date. P/O NO.: G10138 PO ISSUANCE DATE: 9/29/2010	
E. START-UP DATE: 5/25/2010	
F. OPERATIONAL TIME: 8 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit		3.0 G/BHP-HR		2.6 G/BHP-HR	0.15 G/BHP-HR	
Averaging Time						
Correction		15 % O_2		15 % O_2	15% O_2	

B. OTHER BACT REQUIREMENTS: Tier 3 emission limits. NOx limit is actually NOx + ROG

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

D. EMISSION INFORMATION COMMENTS: Enter any additional comments regarding Emissions Information.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Manufacturer of the equipment	B. MODEL:
C. DESCRIPTION	
D. SIZE/DIMENSIONS/CAPACITY: An appropriate size parameter such as rated heat input, usable volume, rated filter efficiency, and/or one more characteristic dimensions.	
E. CONTROL EQUIPMENT PERMIT INFORMATION: APPLICATION NO. PC ISSUANCE DATE: Click here to enter a date. PO NO.: PO ISSUANCE DATE: Click here to enter a date.	
F. REQUIRED CONTROL EFFICIENCIES: Tier 4 Final standards	

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

G. CONTROL TECHNOLOGY COMMENTS)

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Manufacturer's certification to Tier 3 emission standards.

B. DATE(S) OF SOURCE TEST: 11/4/09

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

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

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

G. TEST METHODS (SPECIFY AGENCY): Identify the primary source test methods used and identify the agency (e.g., CARB Method 425).

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

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 044000	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 10
D. RECLAIM FAC? YES ☒ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S):
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section 1, SCAQMD BACT Determination

Source Type: **Major/LAER**

Application No.: **594294**

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

Equipment Subcategory: **Portable, Compression Ignition**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Caterpillar	B. MODEL: C4.4
C. DESCRIPTION: Portable, compression ignition naturally aspirated with SCR, oxidation catalyst, and ammonia oxidation catalyst.	
D. FUNCTION: Engine drives landfill refuse truck tipper which powers a hydraulic pump that raises and lowers two hydraulic cylinders and tipper platform.	
E. SIZE/DIMENSIONS/CAPACITY: 123.4 BHP, four cycle, rich burn, 8 cylinders	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT:	
G. BURNER INFORMATION:	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Enter additional burner types, as needed, add extra rows	Rated heat input of single burner, in btu/hr	Number of burners

H. PRIMARY FUEL: DIESEL	I. OTHER FUEL: Supplementary or standby fuels
J. OPERATING SCHEDULE: 310 HOURS/MONTH & 3,720 HOURS/YEAR	
K. EQUIPMENT COST: Enter sum of all Cost Factors in Table 6 of SCAQMD BACT Guidelines	
L. EQUIPMENT INFORMATION COMMENTS: THE TIPPER CAN BE MOVED DAILY WITHIN THE LANDFILL TO ACCOMMODATE CHANGES IN THE LOCATION OF THE ACTIVE AREA.	

2. COMPANY INFORMATION

A. COMPANY: Sunshine Canyon Landfill	B. FAC ID: 49111
C. ADDRESS: 14747 San Fernando Road CITY: Sylmar STATE: CA ZIP: 91342	D. NAICS CODE: 562212
E. CONTACT PERSON: The company's contact person who is most familiar with the equipment	F. TITLE:
G. PHONE NO.:	H. EMAIL:

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Christopher Gill	
D. PERMIT INFORMATION: PC ISSUANCE DATE: Click here to enter a date. P/O NO.: G48118 PO ISSUANCE DATE: 8/31/2017	
E. START-UP DATE: 9/1/2017	
F. OPERATIONAL TIME: 1 year	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit	0.14 G/BHP-HR	2.5 G/BHP-HR		3.7 G/BHP-HR	0.01 G/BHP-HR	
Averaging Time						
Correction						

B. OTHER BACT REQUIREMENTS: Tier 4 Final limits

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

D. EMISSION INFORMATION COMMENTS: Enter any additional comments regarding Emissions Information.

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Manufacturer of the equipment	B. MODEL: C4.4

C. DESCRIPTION: equipped with SCR catalyst, oxidation catalyst and ammonia oxidation catalyst.

D. SIZE/DIMENSIONS/CAPACITY: An appropriate size parameter such as rated heat input, usable volume, rated filter efficiency, and/or one more characteristic dimensions.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

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

F. REQUIRED CONTROL EFFICIENCIES: Tier 4 Final standards

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

G. CONTROL TECHNOLOGY COMMENTS)

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: Manufacturer's certification to Tier 4 emission standards.

B. DATE(S) OF SOURCE TEST: 2/10/15

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

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

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

G. TEST METHODS (SPECIFY AGENCY): Identify the primary source test methods used and identify the agency (e.g., CARB Method 425).
H. MONITORING AND TESTING REQUIREMENTS: Include any monitoring or testing requirements and their frequency that will be enforced to maintain emission levels reported for the BACT Determination.
I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 036906	B. CCAT: Click here to enter text.	C. APPLICATION TYPE CODE: 10
D. RECLAIM FAC? YES ☐ NO ☒	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S):
G. SCAQMD SOURCE SPECIFIC RULES: Click here to enter text.		
H. HEALTH RISK FOR PERMIT UNIT		

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

Section II, Other LAER/BACT Determination

Source Type: **Major/LAER**

Application No.: **81391**

Equipment Category: **Gas Turbine**

Equipment Subcategory: **Combined Cycle**

Date: **February 1, 2019**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Mitsubishi	B. MODEL: M501 GAC
C. DESCRIPTION: Combined Cycle with Duct Burner HRSG, SCR, Oxidation catalyst and common Steam Turbine	
D. FUNCTION: In the state of Virginia, the Virginia Electric Power Company owns and operates the Warren County Power Plant. This project consists of three similar gas turbines with a common steam turbine generator.	
E. SIZE/DIMENSIONS/CAPACITY: Nominal 1,280MW electrical power generating facility consisting of three gas turbine generators each 299.6MW serving common steam turbine with 539MW generator.	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 2,996 MMBtu/hr Gas Turbine and 500 MMBtu/hr Duct Burner	
G. BURNER INFORMATION	

TYPE	INDIVIDUAL HEAT INPUT	NUMBER
Make and model of burner	Rated heat input of single burner, in btu/hr	Number of burners
Enter additional burner types, as needed, add extra rows		

H. PRIMARY FUEL: NATURAL GAS	I. OTHER FUEL: N/A
J. OPERATING SCHEDULE: Hours 24 Days 7 Weeks 52	
K. EQUIPMENT COST:	
L. EQUIPMENT INFORMATION COMMENTS:	

2. COMPANY INFORMATION

A. COMPANY: Virginia Electric and Power Company	B. FAC ID: 51-187-0041
C. ADDRESS: Lots 3,5,6,7,8,9 and10 CITY: Warren Industrial Park STATE: VA ZIP: 22630	D. NAICS CODE: 221112
E. CONTACT PERSON: Jeffrey Zehner	F. TITLE: Env. Project Advisor
G. PHONE NO.: (804) 273-3145	H. EMAIL: Jeffrey.r.zehner@dom.com

3. PERMIT INFORMATION

A. AGENCY: Virginia State Air Polluting Control Board	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Janardan R. Pandey, P.E., Air Permit Manager	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 6/17/14 P/O NO.: 81391 PO ISSUANCE DATE: 6/17/2014	
E. START-UP DATE: 12/1/2014	
F. OPERATIONAL TIME: 4 years	

4. EMISSION INFORMATION

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

	VOC	NOx	SOx	CO	PM OR PM_{10}	INORGANIC
BACT Limit		2 PPMV (with & w/o Duct Burner)		1.5 PPMV (without Duct Burner)		
Averaging Time		1 HOUR		1 HOUR		
Correction		@ 15% O_2		@ 15% O_2		

B. OTHER BACT REQUIREMENTS: The emission limits shall not apply during turbine commissioning, start-up, shutdown and malfunction.

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

4. EMISSION INFORMATION

D. EMISSION INFORMATION COMMENTS: Although the following annual mass emission limits from the operation of all three combined cycle power generating units including duct burners may be specific to this project they were also included in the permit:
NOx: 317.7 tons
CO: 348.6 tons
VOC: 181.0 tons
PM-10: 195.1 tons (includes condensable PM)

5. CONTROL TECHNOLOGY

A. MANUFACTURER: --	B. MODEL: --

C. DESCRIPTION: SCR with aqueous ammonia injection grid for NOx control and Oxidation Catalyst for CO and VOC control.

D. SIZE/DIMENSIONS/CAPACITY: --

E. CONTROL EQUIPMENT PERMIT INFORMATION:

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

F. REQUIRED CONTROL EFFICIENCIES: See Emission Information in Section 4.

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

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

6. DEMONSTRATION OF COMPLIANCE

A. COMPLIANCE DEMONSTRATED BY: CEMS data collected from 12/6/14 to 9/30/2016. Source Test

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

C. COLLECTION EFFICIENCY METHOD: N/A

D. COLLECTION EFFICIENCY PARAMETERS: N/A

E. SOURCE TEST/PERFORMANCE DATA: 1.84 PPMV NOx @15% O2. 1.02 PPMV CO @15% O2. 2.8 PPMV NH3 @15% O2

F. TEST OPERATING PARAMETERS AND CONDITIONS: At any load condition within plus or minus 25% of 100% of peak load.

G. TEST METHODS (SPECIFY AGENCY): 40 CFR 60, Appendix A, Methods 7E or 20 (NOx); 40 CFR 60, Appendix A, Method 10 (CO); 40 CFR 60, Appendix A, Method 25A (VOC); 40 CFR 60, Appendix A, Methods 5 or 17 and 19, and 40 CFR 51, Appendix M, Method 202 (PM10); 40 CFR 60, Appendix A, Methods 6, 6C, 8 or 20 (SO_2).

H. MONITORING AND TESTING REQUIREMENTS: CEMS for NOx and CO. Initial performance test for NOx, CO, VOC, PM10 and SO_2. Annual performance test for SO_2 pursuant to Permit Condition 67.

I. DEMONSTRATION OF COMPLIANCE COMMENTS: Enter comments for additional information for Demonstration of Compliance.

7. ADDITIONAL SCAQMD REFERENCE DATA

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

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

SUMMARY OF PROPOSED DELETIONS OF OUTDATED LAER DETERMINATIONS IN PART B SECTIONS I AND II

Part B, Section I

Aluminum Melting Furnace, A/N 368982, Superior Ind. 9/6/02
Aluminum Melting Furnace, A/N 385864, Custom Alloy 9/6/02
Aluminum Melting Furnace, with Air Preheat, A/N 361714, Commonwealth Aluminum 7/11/03
Boiler, A/N 181183, Kal Kan, 78.6 MMBtu/hr 10/29/99
Boiler, A/N 186624, Darling Intl, 110 MMBtu/hr 10/29/99
Boiler, A/N 248532, UCI Med Ctr, 48.6 MMBtu/hr 9/7/99
Boiler, A/N 352348, Coca Cola, 31.5 MMBtu/hr (2) 12/22/99
Boiler, A/N 362566, Hi-Country, 20.9 MMBtu/hr 5/11/00
Boiler, A/N 360389, Disneyland, 8.5 MMBtu/hr (4) 12/22/99
Boiler, A/N 362396, Santa Monica Beach Hotel, 4.3 MMBtu/hr 12/22/99
Boiler, A/N 362486, Pacific Life, 3.0 MMBtu/hr 3/21/00
Boiler, A/N 363025, UCLA Med Ctr, 16.3 MMBtu/hr 3/21/00
Boiler, A/N 364142, San Bernardino Co. Medical Center, 6.0 MMBtu/hr 6/9/00
Boiler, A/N 367150, L&N Uniform Supply, 6.3 MMBtu/hr 6/9/00
Boiler, A/N 365228, Bumble Bee Seafoods, 16.8 MMBtu/hr 6/9/00
Boiler, A/N 365228, Bumble Bee Seafoods, 16.8 MMBtu/hr 6/9/00
Boiler, A/N 364504, Liberty Container, 16.3 MMBtu/hr 9/26/00
Boiler, A/N 366569, La Corr Packaging, 21 MMBtu/hr 9/26/00
Boiler, A/N 366879, RRR Real Estate, 7.5 MMBtu/hr 9/26/00
Boiler, A/N 358116, Maruchan, Inc., 8.18 MMBtu/hr 6/9/00
Oven, Powder Coating, A/N 360365 12/22/99
Oven, Homogenizing, A/N 383426 12/19/01
Dryer, Tenter Frame, A/N 364658 12/9/03
Flare, Landfill Gas Fired, A/N 245157, City of L.A. 8/17/01
Gas Turbine, Combined Cycle, A/N 386305, Magnolia Power Project, 2/17/04
Gas Turbine, Combined Cycle, A/N 366147, Mountainview, 9/18/01
Gas Turbine, Simple Cycle, A/N 406064, E.I. Colton, 2/17/04
Gas Turbine, Simple Cycle, A/N 383044, Indigo, 9/18/01
Gas Turbine, A/N 374502, LADWP Valley 9/18/01
Heater - Other Process, A/N 347641, So Cal Gas Co., 6 MM Btu/hr 12/22/99
IC Engine, Digester Gas Fired, A/N 388050, 1408 HP 1/23/03
IC Engine, Landfill Gas Fired, A/N 391009, 1850 HP 1/23/03
IC Engine, A/N 392542, 764 HP 3/13/02
IC Engine, A/N 392543, 685 HP 3/13/02
IC Engine, A/N 392544, 610 HP 3/13/02
IC Engine, A/N 392545, 536 HP 3/13/02
IC Engine, A/N 392546, 471 HP 3/13/02
IC Engine, A/N 390213, 470 HP 3/13/02
IC Engine, A/N 390214, 395 HP 3/13/02
IC Engine, A/N 393278, 295 HP 3/13/02
IC Engine, A/N 392676, 267 HP 3/13/02
IC Engine, A/N 387480, 550 HP w/ PM Trap 9/12/03
IC Engine, A/N 356816, Cummins 10/5/99

IC Engine, A/N 359076, Coachella Valley Water Dist. 9/24/99
IC Engine, A/N 359675. US Navy 10/6/99
IC Engine, A/N 359619, Santa Clarita Valley School Dist. 10/14/99
IC Engine, A/N 360224, Running Springs Water Dist 11/12/99
IC Engine, A/N 361707, Ingram Book Co. 11/6/99
IC Engine, A/N 366730, Disneyland 8/25/00
IC Engine, A/N 364327, Home Grocer 8/25/00
IC Engine, A/N 363918, Home Grocer 8/25/00
IC Engine, A/N 363589, 2155 hp, City of Corona 8/25/00
IC Engine, A/N 365785, Cucamong Water District 8/25/00
IC Engine, A/N 360419, Disneyland Resort, 1334 HP 5/11/00
IC Engine, A/N 417691, 160 HP, East LA College 12/9/03
IC Engine, A/N 418342, 240 HP, LA County 12/9/03
IC Engine, A/N 395874, Ultramar 6/6/02
IC Engine, A/N 372822, Pharmavite 12/13/00
IC Engine, A/N 353428, 755 HP 9/24/99
Metal Heating Furnace, Aluminum, A/N 379746, International Extrusion, 4/24/03
Printing, Lithographic - Non-Heatset, A/N 356664, Brothers Printing
Spray Booth, A/N 347744, Arbek Mfg, Wood, Super Low VOC
Spray Booth, A/N 230731, Sierra Aluminum, Metal, with Control
Spray Booth, A/N 183205, Frontier Aluminum, Metal with Control
Spray Booth, A/N 228182, Northrop, Aerospace, with Control
Spray Booth, A/N 369278, Lippert Components, RV Chassis, with Control 9/6/02
Spray Booth, A/N 176076, Kaiser Marquardt, Metal, with Control
Spray Booth, A/N 249798, Crown City Plating, Metal with Control
Spray Booth, A/N 280817, Intl Extrusion, Metal, with Control
Spray Booth, A/N 273236, US Ordnance, Metal, with Control
Spray Booth, A/N 287160, Douglas Prod Div, Aerospace, with Control
Spray Booth, A/N 298582, Huck Intl., Aerospace, with Control
Spray Booth, A/N 272587, Barry Controls, Aerospace Adhesives, with Control
Spray Booth, A/N 324505, Bristol Fiberlite, Polyester Resin, with Control
Spray Booth, A/N 354640, Wondries Collision, Auto Refinish, with Control
Spray Booth, A/N 352925, Wondries Collision, Auto Refinish, No Control
Spray Booth, A/N 352922, Wondries Collision, Auto Refinish, No Control
Spray Booth, A/N 352660, Cannon Safe, Metal, No Control
Spray Booth, A/N 352478, MacDonald Mfg, Metal, No Control
Spray Booth, A/N 352716, Artisan Resources, Plastics, No Control
Spray Booth, A/N 353357, Time Aviation, Aerospace, No Control
Spray Booth, A/N 356063, DA/PRO Rubber, Rubber, No Control

Part B, Section II – Other Technologies

Boiler, Corcoran State Prison, 8.1 MMBtu/hr 9/15/99
Boiler, La Paloma Generating Co., 6.2 MMBtu/hr 5/11/00
Flare, Landfill Gas Fired, NEO Tajiguas, A/N 9788 11/24/04
Gas Turbine, Los Medanos (CA) 9/6/02
Gas Turbine, 153 MW, Elk Hills (CA) 9/18/01

Gas Turbine, 170 MW, 97-AFC-2, Calpine (CA)
Gas Turbine, 98-AFC-2, La Paloma (CA) 2/11/00
Gas Turbine, 1.5 MW, 1219, Genxon, (CA) 12/6/02
Gas Turbine, 12.9 MW, UC San Diego (CA) 4/23/03
ICE, Landfill Gas Fired, MM Tajiguas Energy, 4231 HP, A/N 9788 11/24/04
ICE, Stationary Non-Emergency, NEO Calif. Power, 3870 HP, A/N 220 10/14/03
ICE, Stationary Non-Emergency, S.B. Linden, 3130 HP, A/N 1-96-4371 5/25/99

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 SCAQMD rules and state law and how they are interpreted. It also explains the criteria used for initializing the Part D MSBACT Guidelines and the process for updating the MSBACT Guidelines.

PART D OF THE MSBACT GUIDELINES

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

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

CRITERIA FOR NEW MSBACT AND UPDATING PART D

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

- found in a state implementation plan (SIP), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

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

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

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

[17] SCAQMD Rule 1303(a)(3)

section is to explain the criteria SCAQMD 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) might be the basis for MSBACT. This means that the most stringent emission limit adopted by any state as a rule, regulation or permit[18] and approved by USEPA is eligible as a MSBACT requirement. This does not include future emission limits that have not yet been implemented.

Achieved in Practice MSBACT

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

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

Achieved in Practice Criteria

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

Commercial Availability

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

Reliability

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

Effectiveness

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

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

Cost Effectiveness

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

Technology Transfer

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

Requirements of Health & Safety Code Section 40440.11

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

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

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

COST EFFECTIVENESS METHODOLOGY

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

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

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

Discounted Cash Flow Method

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

Maximum Cost Effectiveness Values

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

Table 5: Maximum Cost Effectiveness Criteria (3rd~~2nd~~ Quarter 201~~6~~8)

Pollutant	Average (Maximum $ per Ton)	Incremental (Maximum $ per Ton)
ROG	30,765~~28,460~~	92,296~~85,380~~
NOx	29,090~~26,910~~	87,117~~80,590~~
SOx	15,383~~14,230~~	46,148~~42,690~~
PM_{10}	6,854~~6,340~~	20,409~~18,880~~
CO	609~~560~~	1,751~~1,620~~

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

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

Top-Down Cost Methodology

The SCAQMD uses the top-down approach for evaluating BACT 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 BACT analysis, and submitting it to the District for review and approval.

The top-down process consists of five steps:

1. Identify all control technologies

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

2. Eliminate technically infeasible options

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

3. Rank remaining control technologies

Based on overall control effectiveness, all remaining technically feasible control options should be ranked for the pollutants under review. A list should be generated for each pollutant subject to the BACT 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 BACT

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

Costs to Include in a Cost Effectiveness Analysis

Cost effectiveness evaluations consider both capital and operating costs. Capital cost includes not only the price of the equipment, but the cost for shipping, engineering and installation. Operating or annual costs include expenditures associated with utilities, labor and replacement costs. Finally, costs are reduced if any of the materials or

energy created by the process result in cost savings. These cost items are shown in Table 6. Methodologies for determining these values are given in documents prepared by USEPA through their Office of Air Quality Planning and Standards (EPA Air Pollution Control Cost Manual, Sixth Edition, 2002, EPA 452/B-02-001).

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

Table 6: Cost Factors

Total Capital Investment

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

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

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

Total Annual Cost

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

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

Recovery Credits
- Materials
- Energy

CLEAN FUEL GUIDELINES

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

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

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

AIR QUALITY-RELATED ENERGY POLICY

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

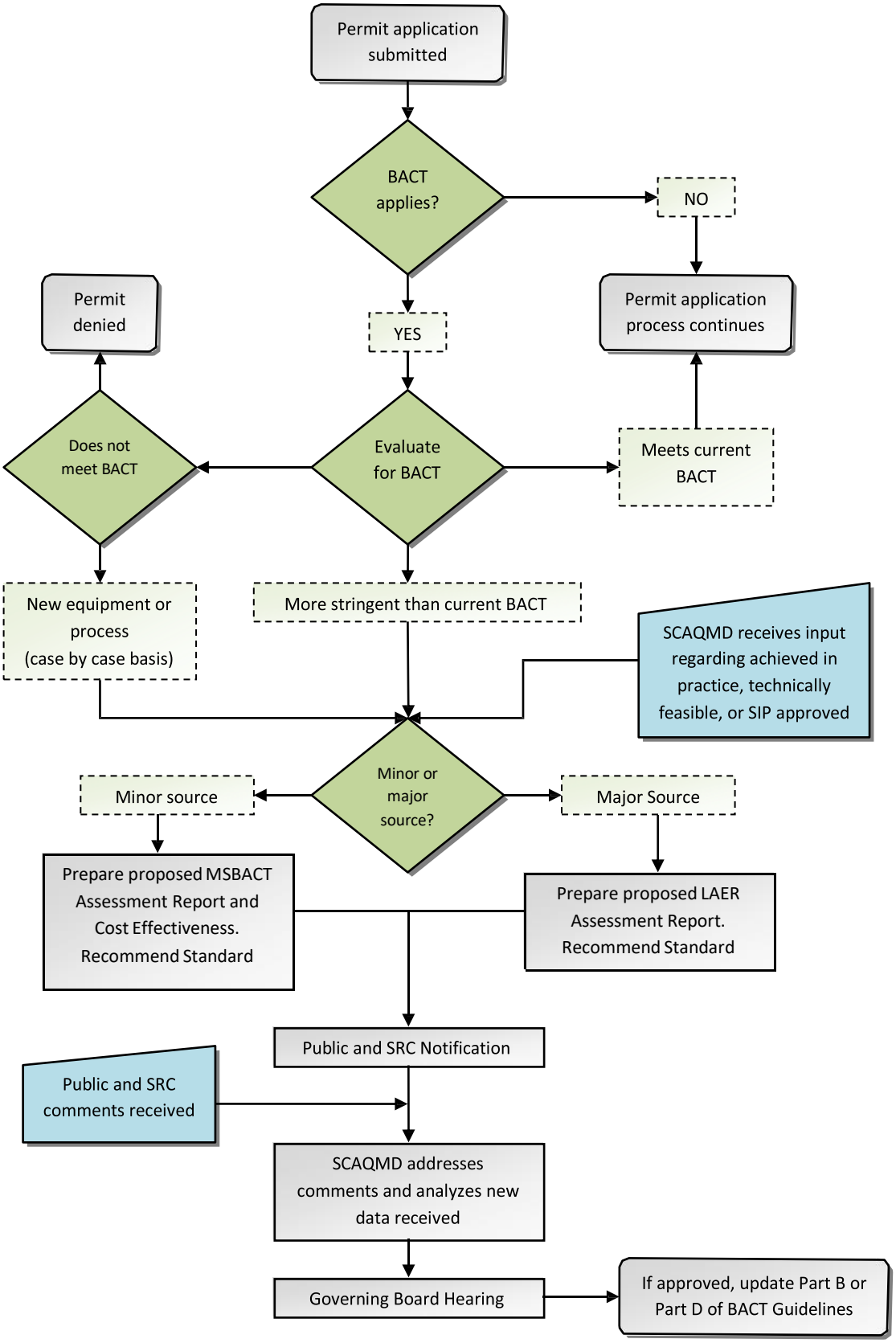
Policy 7 is to require any new/repowered in-Basin fossil-fueled generation power plant to incorporate BACT/LAER as required by District rules, considering energy efficiency for the application. These power plants will need to comply with any requirements adopted by the California Air Resources Board,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

BACT UPDATE PROCESS

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

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

Figure 2: The Ongoing BACT Update Process



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

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

GENERAL

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

The MSBACT requirements are in the form of:

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

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

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

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

SPECIAL PERMITTING CONSIDERATIONS

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

from that MSBACT. The permit applicant should bring any pertinent facts to the attention of the SCAQMD permitting engineer for consideration.

Case-Specific Situations

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

Technical infeasibility of the control technology

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

Operating schedule and project length

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

Availability of fuel or electricity

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

Process requirements

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

Equivalency

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

Super Compliant Materials

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

Equipment Modifications

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

Other Considerations

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

Pollution Prevention

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

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

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

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

Monitoring and Testing

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

Capture Efficiency

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

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

Equipment Not Identified in the MSBACT Guidelines

Although the BACT Guidelines contains an extensive listing of practically everything the SCAQMD permits, occasionally applications will be received for equipment not identified in the Guidelines. As required by Rule 1303, MSBACT for equipment category not listed in the MSBACT Guidelines must be determined on a case-by-case basis using the definition of BACT in Rule 1302 and the general procedures in these MSBACT Guidelines, as shown in Chapter 1 and the previous sections of this chapter.

Applicants whose equipment is not listed in Part D of the MSBACT Guidelines should contact the SCAQMD and arrange a pre-application conference. MSBACT issues can be discussed in the conference for leading to a MSBACT determination. Applicants are not required to conduct the MSBACT evaluation but the application may be processed more quickly if the applicant provides a MSBACT evaluation with the application for a permit to construct.

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.

BACT APPLICATION CUT-OFF DATES

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

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

Attachment F - PART D

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

2-1-2019

Equipment or Process: Thermal Oxidizer (Afterburner), Catalytic Oxidizer – Natural Gas Fired **

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All		30 ppmvd @ 3% O_2 (2-1-2019) Burner emissions only.				

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

** Does not include tank degassing, soil vapor extraction, and vapor incinerators where vapors are directed into the burner or into a combustion chamber.

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

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

Equipment or Process: Composting

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

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

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

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

10-20-2000 Rev. 0
10-03-2008 Rev. 1
12-02-2016 Rev. 2
2-1-2019 Rev. 3

Equipment or Process: Boiler

	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOx[1]**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Natural Gas Fired, > 2 and < 20 MMBtu/HR		Compliance with SCAQMD Rules 1146 or 1146.1[2] (12-02-2016)	Natural Gas (10-20-2000)	≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, corrected to 3% O_2 (04-10-98)	Natural Gas (04-10-98)	
Propane Fired, > 2 and < 20 MMBtu/HR		≤ 12 ppmvd corrected to 3% O_2[2] (10-20-2000)		≤50 ppmvd for firetube type, ≤ 100 ppmvd for watertube type, corrected to 3% O_2 (04-10-98)		
Natural Gas or Propane Fired, ≥ 20 and < 75 MM Btu/HR		Compliance with SCAQMD Rule 1146 (2-1-2019) ~~With Low-NOx Burner: ≤ 9 ppmv dry corrected to 3% O_2 With Add-On Controls: ≤ 7 ppmv dry corrected to 3% O_2 (10-20-2000)~~	Natural Gas (10-20-2000)	Same as above. (04-10-98)	Natural Gas (04-10-98)	With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O_2 ≤ 1 ppmvd ozone, corrected to 3% O_2 (10-20-2000)
Natural Gas or Propane Fired, ≥ 75 MM Btu/HR		Compliance with SCAQMD Rule 1146 (12-02-2016)	Natural Gas (10-20-2000)	Same as above. (04-10-98)	Natural Gas (04-10-98)	With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O_2

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

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

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

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

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** ~~1)~~	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Natural Gas or Propane Fired, >2 and < 20 MM Btu/hr		Compliance with SCAQMD Rules 1146 or 1146.1 (12-02-2016)	Natural Gas (10-20-2000)	≤50 ppmv for firetube type, ≤ 100 ppmv for watertube type, dry corrected to 3% O_2 (10-20-2000)	Natural Gas (10-20-2000)	
Natural Gas or Propane Fired, ≥ 20 MM Btu/hr		Compliance with SCAQMD Rules 1146 ~~or 1146.1 (12-02-2016)~~ (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)

~~1) Rules 1146 and 1146.1 require that boilers rated >2 and <75 MMBtu/hr meet 9 ppm NOx beginning 1/1/2012 for some categories, that natural-gas-fired boilers rated at ≥75 MMBtu/hr meet 5 ppm by 1/1/2015 (except boilers at schools and universities), that natural-draft boilers rated >2 and ≤10 MMBtu/hr with unsealed combustion chambers meet 12 ppm by 1/1/2014, and that boilers firing landfill or digester gas meet 25 or 15 ppm, respectively, by 1/1/15 (all ppm are dry, corrected to 3% O2). 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.~~

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
12-02-2016 Rev. 5
2-1-2019 Rev. 6

Equipment or Process: I.C. Engine, Stationary, Emergency [1]

		Criteria Pollutants					
Subcategory	**Rating/Size**	**NMHC or VOC**	**NOx**	**NOx + NMHC[2]**	**SOx**	**CO**	**PM**
Compression Ignition, Fire Pump [3, 4]	50 ≤ HP < 100			Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 4.7 grams/kW-hr (3.5 grams/bhp-hr) (10-03-2008)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (SCAQMD Rule 431.2). (6-6-2003)	Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008)	Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 3: 0.40 grams/kW-hr (0.30 grams/bhp-hr) (10-03-2008)
	100 ≤ HP < 175			Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008)		Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008)	Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 3: 0.30 grams/kW-hr (0.22 grams/bhp-hr) (10-03-2008)

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

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		Criteria Pollutants					
Subcategory	**Rating/Size**	**NMHC or VOC**	**NOx**	**NOx + NMHC[2]**	**SOx**	**CO**	**PM**
Compression-Ignition, Other[3, 4] (continued)	100 ≤ HP < 175			Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 5.0 grams/kW-hr (3.7 grams/bhp-hr) (10-03-2008)	Compliance with SCAQMD Rule 1470 (12-3-2004) <u>Tier 3:</u> 0.2~~3~~0 grams/kW-hr (0.15~~22~~ grams/bhp-hr) ~~(10-03-2008)~~ (2-1-2019)
	175≤ HP < 300			Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 4.0 grams/kW-hr (3.0 grams/bhp-hr) (10-03-2008)		Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008)	Compliance with SCAQMD Rule 1470 (12-3-2004) <u>Tier 3:</u> 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008)
	300≤ HP < 750			Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 4.0 grams/kW-hr (3.0 grams/bhp-hr) (7-14-2006)		Compliance with SCAQMD Rule 1470 (12-02-2016) <u>Tier 3:</u> 3.5 grams/kW-hr (2.6 grams/bhp-hr) (7-14-2006)	Compliance with SCAQMD Rule 1470 (12-3-2004) <u>Tier 3:</u> 0.20 grams/kW-hr (0.15 grams/bhp-hr) (7-14-2006)

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		Criteria Pollutants					
Subcategory	**Rating/Size**	**NMHC or VOC**	**NOx**	**NOx + NMHC[2]**	**SOx**	**CO**	**PM**
Compression-Ignition, Other[3, 4] (continued)	≥750 HP			Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 2: 6.4 grams/kW-hr (4.8 grams/bhp-hr) (10-03-2008)	Diesel fuel with a sulfur content no greater than 0.0015% by weight (Rule 431.2). (6-6-2003)	Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 2: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (10-03-2008)	Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 2: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (10-03-2008)
Spark Ignition[5]	< 130 HP	VOC: 1.5 grams/bhp-hr (10-20-2000)	1.5 grams/bhp-hr (10-20-2000)		See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)	2.0 grams/bhp-hr (10-20-2000)	See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)
	≥ 130 HP	VOC: 1.0 grams/bhp-hr[6] (12-02-2016)	1.5 grams/bhp-hr (10-20-2000)		See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)	2.0 grams/bhp-hr (10-20-2000)	See Clean Fuels Policy in Part C of the BACT Guidelines (10-20-2000)

1) An emergency engine is an engine which operates as a temporary replacement for primary mechanical or electrical power sources during periods of fuel or energy shortage or while a primary power source is under repair. This includes fire pumps, emergency electrical generation and other emergency uses.

2) NMHC + NOx means the sum of non-methane hydrocarbons and oxides of nitrogen emissions.

3) SCAQMD 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) SCAQMD 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

10-20-2000 Rev. 0
12-5-2003 Rev. 1
7-14-2006 Rev 2
2-2-2018 Rev 3
2-1-2019 Rev 4

Equipment or Process: Printing (Graphic Arts)

	Criteria Pollutants					
Subcategory	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Flexographic	Inks with ≤ 1.5 Lbs VOC/Gal, Less Water and Less Exempt Compounds (1990); or use of UV/EB or water-based inks/coatings ≤ 180 g VOC/L. Compliance with SCAQMD Rules 1130 and 1171 (2-2-2018)					
Control	For add-on control required by SCAQMD Rule 1130(c)(5) or other District requirement: EPA M. 204 Permanent Total Enclosure (100% collection) vented to afterburner~~RTO~~ with 95% overall control efficiency; Combustion Chamber: Temp ≥ 1500°F[1], Retention Time > 0.3 seconds (2-2-2018)	Compliance with SCAQMD Rule 1147 at time of applicability (2-2-2018)				
Letterpress	Compliance with SCAQMD Rules 1130 and 1171 (12-5-2003)					
Lithographic or Offset, Heatset	Low VOC Fountain Solution (≤ 8% by Vol. VOC); Low VOC (≤ 100 g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171 ~~(7-14-2006)~~ (2-2-18)				Venting to an afterburner (≥ 0.3 sec. Retention Time at ≥ 1400 ^{0}F) (10-20-2000) (2-1-2019)	
Control	Oven Venting to an Afterburner (≥ 0.3 Sec.	Compliance				

	Criteria Pollutants					
Subcategory	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
	Retention Time at ≥ 1400 ^{0}F; 95% Overall Efficiency) (10-20-2000)	with SCAQMD Rule 1147				
Lithographic or Offset, Non-Heatset	~~Same As Above~~ Low VOC Fountain Solution (≤ 8% by Vol. VOC); Low VOC (≤ 100 g/l) Blanket and Roller Washes; Oil-Based or UV-Curable Inks; and Compliance with SCAQMD Rules 1130 and 1171. (2-1-2019)					
Rotogravure or Gravure—Publication and Packaging	Compliance with SCAQMD Rules 1130 and 1171 (10-20-2000)					
Screen Printing and Drying	Compliance with SCAQMD Rules 1130.1 and 1171; or use of Rule 1130.1 and 1171 compliant UV/EB or water-based inks/coatings. (2-2-2018).					

1) or temperature demonstrating equivalent overall control efficiency in a District-approved source test.

Equipment or Process: Spray Booth

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Automotive, Down-Draft Type, < 667~~0~~ Lbs/Month of VOC Emissions (2-1-2019)	Compliance with Applicable SCAQMD Regulation XI Rules (10-20-2000)				Dry Filters or Waterwash (1990)	
Other Types, < 1170 Lbs/Month of VOC Emissions	Compliance with Applicable SCAQMD Regulation XI Rules (10-20-2000)				Same as Above (1990)	
Automotive, Down-Draft Type, ≥ 22 Lbs/Day of VOC Emissions	- Compliance with Applicable SCAQMD Regulation XI Rules, and VOC Control System with ≥ 90% Collection Efficiency and ≥ 95% Destruction Efficiency, or - Use of Super Compliant Materials (< 5% VOC by weight): or - Use of Low-VOC Materials Resulting in an Equivalent Emission Reduction (10-20-2000)				Same as Above (1990)	
Other Types, ≥ 1170 Lbs/Month of VOC Emissions	Same as Above (10-20-2000)				Same as Above (1990)	

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.

Equipment or Process: Aluminum Melting Furnace

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Crucible or Pot		≤60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (07-11-97)~~	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		≤60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	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)	≤60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas with Baghouse and: - Afterburner (≥ 0.3 sec. Retention Time at ≥ 1400° F); or - Secondary Combustion Chamber (1990)	
Reverberatory or	Same as Above	Natural Gas with	Natural Gas		Same as above.	

Equipment or Process: Brass Melting Furnace

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Crucible, ≤ 300 Lbs/Hr Process Rate		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas, Charge Clean Metal Only and Maintain Slag Cover Over Entire Melt Surface (1990)	
Crucible, > 300 Lbs/Hr Process Rate		60ppm Compliance with Rule 1147 (2-1-2019) ~~Low-NOx Burner (10-20-2000)~~	Natural Gas (1990)		Natural Gas, with Baghouse (1990)	
Reverberatory or Rotary, Non-Sweating		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas and Low-NOx Burner (10-20-2000)~~	Natural Gas (1990)		Natural Gas with Baghouse (1990)	
Reverberatory or Rotary, Sweating	Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1990)	60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas with Low-NOx Burner~~	Natural Gas (1990)	Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F)	Natural Gas with Baghouse (1990)	

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

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

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

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) ~~44 ppmv, Dry, Corrected to 3% 0_2 (1988)~~	Natural Gas with Flue Gas Desulfurization (> 90% Removal Efficiency) (1988)	Afterburner (≥ 0.3 Second Retention Time at ≥ 1400 °F) (1988)	0.005 gr/dscf Corrected to 3% 0_2 (1988)	
Other		Compliance with Rule 1147 (2-1-2019) ~~45 ppmv, Dry, Corrected to 3% 0_2 (1988)~~	Natural Gas (1988)		Natural Gas with Baghouse (1988)	

Equipment or Process: Coffee Roasting

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Roaster, < 110,000 BTU/Hr		Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1988)~~	Natural Gas (1988)		Natural Gas (1988)	
Roaster, ≥ 110,000 BTU/Hr	Afterburner (0.3 Sec Retention Time at 1200 °F) (1990)	Compliance with Rule 1147 (2-1-2019) ~~Natural Gas, with Heat Recovery on Afterburner Exhaust to Reduce Fuel Consumption (10-20-2000)~~	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[1]						
Handling Equipment, ≥ 1,590 Lbs/Hr All					Cyclone (1990)	

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

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)	60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas with Secondary Combustion Chamber, ≥ 1500 °F (1990)	

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 with Low NOx Burner (10-20-2000)~~	Natural Gas (1988)		Natural Gas (1988)	

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

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		30ppm Compliance with Rule 1147 (2-1-2019) ~~80 ppmvd, corrected to 3% O_2 (10-20-2000)~~	Natural Gas (1990)		Natural Gas (1990)	
Rotary, Spray and Flash Dryers[1)]		Compliance with Rule 1147 (2-1-2019) ~~Natural Gas with Low NOx Burner (10-20-2000)~~	Natural Gas (1990)		Natural Gas with Baghouse (1990)	
Tray, Agitated Pan, and Rotary Vacuum Dryers		Compliance with Rule 1147 (2-1-2019) ~~Natural Gas with Low NOx Burner (10-20-2000)~~	Natural Gas (1990)		Natural Gas (1990)	
Tenter Frame Fabric Dryer		30ppm Compliance with	Natural Gas (10-20-		Natural Gas (10-20-	

		Rule 1147 (2-1-2019) ~~60 ppmvd Corrected to 3% O_2 (10-20-2000)~~				
Other Dryers and Ovens – Direct & 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.

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

Equipment or Process: Fish Reduction

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

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

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	~~Integrated Afterburner/Oil Heater~~ (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) ~~(10-20-2000)~~(2-1-2019)	Natural Gas (1990)	Natural Gas (1990)		~~Integrated Afterburner/Oil Heater~~ (≥ 0.3 Sec. Retention Time at ≥ 1400 °F) ~~(10-20-2000)~~ (2-1-2019)	
Integrated Afterburner/Oil Heater ≥ 2 MM Btu/hr	~~Integrated Afterburner/ Oil Heater (~~≥ 0.3 Sec. Retention Time at ≥ 1400 °F~~)~~ (10-20-2000) (2-1-2019)	Natural Gas (1990)	Natural Gas (1990)		~~Integrated Afterburner/Oil Heater~~ (≥ 0.3 Sec. Retention Time at ≥ 1400 °F), and Electrostatic Precipitator or High Efficiency Mist Eliminator ~~(10-20-2000)~~ (2-1- 2019)	

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

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		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas and Melt only Sows, Pigs, Ingots or Clean Scrap (1990)	
Pot or Crucible, Refining Operations		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas with Scrubber; or Natural Gas with Sulfur Free Refining Agents (1990)		Natural Gas with Baghouse (1990)	
Reverberatory, Secondary Melting Operations		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas with Low NOx Burner (10-20-2000)~~	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.

Equipment or Process: Soil Vapor Extraction – Thermal/Catalytic Oxidization (Natural Gas – burner only)

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
All		Compliance with Rule 1147				

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		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas with Ingot and/or Clean Scrap Charge Only, or Baghouse (1988/2000)	
Reverberatory, Non-Sweating Operations		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Same as Above (10-20-2000)	
Reverberatory, Sweating Operations		60ppm Compliance with Rule 1147 (2-1-2019) ~~Natural Gas (1990)~~	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		60ppm Compliance with	Natural Gas (1990)		Same as Above (1990)	

		Rule 1147 (2-1-2019) ~~Natural Gas~~ ~~(1990)~~				

ATTACHMENT G

THERMAL OXIDIZER COST-EFFECTIVENESS ANALYSIS

Incremental Cost-Effectiveness Analysis Oxidizer #1

This cost effectiveness study was performed on a Regenerative Thermal Oxidizer (RTO) rated at 8.67 mmBtu/hr, which serves as the start- up burner to bring the ceramic media of the RTO to operating temperature. The RTO is utilized to control process emissions from the lens coating and drying processes from a sunglass manufacturing plant.

Health and Safety Code 40440.11 requires an incremental cost-effectiveness study if a more stringent emission limit is proposed over an existing lowest achievable limit. The existing NOx BACT limit of 60 ppm is from Rule 1147. The proposed new BACT limit is 30 pm NOx at 3% O_2. Both limits apply to the burner only. Only new or replacement costs are analyzed as retrofit costs are considered part of a BARCT analysis and not a BACT requirement.

Average cost-effectiveness per SCAQMD BACT Guidelines Part C analyzes the cost of applying BACT to an uncontrolled case. This BACT update is only targeting the secondary emissions from a control device, therefore average cost effectiveness does not apply.

A Low NOx burner equipped oxidizer was implemented as the control technology in this specific case. The incremental equipment cost is the cost differential between an oxidizer that achieves 30 ppm NOx and one that can only achieve 60 ppm NOx. Installation costs do not differ as the units are identical except for the burner.

Incremental operating cost consists of two components. Additional fuel use is needed from the less efficient Low NOx equipment. Also, incremental electricity cost was examined for the fan to bring extra combustion air for the Low NOx burner. Both were calculated and included as part of the annual operating cost.

The incremental cost/ton values from this analysis is below the NOx incremental threshold value from 1st quarter of 2016, the time the control equipment was implemented.

Oakley RTO Cost Effectiveness Calculations

Use R1147 limit of 60 ppm NOx @ 3% O2 as baseline, and reduction is to 30 ppm

Oxidizer Info

Manufacturer: Adwest Technologies
Model: Retox 30.0 RTO-97
Rating: 8.67 MM Btu/hr
Operation Schedule: 1.5 hr/day 300 days/yr
Life 20 years
Interest rate: 4 %

Capital Cost - Incremental

Equipment (cost of 30 ppm oxidizer - cost of 60 ppm oxidizer)	$12,111
Direct & Indirect Installation	$0
Total Capital	$12,111

Annual Operating Cost - Incremental

Additional fuel use	$1,157	*(from incremental gas use sheet)*
Additional electricity use	$301	*(from incremental electricity use sheet)*
Total Annual Operating Cost (Incremental)	$1,458	

PVF	13.590
Present Value of Capital Costs	$12,111
Present Value of Annual Costs (20 years @ 4%)	$19,815
Total 20-Year Capital Cost	$31,926
Emissions reduction (lbs/day)	0.48
Emissions reduction (tons/Life)	1.44
Cost per ton of NOx reduction	$22,116
MSBACT maximum cost effectiveness NOx ($/ton)	**$80,321**

NOx Reduction Calculation

	Emission Factor lb NOx/mmBtu	Daily heat input (mmbtu/hr) 1.5 hr @ 100% Load	NOx lb day
For 60 ppm@3%O2	0.073	13.005	0.95
For 30 ppm@3%O2	0.036	13.005	0.47
		lb/day Reduction:	0.48

INCREMENTAL 1st Qtr 2016

Notes:

- Calculations were based on equipment cost info provided by the facility and by the manufacturer
- Annual operating costs calculated using information from the faciity and the enginnering permit file
- Maximum allowed cost effectiveness was based on 1st quarter 2016 Marshall & Swift index, during the time of the project.
- Incremental cost effectiveness uses the difference in cost and emissions between the proposed MSBACT and current BACT
- In accordance with H&SC 40440(c) the proposed MSBACT must be less than the District's established Incremental cost-effectiveness value

Incremental Gas use and cost analysis for Oakley Inc RTO

Assumptions: Ambient temp = 70 degrees F and the burner needs to reach a temp. of 1500 F (per permit condition)

		60 ppm burner	**30 ppm Low NOx burner**	
8.67 mmbtu/hr burner at 100% load	amount of air for stochiometry	30% excess air for 60 ppm burner	ppm Low Nox burner (e.g. MAXON KINNEDIZER LE)	
DIVIDE heat input rate by 1000 scf/btu and by 1hr/60 min to get cfm of nat gas	Multiply by 9.6 to get cfm of air	air needed for 60 ppm burner (cfm)	air needed for low nox burner (cfm)	
144.50	1,387.20	1,803.36	2,219.52	
	0	416.16	832.32	Actual excess air (cfm)
		30.00%	60.00%	Excess air Percent

Extra Energy Needed for Lo NOx burner

energy needed to heat above amount of air flow	energy needed to heat above amount of air flow	energy needed to heat above amount of air flow
cfm x 1.08 x delta T	cfm x 1.08 x delta T	cfm x 1.08 x delta T
0	642718	1285435
btu/hr needed	btu/hr needed	btu/hr needed

Subtract 60 ppm unit energy from 30 ppm unit

642718 btu/hr more energy needed

Divide by 1000 to convert to scf/hr

642.72 scf/hr more gas needed

Combusiton efficiency	100.00%	93.57%	87.15%

RTO Startup burner operates 1.5 hr/day, 300 days/yr

289222.88 scf more nat gas a year

convert to therms

2892.23 more therms per year

at cost of 40cents/therm

$1,156.89 more gas cost per year

Incremental Cost Analysis - Thermal Oxidizer (RTO) Oakley Inc.

Additional Electrical cost from using Lo NOx oxidizer

Power Consumption by fan (bhp) = Q (cfm) x Pressure (inch WC) / (6356 (constant for unit conversions) x Fan efficiency Coeff)

- use 0.8 as fan efficiency coefficient
- Pressure values (in Water Column) are taken from burner specification sheets

cfm figures based on incremental gas use analysis worksheet results

Bhp needed for 60 ppm equipment = 1803 cfm x 28 in WC / 6356 x 0.8

Bhp needed for 60 ppm equipment = 9.93 bhp

Bhp needed for 30 ppm equipment = 2219 cfm x 32 in WC / 6356 x 0.8

Bhp needed for 30 ppm equipment = 13.96 bhp

Difference of 13.96 - 9.93 = 4.036 bhp

Multiply bhp by .7457 = 3.01 Kw

Divide by 0.9 motor efficiency 3.344 kw

usage is 1.5 hours a day and 300 days a year 1504.951 kwh per year incremental electricity cost

Use 20 cents/kWh - 1504.95 kWh* 20 cents/kWh **$300.99** incremental electricity cost of fan use

Incremental Cost-Effectiveness Analysis Oxidizer #2

This cost effectiveness study was performed on a catalytic oxidizer rated at 1.35 mmBtu/hr. The oxidizer is utilized to control smoke and odor from a commercial coffee roaster. After initial startup, the oxidizer runs for only 2-3 minutes during each roast. The average operation is 40 roasts a day.

Health and Safety Code 40440.11 requires an incremental cost-effectiveness study if a more stringent emission limit is proposed over an existing lowest achievable limit. The existing NOx BACT limit of 60 ppm is from Rule 1147. The proposed new BACT limit is 30 pm NOx at 3% O_2. Both limits apply to the burner only. Only new or replacement costs are analyzed as retrofit costs are considered part of a BARCT analysis and not a BACT requirement.

Average cost-effectiveness per SCAQMD BACT Guidelines Part C analyzes the cost of applying BACT to an uncontrolled case. This BACT update is only targeting the secondary emissions from a control device, therefore average cost effectiveness does not apply.

A Low NOx burner equipped oxidizer was implemented in this application to meet the 30 ppm NOx limit. The incremental equipment cost is the cost differential between the 30 ppm NOx unit and one that can only achieve 60 ppm NOx. Installation costs do not differ as the units are identical except for the burner.

Incremental operating cost consists of two components. Additional fuel use is needed from the less efficient Low NOx equipment. Also, incremental electricity cost was examined for the fan to bring extra combustion air for the Low NOx burner. Both were calculated and included as part of the annual operating cost.

The incremental cost/ton of NOx reduction from this case is below the NOx incremental threshold value from 2st quarter of 2017, the time the equipment was being installed.

Groundworks Catalytic Oxidizer Cost Effectiveness Calculations

Use R1147 limit of 60 ppm NOx @ 3% O2 as baseline, and reduction is to 30 ppm

Oxidizer Info

Manufacturer: Western Combustion Engineering
Model: CA70-NG-2083P-60
Rating: 1.35 MM Btu/hr
Operation Schedule: 1.4 hr/day 300 days/yr
Life 20 years
Interest rate: 4 %

Capital Cost - Incremental

Equipment (cost of 30 ppm oxidizer - cost of 60 ppm oxidizer)	$9,000
Direct & Indirect Installation	$0
Total Capital	$9,000

Annual Operating Cost - Incremental

Additional fuel use	$156	*(from incremental gas use sheet)*
Additional electricity use	$17	*(from incremental electricity use sheet)*
Total Annual Operating Cost (Incremental)	$173	

PVF	13.590
Present Value of Capital Costs	$9,000
Present Value of Annual Costs (20 years @ 4%)	$2,352
Total 20-Year Capital Cost	$11,352
Emissions reduction (lbs/day)	0.07
Emissions reduction (tons/Life)	0.21
Cost per ton of NOx reduction	**$54,110**
MSBACT maximum cost effectiveness NOx ($/ton)	**$82,665**

INCREMENTAL 2nd Qtr 2017

NOx Reduction Calculation

	Emission Factor lb NOx/mmBtu	Daily heat input(mmbtu/hr) 1.4 hr @ 100% Load	NOx lb day
For 60 ppm@3%O2	0.073	1.890	0.14
For 30 ppm@3%O2	0.036	1.890	0.07
		lb/day Reduction:	0.07

Notes:

- Calculations were based on equipment cost info provided by the facility and by the manufacturer
- Annual operating costs calculated using information from the faciity and the enginnering permit file
- Maximum allowed cost effectiveness was based on 2nd quarter 2017 Marshall & Swift index when the equipment was installed
- Incremental cost effectiveness uses the difference in cost and emissions between the proposed MSBACT and current BACT
- In accordance with H&SC 40440(c) the proposed MSBACT must be less than the District's established Incremental cost-effectiveness value

Incremental Gas use and cost analysis for Groundworks Coffee Catalytic Oxidizer
Assumptions: Ambient temp = 70 degrees F and the burner needs to reach a temp. of 1400 F (per permit condition)

		60 ppm burner	30 ppm Low NOx burner	
1.35 mmbtu/hr burner at 100% load	amount of air for stochiometry	20% excess air for 60 ppm burner	50% excess air for 30 ppm Low Nox burner (MAXON Ovenpak LE)	
DIVIDE heat input rate by 1000 scf/btu and by 1hr/60 min to get cfm of nat gas	Multiply by 9.6 to get cfm of air	air needed for 60 ppm burner (cfm)	air needed for low nox burner (cfm)	
22.50	216.00	259.20	324.00	
	0	43.20	108.00	Actual excess air (cfm)
		20.00%	50.00%	Excess air Percent

Extra Energy Needed for Lo NOx burner

energy needed to heat above amount of air flow	energy needed to heat above amount of air flow	energy needed to heat above amount of air flow
cfm x 1.08 x delta T	cfm x 1.08 x delta T	cfm x 1.08 x delta T
0	62052	155131
btu/hr needed	btu/hr needed	btu/hr needed

Subtract 60 ppm unit energy from 30 ppm unit

93079 btu/hr more energy needed

Divide by 1000 to convert to scf/hr

93.08 scf/hr more gas needed

Combusiton efficiency	100.00%	99.38%	98.45%

catox burner operates 1.4 hr/day, 300 days/yr

39093.06 scf more nat gas a year

convert to therms

390.93 more therms per year

at cost of 40cents/therm

$156.37 more gas cost per year

Incremental Cost Analysis - Catalytic Oxidizer - Groundworks Coffee Inc.

Additional Electrical cost from using Lox NOx oxidizer

Power Consumption by fan (bhp) = Q (cfm) x Pressure (inch WC) / (6356 (constant for unit conversions) x Fan efficiency Coeff)
- use 0.8 as fan efficiency coefficient
- Pressure values (in Water Column) are taken from burner specification sheets

cfm figures based on incremental gas use analysis worksheet results

Bhp needed for 60 ppm equipment =	260 cfm x 5 in WC / 6356 x 0.8	
Bhp needed for 60 ppm equipment =	0.26	bhp
Bhp needed for 30 ppm equipment =	324 cfm x 7.6 in WC / 6356 x 0.8	
Bhp needed for 30 ppm equipment =	0.48	bhp
Difference of 0.48 and 0.26 =	0.229	bhp
Multiply bhp by .7457 =	0.17	Kw
Divide by 0.9 motor efficiency	0.189	kw
usage is 1.4 hours a day and 300 days a year	79.55228	kwh per year incremental electricity cost
Use 20 cents/kWh - 1504.95 kWh* 20 cents/kWh	**$15.91**	incremental electricity cost of fan use

ATTACHMENT H

South Coast Air Quality Management District
Best Available Control Technology
Scientific Review Committee Charter

(Adopted December 2016)(Amended February 1, 2019)

History

In March 1994, the SCAQMD Governing Board initiated a program to update and revise the Best Available Control Technology (BACT) Guidelines. As part of this update, the Board established requirements for public review and comment. The BACT Scientific Review Committee (BACT SRC) was created to assist SCAQMD staff with the policy issues used to develop and implement BACT procedures in the BACT Methodology Report. The BACT SRC was initially convened in July 1994 and participated in a series of public meetings. Due to their contributions to the BACT Methodology Report, the BACT SRC was officially established by the Governing Board as a standing committee on September 8, 1995 to review matters dealing with BACT.

This BACT SRC Charter has been adopted to formalize the BACT SRC membership and its role in the development of the BACT Guidelines.

Mission of the BACT Scientific Review Committee

The BACT SRC shall consist of experts in the field of air quality who shall assist and advise SCAQMD staff to ensure the BACT Guidelines are developed in a public process that is clear, consistent, and based on sound, technical information and data.

Goals

1. Contribute to the development of the BACT Guidelines through the public process;
2. Provide SCAQMD staff with technical expertise regarding issues pertinent to the proposed BACT updates; and
3. Advise SCAQMD staff to create a more certain and predictable BACT determination process.

Objectives

The BACT Scientific Review Committee shall achieve its goals by meeting periodically when BACT Guidelines updates are under development by:

1. Providing verbal and written comments to SCAQMD staff regarding proposed BACT Guidelines presented at the BACT SRC meetings;
2. Providing technical knowledge and promoting discussion regarding technologies for proposed BACT Guidelines;
3. Assisting SCAQMD staff to ensure proposed BACT Guidelines are clear and consistent with local, state, and federal air quality requirements; and
4. Advising SCAQMD staff on the development, interpretation and implementation of policies and procedures of the BACT Guidelines.

All objectives shall be achieved by members in a manner consistent with the Ethics Training pursuant to Assembly Bill 1234. In addition, the objectives shall adhere to the requirements of California Health and Safety Code 40440.11.

Membership Qualifications and Composition

The BACT SRC shall consist of up to 19 members currently or previously practicing their profession in the technical or scientific field of air quality. The original BACT SRC consisted of public and private professionals from industry, trade associations, academia, air quality practitioners, other governmental agencies, and SCAQMD Advisory personnel. The members of the BACT SRC shall consist of:

- Four members from regulated industries
- Three members from trade associations
- Five members from other governmental agencies
- Three members from academic institutions
- Four members who are air quality practitioners (industry consultants or environmental groups)

The membership will be recommended to and appointed by the Executive Officer. If a suitable member cannot be found for one of the membership categories, then that spot shall remain vacant. BACT SRC members will serve a two-year term with the possibility of being reappointed for extended two-year terms.

BACT SRC members may propose alternate members within their same organization to serve when the primary member is absent. Alternates must be approved by the Executive Officer.

SCAQMD shall post a list of BACT SRC membership on the SCAQMD website. To expedite the filling of vacancies, SCAQMD staff shall maintain a list of interested parties for the BACT SRC membership.

Operational Guidelines

Agendas for meetings will be prepared, posted and distributed to BACT SRC members and the public in accordance with legal requirements (Brown Act). Teleconference locations shall also be noticed in accordance with legal requirements. When applicable, SCAQMD staff shall provide proposed BACT Guidelines updates to the members seven days prior to the BACT SRC meeting. Proposed BACT Guidelines updates will also be made available to the attending public at the BACT SRC meeting.

During BACT SRC meetings:

- SCAQMD staff shall present proposed BACT determinations and proposed BACT Guidelines amendments, as well as address any continuing or unresolved items from the previous BACT SRC meeting,

- The BACT SRC members may comment on the proposed design, process and procedures of the BACT Guidelines, as well as contribute knowledge and experience to discuss related technical issues;
- The public will also have an opportunity to provide comments regarding the proposed BACT determinations and Guidelines updates; however,
- Past permitting decisions shall not be discussed at the BACT SRC meeting unless it is pertinent to the current proposal.

The BACT SRC meeting shall commence a 30-day public comment period for the proposed BACT Guidelines during which written comments may be submitted to SCAQMD BACT staff.

All BACT SRC members and alternates shall be required to maintain current AB 1234 biennial Ethics Training.

Reporting

The Governing Board's Stationary Source Committee shall be the BACT and BACT SRC Committee Board's liaison. SCAQMD BACT staff shall provide a report to the Stationary Source Committee once proposed amendments to the BACT Guidelines have been presented at a subsequent to each public BACT SRC meeting initiating a 30-day comment period followed by a final public BACT SRC meeting.

Brown Act

As a standing committee created by the SCAQMD Governing Board, the BACT Scientific Review Committee meetings and its membership are subject to the requirements of the Brown Act. All SCAQMD public meeting and notification protocols will be followed.

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 (CEQA)**

PROJECT TITLE: **PROPOSED AMENDMENTS TO THE BEST AVAILABLE CONTROL TECHNOLOGY (BACT) GUIDELINES AND CHARTER FOR BACT SCIENTIFIC REVIEW COMMITTEE**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and has prepared a Notice of Exemption for the project identified above.

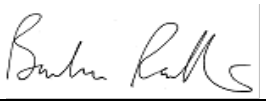
SCAQMD staff has reviewed the proposed amendments to the Best Available Control Technologies (BACT) Guidelines and the Charter for the BACT Scientific Review Committee, pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA.

Periodically, SCAQMD staff proposes amendments to the BACT Guidelines to add new or update determinations and/or policy. These actions are to add new and amended listings to Part B: Lowest Achievable Emission Rate (LAER) Determinations for Major Polluting Facilities, Part D: BACT Determinations for Non-Major Polluting Facilities and update Parts A and C, Policy for Major and Non-Major Polluting Facilities, respectively. Additionally, these actions are to amend the BACT Guidelines to reflect current SCAQMD practices in permitting and approve amendments to the Charter for the BACT Scientific Review Committee.

Since the proposed project is comprised of updates that reflect current practices of LAER/BACT determinations in the BACT Guidelines and the most current achieved-in-practice air pollution control equipment and/or processes, and make administrative amendments to the Charter for the BACT Scientific Review Committee, SCAQMD staff has determined that 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 project is considered to be exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Activities Covered by General Rule. In addition, the proposed amendments are categorically exempt because they are considered actions to protect or enhance the environment pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment. Further, SCAQMD staff has determined that there is no substantial evidence indicating that any of the exceptions to the categorical exemptions apply to the proposed project pursuant to CEQA Guidelines Section 15300.2 – Exceptions. Therefore, the proposed project is exempt from CEQA. A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 – Notice of Exemption. If the project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Any questions regarding this Notice of Exemption should be sent to Ryan Bañuelos (c/o Planning, Rule Development and Area Sources) at the above address. Mr. Bañuelos can also be reached at (909) 396-3479. Mr. Alfonso Baez is also available at (909) 396-2516 to answer any questions regarding the proposed amended guidelines.

Date: January 4, 2019

Signature: 

Barbara Radlein
Program Supervisor, CEQA Section
Planning, Rules, and Area Sources

Reference: California Code of Regulations, Title 14

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

To:	County Clerks Counties of Los Angeles, Orange, Riverside, and San Bernardino	**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 and Charter for the BACT Scientific Review Committee

Project Location: The SCAQMD has jurisdiction over 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 portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The SCAQMD's jurisdiction includes the federal nonattainment area known as the Coachella Valley Planning Area, which is a sub-region of Riverside County and the SSAB.

Description of Nature, Purpose, and Beneficiaries of Project: SCAQMD staff is proposing the following amendments to the BACT Guidelines to add new or update determinations and/or policy that reflect current SCAQMD practices in permitting and the most current achieved-in-practice air pollution control equipment and/or processes: 1) revise the Overview to add a reference to an Engineering and Permitting Division policy for the prevention of circumvention of BACT requirements for emissions increases greater than or equal to one pound per day; 2) revise Part A – Policy and Procedures for Major Polluting Facilities to add a reference to SCAQMD's Air Quality-Related Energy policy established in September 2011; and 3) revise Part B, Section I – SCAQMD Lowest Achievable Emissions Rate (LAER)/BACT Determinations for Major Polluting Facilities, to add: a) External Floating Roof Tank-Dome Installation, and b) Soil Vapor Extraction –Thermal Oxidation at 30 parts per million (ppm) oxides of nitrogen (NOx). Updates to the following major source categories are also proposed to be added to Part B, Section I – SCAQMD LAER/BACT Determinations: 1) Gas Turbines – Combined Cycle, natural gas-fired rated at 56.1 megawatt (MW) with selective catalytic reduction (SCR) and a permit limit of 2 ppm NOx, 2 ppm carbon monoxide (CO), 2 ppm volatile organic compounds (VOC) and 5 ppm ammonia slip; 2) Gas Turbines – Simple Cycle, natural gas-fired rated at 100.1 MW with SCR and a permit limit of 2.5 ppm NOx, 4 ppm CO, 2 ppm VOC and 5 ppm ammonia slip; 3) Gas Turbines – Simple Cycle, landfill gas-fired rated at 4.9 MW and a permit limit of 12.5 ppm NOx, 21.5 ppm CO and 10.5 ppm VOC; 4) Gas Turbines – Combined Cycle, digester gas-fired rated at 11.35 MW and a permit limit of 18.8 ppm NOx, 60 ppm CO, 25 ppm VOC and 10 ppm ammonia slip; 5) Gas Turbines – Simple Cycle, produced gas-fired rated at 5.6 MW and a permit limit of 5 ppm NOx, 6 ppm CO, 2 ppm VOC and 5 ppm ammonia slip; 6) Internal Combustion (I.C.) Engine – Portable, Compression Ignition rated at 123.4 horsepower (hp) with oxidation catalyst and SCR at Tier 4 Final emission standards; and 7) I.C. Engine – Emergency, Compression Ignition rated at 183 hp at Tier 3 emission standards. An update to Part B, Section II – Other LAER/BACT Determinations, is proposed for the category of Gas Turbine – Combined Cycle, natural gas-fire rated at 299.6 MW to include a listing from a permit issued by the Virginia State Air Pollution Control Board. Outdated LAER determinations are proposed for deletion from Part B, Section I – SCAQMD LAER/BACT, and Section II – Other LAER/BACT Determinations, to maintain current and up-to-date listings that reflect the latest permitted achieved in practice technologies. Part C – Policy and Procedures for Non-Major Polluting Facilities, is proposed to be revised to include a reference to SCAQMD's Air Quality-Related Energy policy established in September 2011. Also, the Maximum Cost-Effectiveness Values in Table 5 of Part C are proposed to be revised in order establish consistency with the third quarter 2018 Marshall and Swift equipment index. Updates to Part D – BACT Guidelines for Non-Major Polluting Facilities are proposed for the following categories for consistency with SCAQMD Rule 1147 – NOx Reductions from Miscellaneous Sources: 1) Boiler; 2) Fryer; 3) I.C. Emergency, Stationary, Emergency; 4) Process Heater – Non-Refinery; 5) Printing (Graphic Arts); 6) Spray Booth; 7) Aluminum Melting Furnace; 8) Brass Melting Furnace; 9) Burnoff Furnace; 10) Calciner; 11) Coffee Roasting; 12) Crematory; 13) Dryer-Kiln; 14) Dryer or Oven Tenter Frame/Carpet; 15) Fish Reduction Cooker/Dryer; 16) Fryer - Deep Fat, 17) Fryer - Non-Integrated; 18) Lead Melting Furnace; 19) Soil Vapor Extraction (Remediation) Thermal Oxidation and Zinc Melting Furnace. The following minor source categories are proposed to be added to Part D: 1) Composting subcategory: Greenwaste Composting, and 2) Thermal/Catalytic Oxidizer-Natural Gas-Fired with a subcategory of "All." Lastly, amendments are proposed to update the BACT Scientific Review Committee Charter to clarify language under the Reporting section.

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) – Activities Covered by General Rule
CEQA Guidelines Section 15308 – Actions By Regulatory Agencies For Protection Of The Environment

Reasons why project is exempt: SCAQMD staff has reviewed the proposed project pursuant to: 1) CEQA Guidelines Section 15002(k) - General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 - Review for Exemption, procedures for determining if a project is exempt from CEQA. Since the proposed project is comprised of updates that reflect current practices of LAER/BACT determinations in the BACT Guidelines and the most current achieved-in-practice air pollution control equipment and/or processes, and make administrative amendments to the Charter for the BACT Scientific Review Committee, SCAQMD staff has determined that 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 project is considered to be exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Activities Covered by General Rule. Furthermore, the proposed amendments are categorically exempt because they are considered actions to protect or enhance the environment pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment. Further, SCAQMD staff has determined that there is no substantial evidence indicating that any of the exceptions to the categorical exemptions apply to the proposed project pursuant to CEQA Guidelines Section 15300.2 – Exceptions. Therefore, the proposed project is exempt from CEQA.

Date When Project Will Be Considered for Approval (subject to change):
SCAQMD Governing Board Hearing: February 1, 2019; SCAQMD Headquarters - Auditorium

CEQA Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Mr. Ryan Bañuelos	(909) 396-3479	rbanuelos@aqmd.gov	(909) 396-3982
Rule Contact Person:	**Phone Number:**	**Email:**	**Fax:**
Mr. Alfonso Baez	(909) 396-2516	abaez@aqmd.gov	(909) 396-3253

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

Barbara Radlein
Program Supervisor, CEQA Section
Planning, Rule Development & Area Sources

ATTACHMENT J

COMMENTS AND RESPONSES TO PROPOSED AMENDMENTS OF THE BACT GUIDELINES

Public meetings were held on April 24, October 3, and December 11, 2018 with the BACT Scientific Review Committee to present and discuss the proposed amendments to the BACT Guidelines. The following comments, questions, and staff responses, are from letters and e-mails received during the 30-day comment period starting October 3, 2018.

A. Comment Letter A – Gary Rubenstein, Consultant/ BACT SRC member
B. Comment Letter B – Wayne Miller, Associate Director CE-CERT/BACT SRC member
C. Comment Letter C – Rita Loof, RadTech/ BACT SRC member

Tom Lee

From: Gary Rubenstein <gary@foulweatherconsulting.com>
Sent: Saturday, September 29, 2018 3:19 AM
To: Tom Lee; Al Baez
Cc: Gary Rubenstein
Subject: RE: BACT guidelines proposed updates

My only comment on the additional documents are as follows:

A1 Printing – Graphic Arts: did you really mean to add the new language to the PM10 column? While I understand that some of the VOCs will also be collected as PM10, I believe it would be extremely difficult to demonstrate (in practice) compliance with the requirement for a 95% PM10 control efficiency from an afterburner. If you mean this to be a design requirement for VOCs (as a surrogate for PM10), I think you could state the requirement as follows: "afterburner designed to achieve a 95% control efficiency for VOC".

Thanks, and please let me know if you have any questions.

Gary

From: Gary Rubenstein
Sent: Friday, September 28, 2018 17:40
To: Tom Lee <TLee@aqmd.gov>; Al Baez <abaez@aqmd.gov>
Cc: Gary Rubenstein <gary@foulweatherconsulting.com>
Subject: RE: BACT guidelines proposed updates

Tom – my comments are very minor:

A2 Phillips storage tank – Part 4A: the limits shown in Part 4D are throughput limits, not BACT limits. I'm not sure it's appropriate for those to be shown in a BACT determination.

A3 Tesoro SVE unit – Part 6H – BACT is being established for NOx (see Part 4A); "daily to monthly monitoring" of VOC is not relevant to the NOx BACT determination.

A4 Signal Hill Petroleum - Does the facility use any gas cleaning for the turbine fuel? If so, that should be listed in the determination in Section I.L.

I didn't have any other comments on the initial set of documents. I'll look through the remainder over the weekend and get back to you with any further comments I have.

Response to Comment Letter A (Gary Rubenstein)

Response A1:

Staff agrees that 95% PM_{10} control efficiency is difficult to demonstrate, since the reason for the afterburner requirement for PM control is to mitigate visible emissions associated with these types of presses. Staff has removed the 95% control efficiency requirement but retention time of > 0.3 sec and temperature of >1400 F will remain.

Response A2:

Staff concurs with this comment and has removed the throughput limits from the determination.

Response A3:

Staff concurs with this comment and has removed the VOC monitoring reference in Section 6H.

Response A4:

The facility does not have a gas cleanup system for the produced gas fueling the gas turbine. However, any excess gas not used by the turbine passes through a cleanup system before the gas is sold. Since this gas cleanup system is not part of the gas turbine permit, the information will not be included in the BACT determination.

Tom Lee

From: Wayne Miller
Sent: Friday, October 5, 2018 2:19 AM
To: Tom Lee; Al Baez
Subject: Re: NOTICE of BACT Scientific Review Committee meeting scheduled for Wednesday, October 3, 2018, 10am - 12noon at SCAQMD

Good meeting ...thanks for sending the link as i read and then printed off each of the cases ..

was concerned about sulfur for several cases ....and streaming sulfuric acid from the cat oxidation of ?? that we talked about ...wayne

Wayne Miller, PhD
Adjunct Professor Chem & Enviro Engr &
Associate Director CE-CERT

BACT Staff edits: Mr. Miller referred in his email to a conversation during the BACT Scientific Review Committee meeting of 10/3/2018. During the meeting he addressed concerns about the sulfur requirements for:

Comment B1: the digester gas-fired turbine at a municipal sewage plant
Comment B2: the produced gas-fired turbine at an oil and gas facility

Response to Comment Letter B (Wayne Miller)

Response B1:

For the digester gas-fired turbine, the sulfur requirement is 40 ppm fuel sulfur compounds as H_2S per SCAQMD Rule 431.1. The equipment has no additional control for sulfur other than the digester gas clean-up system. The source test showed compliance with this limit. Since this is not considered to be a BACT limit, it has not been included in the BACT determination.

Response B2:

For the produced gas-fired turbine, the only gas cleanup is moisture removal of the produced gas before it's sent to the turbine. There is no further control for SOx. The equipment needs to comply with the limit of 150 ppm SOx per 40CFR60 Subpart GG. Source test shows compliance with the limit. This is not considered a BACT limit and therefore it has not been included in the BACT determination.

November 2, 2018

Mr. Alfonso Baez
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Re: Public comments on Proposed BACT Guidelines

RadTech appreciates the opportunity to comment on the proposed Best Available Control Technology Guidelines. Our technology is pollution prevention technology and we appreciate the District's efforts to recognize it as an alternative to add-on control devices in the guidelines. We incorporate by reference our previous comments from 2016 and 2017, some of which are reiterated as follows:

Fiberglass Operations, Application-- Hand and Spray Lay up

C1 On 9/27/06 BAAQMD determined (determination previously provided) that material with a monomer content of no greater than 34 percent by weight, was achieved in practice. We urge the district to update its guidelines based on the BAAQMD determination and include UV/EB technology as an equivalent method to achieve the standard.

Spray Booth, other types

C2 On 12/16/03 BAAQMD determined (determination previously provided) that emissions controlled to overall capture/ destruction efficiency >90% was cost effective for Miscellaneous Metal Parts and Products Spray Booths with uncontrolled emissions of greater than or equal to 50 lbs/day. The determination notes that the typical technology is low VOC coatings. Furthermore, for operations with uncontrolled emissions of 50 lbs/day or greater, BAAQMD determined that 90% control was achieved in practice. We urge the district to update its guidelines to reflect the BAAQMD determinations and include UV/EB technology as an equivalent strategy to achieve 90% emissions control for the category of "Spray Booth, other types".

Spray Booth, Wood

C3 There are current operations in the SCAQMD using UV technology that have yet to be reflected in the BACT Guidelines a couple of examples are listed below:

C3

Excel Cabinets, Inc.	Application # 450588	11/26/05
Head West Inc.	F80114	01/12/06

Lithographic Printing

C4

There are various UV lithographic printing operations in the SCAQMD, some of which are summarized below. We urge the district to reflect this information by including them in the guidelines.

Company Name	AQMD Permit #	
Holiday Printing & Lithograph Inc.	F32751	07/25/00
Westminster Press	F15320	08/11/98
K & D Graphics, A California Corp.	F24307	02/09/00
Jaco Printing Corp, Business Forms Press	D53533	05/21/92
Jaco Printing Corp, Business Forms Press	F15651	11/24/98
Jaco Printing Corp, Business Forms Press	F15651	11/24/98
Royal Paper Box Co.	D92649	08/10/95
Creative Mailings Inc.	F31957	06/21/00

C5

Additionally, we believe the following categories should be considered as UV/EB technology is currently available for these applications:

--Metal Parts and Products
--Inkjet Printing
--Semiconductor manufacturing
--Motor Vehicle coating, including repair
--Flexible and Rigid disk manufacturing
-- On site floor finishing
-- Plastic coatings
-- Paper/paperboard coatings
--3d Printing
--Adhesives

We look forward to a continued collaboration with the district. Please let me know of any additional assistance our association can provide.

Sincerely

Rita M. Loof
Director, Environmental Affairs

Cc: SCAQMD Board members, Mr. Wayne Nastri

Response to Comment Letter C (Rita Loof)

Response C1:

Staff appreciates brining this BACT/LAER determination to our attention. BACT staff has been in communication with BAAQMD and SCAQMD staff regarding this BACT determination for Polyester Resin Operation- Hand and Spray Layup on how the monomer content limits in BAAQMD's Reg. 8, Rule 50 compare with SCAQMD's Rule 1162. BAAQMD staff indicated that this BACT determination was based on a minor source achieved in practice however, a recent determination found that the 34% monomer content was not appropriate in all cases (e.g. fire-retardant materials). In addition, BAAQMD staff believes that SCAQMD's BACT guidelines for resin manufacturing are more stringent. Staff will continue to investigate the use of UV/EB technology for this type of application which may lead to the establishment of a LAER determination or MSBACT.

Response C2:

Staff appreciates brining this BACT/LAER determination to our attention. SCAQMD's BACT Guidelines, Part B for major sources currently lists several LAER determinations for Spray Booth –Coating of Metal parts and products with an overall capture/destruction efficiency >90%. For potential minor source (MS)BACT determination applicability staff has been in communication with BAAQMD and SCAQMD staff regarding this BACT determination. Staff is also investigating the use of UV/EB technology as a potential equivalent strategy to achieve 90% emissions control for the MSBACT category of "Spray Booth, other types".

Response C3:

These two achieved in practice permitted operations are from minor source facilities subject to Part D of the BACT Guidelines for MSBACT. Although only the Head West, Inc. permitted coating system includes a permit condition to only use UV coatings, staff will conduct research on both achieved in practice operations to determine potential for establishing MSBACT.

Response C4:

All these achieved in practice lithographic printing operations are from minor source facilities subject to Part D of the BACT Guidelines for MSBACT. These UV lithographic printing operations are in compliance with the current applicable MSBACT which was amended in 2/2/18 to allow the use of UV-curable Inks as a form of MSBACT compliance.

Response C5:

Staff will conduct research regarding the availability of UV/EB technology for these categories to identify achieved in practice permitted operations. The research will include the availability of cost data for cost-effectiveness analysis to determine compliance with state law in establishing MSBACT.

ATTACHMENT K

Amend BACT Guidelines and Charter for BACT Scientific Review Committee

Governing Board Meeting
February 1, 2019

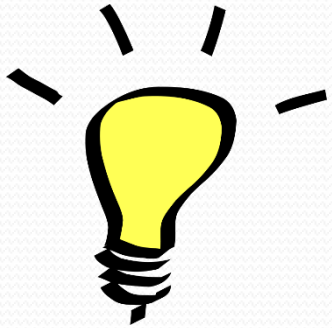
Background / Public Process

- **BACT Guidelines updated and approved at February 2018 Board meeting**
- **Held three public BACT SRC meetings, April 24, October 3 and December 11, 2018, with one 30-day comment period**
- **Received 3 comment letters with total of 10 comments**

Proposed Updates to Overview

- **Referencing Engineering & Permitting policy preventing circumvention of BACT requirement for emission increases ≥ 1 lb/day.**
- **Cumulative emission increases that equal or exceed 1 lb/day (nonattainment air pollutant, O_3 depleting compound or ammonia) within a 5-year period will be subject to BACT.**

Proposed Updates to Parts A and C – Policy for Major & Minor Facilities



- Include by reference SCAQMD air quality-related energy policy
- Updated maximum cost-effectiveness values in Table 5 (M&S Index 3rd quarter 2018)

Proposed Deletions of Outdated Part B Sections I & II LAER Determinations

- Aluminum melting
- Boiler
- Oven
- Dryer, Tenter Frame
- Gas Turbine
- Heater
- I.C. Engine (Landfill, Digester Gas, Emergency, Non-Emergency & Portable
- Lithographic Printer
- Spray Booth

New Proposed Part B, Section I, SCAQMD LAER/BACT Determination

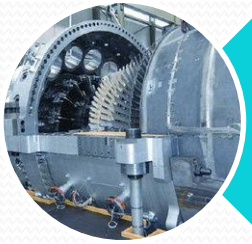
External Floating Roof Storage Tank

- Installation of Dome
- 14,000 BBL, 79,000 BBL, 165,252 BBL and 615,000 BBL

Soil Vapor Extraction

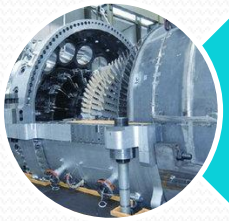
- Achieved in practice Thermal Oxidation 30ppm NOx
- Applies to burner emissions only
- Gasoline Storage facility

Proposed Part B, Section I, SCAQMD LAER/BACT Determination Update



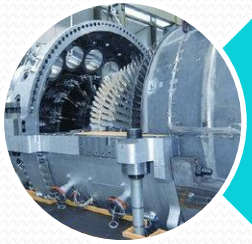
Gas Turbine Combined Cycle

- 2 ppm NOx/ 2 ppm CO/ 2 ppm VOC/ 5 ppm NH_3 excludes start-up & shutdown



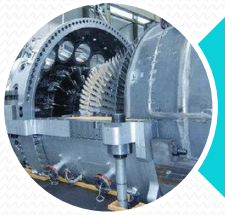
Gas Turbine Landfill Gas

- 12.5 ppm NOx, 10.5 ppm VOC, 21.5 ppm CO excludes start-up & shutdown



Gas Turbine Simple Cycle

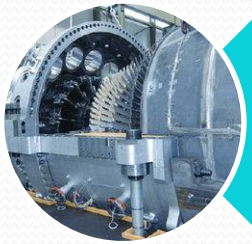
- 2.5 ppm NOx, 2 ppm VOC, 4 ppm CO, 5 ppm NH_3 excludes start-up & shutdown



Gas Turbine Digester Gas

- 18.8 ppm NOx, 25 ppm VOC, 60 ppm CO, 10 ppm NH_3 excludes start-up & shutdown

Proposed Part B, Section I, SCAQMD LAER/BACT Determination Update



Gas Turbine Produced Gas

- 5 ppm NOx, 2 ppm VOC, 6 ppm CO, 5 ppm NH_3 excludes start-up & shutdown

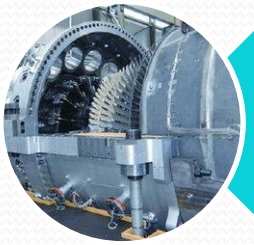
I.C. Engine Portable

- Tier 4 emission standards compliant
- 123.4 BHP

I.C. Engine Emergency Fire Pump

- Tier 3 emission standards compliant
- 183 BHP

New Proposed Part B, Section II, Other LAER/BACT Determination



Gas Turbine
Combined Cycle

- Virginia State APCB
- 2ppm NOx 1 hr. avg. / 1.5ppm CO 1 hr. avg. w/o duct burner
- Three natural gas-fired gas turbines generators (3,227MM Btu/hr ea) with duct-fired heat recovery steam generator (500MM Btu/hr) providing steam to common steam turbine generator

New Proposed Part D, Minor Source, BACT Determinations

Thermal Oxidizer – various applications

- 30 ppm NOx @ 3% O2 for burner only - excludes Tank Degassing/SVE/Vapor Incinerators
- Cost effectiveness studies

Fryer – Deep Fat

- Added sub-category; Non-Integrated Direct and In-Direct Oil Heater (60 ppm NOx) compliance with Rule 1147

Composting

- Adding new subcategory of Greenwaste Composting - compliance with Rule 1133.3

Boiler

- ≥20 MM Btu/hr and <75 MM Btu/hr, (Group 2) - Compliance with Rule 1146 for NOx (5ppm)

Proposed Part D, Minor Source, BACT Determination Update correction

Process Heater Non-Refinery

- Subcategory: Natural Gas or Propane Fired ≥20 MM Btu/hr - correction of Rule 1146.1 applicability

Printing (Graphic Arts)

- Lithographic or Offset, Heatset and Non-Heatset - venting to afterburner correction

Spray Booth

- <660 corrected to <667 lbs/month

I.C. Engine, Stat., Emer. CI Other, 100≤HP<175

- PM correction to 0.15 grams/bhp-hr/0.20 grams/kW-hr consistent with CARB ATCM and Rule 1470

New Proposed Part D, Minor Source, BACT Determination Update

COMPLIANCE WITH RULE 1147

- Aluminum melting Furnace
- Brass Melting Furnace
- Burnoff Furnace
- Calciner
- Coffee Roasting
- Crematory
- Dryer-Kiln
- Dryer or Oven tenter frame/carpet
- Fish Reduction cooker/dryer
- Fryer- Deep Fat Non-Integrated
- Lead Melting Furnace
- Soil Vapor Extraction (remediation), thermal oxidation
- Zinc Melting Furnace

30 ppm/60 ppm NOx limit depending on operating temperature

Proposed Update/Clarification to BACT SRC Charter

- Once proposed amendments to the BACT Guidelines have been presented at a public BACT SRC meeting there is a 30-day comment period followed by a final public BACT SRC meeting.

Making BACT Guidelines User Friendly

- New Equipment Search Links added to BACT Guidelines webpage - Search by Publish Date or Equipment/Process Category or Subcategory

Key Issues

- **Transparency of BACT update process**
  - **3 BACT SRC meetings, 30-day public comment periods**
- **Develop more specific BACT determinations**
  - **Staff will review future major and minor LAER/BACT determinations for case specific applicability based on operation and cost**
- **Permitting policy**
  - **Outside scope of BACT Guidelines policy**

Recommended Actions

- **Determine that the proposed amendments to the BACT Guidelines and Charter for the BACT Scientific Review Committee are exempt from CEQA**
- **Approve Proposed Amendments to the BACT Guidelines**
- **Approve Proposed Amendments to BACT SRC Charter**