COMMENTS AND RESPONSES TO PROPOSED AMENDMENTS OF 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.

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

[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.

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

CALCULATION PROCEDURES FOR EMISSION INCREASES

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

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

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

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

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

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

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

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 an 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.

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 (2nd Quarter 2016~~8~~)

Pollutant	Average (Maximum $ per Ton)	Incremental (Maximum $ per Ton)
ROG	30,231~~28,460~~	90,694~~85,380~~
NOx	28,585~~26,910~~	85,606~~80,590~~
SOx	15,116~~14,230~~	45,347~~42,690~~
PM_{10}	6,735~~6,340~~	20,055~~18,880~~
CO	599~~560~~	1,721~~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.

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

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

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

yellow highlights = new deletions since 10/3/18 SRC meeting

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

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:	**March 22, 2018**

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
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: 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:

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: 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	SEE PART 4D					
Averaging Time						
Correction						

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

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

D. EMISSION INFORMATION COMMENTS:

5. CONTROL TECHNOLOGY

A. MANUFACTURER: 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: There are monitoring requirements for throughput but none is required for the dome roof.

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: **March 8, 2018**

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: This is a burner only requirement when running on natural gas.

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:

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

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.: **579955**

Equipment Category: **Gas Turbine**

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

Date: **March 8, 2018**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: General Electric	B. MODEL: LM6000 PG SPRINT
C. DESCRIPTION: Combined Cycle with SCR, Oxidation catalyst, water injection and Steam Turbine (ST-5), Shinn Nippon, model C8-R11-RX	
D. FUNCTION: The City of Pasadena owns and operates the Glenarm Power Plant in Pasadena. This newly installed unit is identified as Gas Turbine 5 (GT-5).	
E. SIZE/DIMENSIONS/CAPACITY: Generator serving GT-5 is 56.1MW and 14.7MW for ST-5	
COMBUSTION SOURCES	
F. MAXIMUM HEAT INPUT: 547.5 MMBtu/hr HHV 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
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: Pasadena City, DWP	B. FAC ID: 800168
C. ADDRESS: 72 E. Glenarm Street CITY: Pasadena STATE: CA ZIP: 91105	D. NAICS CODE: 221112
E. CONTACT PERSON: Dan Angeles	F. TITLE: Principal Engineer
G. PHONE NO.: (626) 744-7598	H. EMAIL: E-mail address of contact person

3. PERMIT INFORMATION

A. AGENCY: SCAQMD	B. APPLICATION TYPE: NEW CONSTRUCTION
C. SCAQMD ENGINEER: Li Chen	
D. PERMIT INFORMATION: PC ISSUANCE DATE: 5/4/16 P/O NO.: G50946 PO ISSUANCE DATE: 3/1/2018	
E. START-UP DATE: 7/4/2016	
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	2 PPMV	2 PPMV		2 PPMV		5 PPMV NH3
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, Water Injection and Intercooler Tuning (WIIT), 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:
NOx: 28.68 lbs. {The mass emission limit shall be determined for START-UP using CEMS minute by minute emission data. It shall be calculated to 120 minutes from the commencement of initial fire in the combustor.}
NOx: 11.78 lbs. {The mass emission limit shall be determined for SHUTDOWN using CEMS minute by minute emission data. It shall be calculated to 60 minutes counted back from the cessation of firing.}
NOx: 9.80 lbs. {The mass emission limit for the alternate compliance demonstration shall be determined for SHUTDOWN using CEMS minute by minute emission data. It shall be calculated from initiation of the SHUTDOWN sequence to the cessation of firing.}

CO: 23.61 lbs. {The mass emission limit shall be determined for START-UP using CEMS minute by minute emission data. It shall be calculated to 120 minutes from the commencement of initial fire in the combustor.}
CO: 9.90 lbs. {The mass emission limit shall be determined for SHUTDOWN using CEMS minute by minute emission data. It shall be calculated to 60 minutes counted back from the cessation of firing.}
CO: 8.70 lbs. {The mass emission limit for the alternate compliance demonstration shall be determined for SHUTDOWN using CEMS minute by minute emission data. It shall be calculated from initiation of the SHUTDOWN sequence to the cessation of firing.}

5. CONTROL TECHNOLOGY

A. MANUFACTURER: Haldor Topsoe (SCR) & Emerachem (Oxidation Catalyst)	B. MODEL: GT-301 (SCR) & ADCAT (Oxidation Catalyst)

C. DESCRIPTION: Aqueous ammonia injection grid

D. SIZE/DIMENSIONS/CAPACITY: SCR catalyst volume 848 cu.ft. / Oxidation Catalyst fixed bed platinum, volume 100 cu.ft.

E. CONTROL EQUIPMENT PERMIT INFORMATION:

APPLICATION NO. 538120 PC ISSUANCE DATE: 5/4/16
PO NO.: G50947 PO ISSUANCE DATE: 3/1/2018

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: December 5-8, 2016

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: NOx, CO & VOC tested at 50%, 75% and 100% load. PM & SOx tested at 100% load.

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

H. MONITORING AND TESTING REQUIREMENTS: Source testing every 3 years pursuant to Permit Condition D29.2 and CEMS for NOx and CO.

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

7. ADDITIONAL SCAQMD REFERENCE DATA

A. BCAT: 033709	B. CCAT: 81	C. APPLICATION TYPE CODE: 60
D. RECLAIM FAC? YES ☒ NO ☐	E. TITLE V FAC: YES ☒ NO ☐	F. SOURCE TEST ID(S): R17063
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: **January 2, 2018**

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:

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, Landfill Gas**

Date: **June 30, 2017**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Solar Turbines	B. MODEL: Mercury 50
C. DESCRIPTION: Simple Cycle (No. 4) , 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. This is one of five identical units at this location, all are simple cycle with no energy recovery, and all exhaust gases leave the exhaust stack. 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
Enter additional burner types, as needed, add extra rows		

H. PRIMARY FUEL: LANDFILL 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 a landfill gas clean 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 Deidrich	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: 4/8/15 P/O NO.: G47200 PO ISSUANCE DATE: 6/30/2017	
E. START-UP DATE: 11/30/2015	
F. OPERATIONAL TIME: 2.5 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	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: **October 4, 2017**

1. EQUIPMENT INFORMATION

A. MANUFACTURER: Solar Turbines	B. MODEL: Mars 100
C. DESCRIPTION: Combined Cycle (No. 2) with SCR, Oxidation catalyst and Steam Turbine	
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
Enter additional burner types, as needed, add extra rows		

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 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.

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

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: **March 27, 2009**

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 NH3
Averaging Time	1 HOUR	1 HOUR		3 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 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 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.: **504556**

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

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

Date: **September 29, 2010**

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: 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: 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: **August 30, 2017**

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: E-mail address of contact person

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: **June 17, 2014**

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)		5 PPMV **NH_3** (with & w/o Duct Burner)
Averaging Time		1 HOUR		1 HOUR		1 HOUR
Correction		@ 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 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.

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

XX-XX-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 (XX-XX-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
XX-XX-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 (XX-XX-2019)					Compliance with SCAQMD Rule 1133.3 (XX-XX-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
XX-XX-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 (XX-XX-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% O2 ≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000)
Natural Gas or Propane Fired, ≥ 75 MM Btu/HR		Compliance with SCAQMD Rule 1146 (12-02-2016)	Natural Gas (10-20-2000)	Same as above. (04-10-98)	Natural Gas (04-10-98)	With Add-On Controls: ≤ 5 ppmvd NH3, corrected to 3% O2

	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOx[1]**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
						≤ 1 ppmvd ozone, corrected to 3% O2 (10-20-2000)
Oil Fired[3]		Compliance with SCAQMD Rule 1146 or 1146.1 (10-20-2000)	Fuel Sulfur Content ≤ 0.0015% by weight (10-03-2008)	≤ 50 ppmvd for firetube type ≤ 100 ppmvd for watertube type, corrected to 3% O_2 (04-10-98)		
Atmospheric Unit, ≥ 2 and ≤ 10 MMBtu/HR		Compliance with SCAQMD Rules 1146 and 1146.1 (12-02-2016)		Compliance with SCAQMD Rules 1146 and 1146.1 (12-02-2016)		
Landfill Gas Fired, < 75 MMBTU/Hr		Compliance with SCAQMD Rules 1146 and 1146.1 (12-02-2016)		≤ 100 ppmvd at 3% O_2 dry. (04-10-98)	≤ 0.1 gr/scf at 12% CO_2 (Rule 409) (04-10-98)	
Digester Gas Fired, < 75 MMBTU/Hr		Compliance with SCAQMD Rules 1146 and 1146.1 (12-02-2016)		≤ 100 ppmvd at 3% O_2 dry. (04-10-98)	≤ 0.1 gr/scf at 12% CO_2 (Rule 409) (04-10-98)	

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

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

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

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

Equipment or Process: Process Heater – Non-Refinery

	Criteria Pollutants					
Subcategory/Rating/ Size	**VOC**	**NOx** ~~1)~~	**SOx**	**CO**	**PM10**	**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)~~ (XX-XX-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)

(Continued on next page)

		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)

(Continued on next page)

		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) 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 (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: 0.230 grams/kW-hr (0.1522 grams/bhp-hr) ~~(10-03-2008)~~ (2-1-2019)
	175≤ HP < 300			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: 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)
	300≤ HP < 750			Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 4.0 grams/kW-hr (3.0 grams/bhp-hr) (7-14-2006)		Compliance with SCAQMD Rule 1470 (12-02-2016) Tier 3: 3.5 grams/kW-hr (2.6 grams/bhp-hr) (7-14-2006)	Compliance with SCAQMD Rule 1470 (12-3-2004) Tier 3: 0.20 grams/kW-hr (0.15 grams/bhp-hr) (7-14-2006)

(Continued on next page)

		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

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

10-20-2000 Rev. 0
12-5-2003 Rev. 1
7-14-2006 Rev 2
2-2-2018 Rev 3
XX-XX-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; ~~95% Overall Efficiency)~~ ~~(10-20-2000)~~(2/1/2019)	
Control	Oven Venting to an Afterburner (≥ 0.3 Sec.	Compliance				

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

	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. (XX-XX-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.

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

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 (XX-XX-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.

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

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 (XX-XX-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 (XX-XX-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 (XX-XX-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.	

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

Equipment or Process: Brass Melting Furnace

	Criteria Pollutants					
Subcategory/ Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Crucible, ≤ 300 Lbs/Hr Process Rate		60ppm Compliance with Rule 1147 (XX-XX-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 (XX-XX-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 (XX-XX-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 (XX-XX-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
XX-XX-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 (XX-XX-2019) ~~Natural Gas (07-11-97)~~	Natural Gas (07-11-97)		Natural Gas (07-11-97)	

10-20-2000 Rev. 0
XX-XX-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 (XX-XX-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 (XX-XX-2019) ~~45 ppmv, Dry, Corrected to 3% 0_2 (1988)~~	Natural Gas (1988)		Natural Gas with Baghouse (1988)	

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

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 (XX-XX-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 (XX-XX-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
XX-XX-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 (XX-XX-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Natural Gas with Secondary Combustion Chamber, ≥ 1500 °F (1990)	

10-20-2000 Rev. 0
XX-XX-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 (XX-XX-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
XX-XX-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 (XX-XX-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 (XX-XX-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 (XX-XX-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 (10-20-2000)		Natural Gas (10-20-2000)	

		Rule 1147 (XX-XX-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
XX-XX-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 (XX-XX-2019)				
Digestor, Evaporator and Acidulation Tank	Afterburner (≥ 0.3 Sec. Retention Time at ≥ 1200 °F) (1990)	Compliance with Rule 1147 (XX-XX-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 (XX-XX-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.

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

Equipment or Process: Fryer – Deep Fat

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Integrated Afterburner/Oil Heater < 2 MM Btu/hr	~~Integrated Afterburner/Oil Heater (~~≥ 0.3 Sec. Retention Time at ≥ 1400 °F~~)~~ ~~(10-20-2000)~~(XX-XX-2019)	Natural Gas (1990)	Natural Gas (1990)		~~Integrated Afterburner/Oil Heater (~~≥ 0.3 Sec. Retention Time at ≥ 1400 °F~~)~~ ~~(10-20-2000)~~ (XX-XX- 2019)	
Integrated Afterburner/Oil Heater ≥ 2 MM Btu/hr	~~Integrated Afterburner/Oil Heater (~~≥ 0.3 Sec. Retention Time at ≥ 1400 °F~~)~~ ~~(10-20-2000)~~ (XX-XX-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)~~ (XX-XX- 2019)	

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

10-20-2000 Rev. 0
XX-XX-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 (XX-XX-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 (XX-XX-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 (XX-XX-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 - Natural Gas Fired (burner only)

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

10-20-2000 Rev. 0
XX-XX-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 (XX-XX-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 (XX-XX-2019) ~~Natural Gas (1990)~~	Natural Gas (1990)		Same as Above (10-20-2000)	
Reverberatory, Sweating Operations		60ppm Compliance with Rule 1147 (XX-XX-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 (XX-XX-2019) ~~Natural Gas~~ ~~(1990)~~				

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

(Adopted December 2016)(Amended January #, 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.